An Exploratory Analysis of Learning Management System as an Emerging ICT tool in India

Zameer Gulzar and Dr.A. Anny Leema

Abstract--- *The changing face of education and technology has given birth to various innovations, and today the best Technologies available in market for education are in various forms. The main task is to involve and determine how to make an optimum use of available technology resources to enhance student learning. Learning Management System is surely one such advancement that is taking education to the next level. As E-learning is widely implemented in corporate world through Learning Management System it is being used inadequately in all higher educational Institutions in India. The Learning Management System has been established in a number of Institutions to connect students and lecturers without the confines of the traditional classroom and retains positive effect among the students wherever it is employed. Earlier studies have shown the impact of using Learning Management System in the higher learning environment in various universities worldwide. Indian Educational institutes are also willing to adapt LMS in teaching & learning process, but the lack of resources and other critical factors restrict them to use Learning Management System to its full potential. Therefore, this paper is an attempt to provide insights of the Learning Management System as a promising information and communication tool in Indian classrooms with the help of Content Analysis Methodology.*

Keywords--- *E-learning, Information and Communication Tools, Learning Management System, Portal*

I. INTRODUCTION

THE Learning Management System or LMS is a set of software tools (toolbox of programs) intended to support teaching, learning and course administration in order to deliver, to track and to managing education and online training (Dutton, et al,(2004) Bongalos, et al,(2006); Garrote R, 2009;)

In community of higher Institutions LMS is an online Portal that connects lecturers and students. It provides an avenue for Classroom materials or activities to be shared easily (N.A. Adzharuddin and L.H. Ling, 2013). It enables lecturers and students to interact out of the classroom, having

discussions through forums that could otherwise take up too much of the time supposed to be spent learning in the classroom.

The educational system in India is currently undergoing a massive transformation as a result of the e-revolution. Due to the rapid expansiveness of Internet technology and its wide Variety of uses the incorporation of LMS in education has become a viable and inexpensive option (Zameer.G, 2014). As a result, it is becoming increasingly clear that the World Wide Web presents a challenge to traditional or formal education. Internet is transforming the way we access information ,and there is an informed speculation , the changing way in which today's younger generation learn and communicate, and the way they create, not just their community networks, but their identities as social Person

(Sherry Turkle,1995). Nowadays Information is at the finger tips for everyone and it no longer remains a goal for educators now because with the advancement of Internet and services provided on it has changed the way educators teach and students used to learn.

The University student of today is accustomed to receiving information in a variety of formats on day by day, which can really present a challenge to educators wishing to engage students in order to enhance learning outcomes. Therefore, the traditional text based approach to learning is being superseded by Internet, ICT tools which open the doors for next generation of learning known as E-Learning (Gregory ,et al , 2007).Most of the universities (IIT', IIMA, Private and state level Universities) and Colleges have started adopting LMS to support E-learning.

Figure 1: Basic Multichannel E-learning Architecture

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E-learning is the use of different electronic Medias, educational technology and information and communication technologies (ICT) in education and can occur in or out of the classroom (Ellis, Ryan K., 2009). E-Learning enables you to use technology (Fig.1), tools and devices like internet, learning management systems (LMS) and CD's to create interactive learning environment and materials that increase process of information sharing, increased productivity through increased knowledge retention.

II. INTERNET PENETRATION IN INDIA

Indian Educational system is in a state of transition from a conventional model to a new one where technology

Plays an important role to advance higher education by efficiently & intelligently using information technology. However, technology has not yet transformed education, although many institutions like IIT's, and several other Colleges have put in place learning technology (E-Learning) and faculty development initiatives. A report released by IAMAI (Figure 2.) suggests that India's total internet subscribers increase from 137 million in 2012 to 2.75 million (Est.) as of Oct. 31, 2014 and may touch 3.5 million target by the end of year 2015(Est). The report also reveal that India is now world's third largest Internet base as India has breached 200 million internet users mark. As of December, June 2014, India has 2.5 million Internet users, compared to 2.7 million users from US and 300 million users from China. The report released by further states that more than 50% of the urban internet users access Internet daily. This analytic conclusion has been arrived at based on reasons like higher internet dissemination rate in India, which leads to increased adaptability for E-learning setup. It can be seen that internet users in India are growing at a CAGR of 20%. As a result the number of internet users in India is supposed to reach the figure of 700 million by 2019.

Figure 2: Internet Users in India (2014)
(Source IMAI and IMRB)

III. WHY E-LEARNING

3.1. Teaching Learning Model

A simple model can be described as supporting the key activities in teaching and learning. We can see the relationship between teacher and pupil at the centre of the model. The faculty gets basic information, knowledge and Learning resources to construct learning experiences based on the pedagogy & curriculum which are established upon activities or tasks and assessment opportunities. The recording progress systems of the administration support and maintain all these activities. The component which acts as an interface between the learner and other elements of the system is delivery system. The basic idea is that an LMS in a higher education institutes should assist the process of teaching and learning process, rather than by replacing it.

Figure 3: Teaching & Learning Model

3.2. Growing Demand for Education

According to the report of the HRD ministry the present rate of students going for higher education is only 15.4 %. In order to increase GER (gross enrolment ratio) from 15.4% to 30% by the year 2020 it would need another 800-1000 universities and over 40,000 colleges in the next 6, which is rather impossible or difficult to achieve because two-third of Indian colleges and universities are below standard (ASHE, 2013). The Continuing growth in higher education enrollments will demand an even greater reliance on learning online. E-learning also has an impact on knowledge utilization and acquisition, and hence on Knowledge management (I. M. Shehabat, and S. A. Mahdi, 2009). Undoubtedly the temporal flexibility, potential for reduced attendance expense and geographic reach afforded by online education will continue to appeal to large numbers of students and higher education institutions (Appana .S , 2008). As such, it will be even more important that higher education institutions be positioned to meet the needs of online learners, both to ensure student access as well as to remain competitive at par with relative peer institutions (Green, K., 2010). It would be Easy to reach to the masses even in rural areas to achieve the targeted GER by seeing the growth of internet penetration in India which would in turn help in becoming knowledge Economy Country. Studies have proven that E-learning has the capability to provide quality environment for future education. Moreover, there are some gaps in the current E-learning procedure and Work is being done to make it more practicable and

systematic via ICT tools like LMS. The Objectives from Governments stand Point is all about:

- Raising standards of Education , Improving its quality and Up-skilling in the workplace
- To eliminate barriers to learning and participation and thus Preparing People for employment.
- Every learner should achieves their potential

The use of e-learning will also address some of the wider issues such as:

- Potential to overcome barriers - Place, Pace, Time.
- Wider participation - removing distance barrier.
- ICT support tools - assistance for learning and physical disabilities.
- Ability to modify learning to individual needs

IV. UNDERSTANDING LMS

Figure 4: Modules of LMS

LMS is the framework that handles all aspects of the Administering, teaching and learning process. An LMS is a robust, web based software application which was developed to support E-learning by administrating, documenting, tracking, reporting and delivering E-learning education courses or training programs (Katarzyna.M and Jerzy.R, 2010).

LMS administers instructor-led and e-learning courses and keeps track of student's progress. LMS is considered the most important and effective tool for ICT enabled teaching-learning process through E-learning. Some well-known example of LMS includes Blackboard, Moodle, and Sakai etc. LMS connects learning contents and learners together in a standardized manner.

A Robust LMS Systematic is able to do the following (Mishra. S, 2009).

- To automate and centralize the administration.
- Make use of self-service and self-guided services.
- To assemble and to deliver learning content rapidly
- To bring together or to consolidate training initiatives on a scalable Web-based platform.
- To Support portability and standards.

- To enable knowledge reuse by personalizing the content.

The effective use of LMS requires adequate training in the software and a deep understanding of instructional design, to plan, develop, and implement online courses or programs systematically.

Figure 5: LMS Working Scenario

V. LMS IN INDIA

LMS vendors are trying to cater the market needs of Indian educational system , but due to certain factors (Cost of LMS, Infrastructure, Social difficulties, flexibility issues, Resistance from Faculties etc) make journey a bit difficult for them and to achieve their objectives. Most of the reputed institutions in India prefer Open Source LMS because of the Huge Investment and Infrastructure issues. Institutes knowing the benefits of E-learning though using Open LMS have started using it. IIT Delhi has put an initiative to offer distance education to start graduate level courses in various disciplines to the students of Addis Ababa University, Ethiopia. IIT Delhi is Currently Offering Four programmes (Computer Engineering and Manufacturing Engineering, Construction Technology and Management, Chemical Engineering and Electronics) in the academic year 2008-2009. (Source, www.cc.iitd.ernet.in, 2014) IITK using LMS Brihaspati2 - Virtual Classroom, take a key role in implementing the objectives of the national mission programme. NMEICT in association with IIT Kharagpur is executing "T10KT"(Train 10 thousand teacher), a National Programme on Technology Enhanced Learning (NPTEL), Virtual Laboratory and Pedagogy Research, as major projects. IIT Kharagpur also provides its support to different Engineering Colleges in East and North - East India in order to set up more Remote Centre's and encourages greater participation in the process of learning. (Source, www.nmeictmoodle.iitkgp.ernet.in/moodle, 2014).

Both reputed institutes IIT Kharagpur and IIT Bombay are working in collaboration to "Train 10 thousand teachers" which was a major initiative under the NMEICT scheme, to improve the technical and teaching skills of engineering college teachers of the country for core Engineering and Science subjects. Under this programme, two-week ISTE workshops were held during the vacation period in summer and winter. On-line lectures were given by IIT faculty. The participating teachers were asked to gather gathered at a remote center close to their own college to be able to attend to watch lectures, tutorial and lab sessions live conducted in the same remote center (Source, www.it.iitb.ac.in/moodle, 2014) Learning Management System (LMS) software has now come to IIM-Bangalore and Christ University which have transferred some classroom activity to online learning. IIT Hyderabad ,IIMA Bangalore ,Amity ,Sharda ,PPU ,Tanvas , are some universities conducting E-learning courses ,besides some colleges and schools like DBIT,KOGNU ,PAAVAI , DPS,DENVER etc. were also involved in the same activities and improving with time.

Table I: List of Some Universities Using LMS

University Name	Web Portals
IIT Bombay	www.it.iitb.ac.in/moodle
IIT Madras	http://www.cse.iitm.ac.in/moodle/
IIT Hyderabad	https://moodle.iith.ac.in/
IIT Kharagpur	www.nmeictmoodle.iitkgp.ernet.in/moodle/
IIT Delhi	http://www.cc.iitd.ernet.in/
IIT Kanpur	http://brihsvn.iitk.ernet.in:8080/brihaspati
Delhi University	http://vle.du.ac.in/
Mizoram University	http://moodle.mzuonline.in
University of Hyderabad	http://moodle.uohyd.edu.in/index.php/about
Delhi University	http://vle.du.ac.in/
Goa University	http://goalnet.unigoa.ac.in/
Amity University	http://amityelearning.com/amityelearning/WebForms/AmityOnlineNew/faq.aspx

Almost 45 universities (Central, State, Deemed, Private, IIT) are using open source LMS (Moodle). Some of the prominent Indian Universities like Amity University , Birla Institute of Technology and Science, Delhi University, University of Madras, IGNOU etc., are working on an initiative of India & African Union for Providing adequate educational facilities and affordable healthcare to citizens are few prominent concerns for developing countries. Improvement in Technology in terms of communication and infrastructure in order to deliver quality education and medical facilities, across the extents of the country are a key factor in their Success and progress as well. Besides that Innovation Theory by Roger suggests that five characteristics of a technology determine the acceptance and diffusion of new technology being introduced: (E. M. Rogers, 1962).

- Relative advantage (the extent to which it offers Improvements over available tools),
- Compatibility (its consistency with social practices and norms among its users),
- Complexity (its ease of use or learning).
- Trial ability (the opportunity to try an innovation before
- Committing to use it).
- Observability (the extent to which the technology's gains are clear to see).

In particular, three of these characteristics are regarded as Having the highest impact: relative advantage, compatibility and lack of complexity (A. Dillon, 2001) Implementations of LMS in any Educational Institute cause reconstitution of roles for its faculty members (Govindasamy T , 2002). Therefore, faculties must be given adequate time to transform their pedagogy from traditional to new one and the collaborative work may be suggested to overcome this complexity, with some internal members specializing in different aspects of e-learning (J. Rutkowski and K. Moscinska,2010).

VI. CONCLUSION

The basic advantage of e-learning in education is significant for all stakeholders. Students gain access to world-class educational resources without consuming excessive time from work and home. Universities administrations generate revenue sources from students who might otherwise be unable to take advantage of new ICT tools. Faculties can learn new skills and. Governments have new means to raise the quality of education and life for their citizens which provides more qualified skilled and adaptive labours which in turn can provide knowledge economy for a country. The comprehensive choice of ICT for educational development can be built only on a sound policy, then we may see a dream called "Digital India "to come true which was launched on 15th of August, 2014 by our PM. Teachers need to understand how LMS work and how they change the basic interactions of teachers and learners Teachers need to push for a more expansive view of education reform. . One of the many problems faced by faculties today is that no adequate Steps have been taken in order to integrate the use of technology into curriculum in a meaningful way. Therefore, Institutions have to ensure availability; reliability and accessibility of LMS such that every lecture room and staff offices have computers linked to Internet and has appropriate equipment for accessing a range of electronic resources. Training should be given to lecturers and other staff members in on integration of Open source LMS in instruction. College lecturers should be exposed to series of training and development skills in the use of these high technology facilities. Adequate, experienced and competent technical staff for LMS must be made available if any problem arises. Funds which are disbursed from all the means should be utilized toward sustainability of LMS integration and application efforts. Most of the Universities and Colleges are using Learning Management System (LMS) for Course material distribution only which is not enough what LMS can provide. E-learning Concept has produced a new dimension in Indian higher education, both within and beyond the classroom, and is still looking at further opportunities of

becoming more useful via ICT tools like LMS and other emerging technologies. Many prominent researchers and developers suggest that multimedia rich E-learning activities allow pupils to learn with computers rather than from computers. Therefore, Future studies should be conducted in order to know the Current Status of E-learning and LMS in India with respect to the course quality as well and efforts should be made to make LMS popular in India also as it is popular among American, European and Gulf countries of the world.

REFERENCE

- [1] Garrote R, "Barriers to a wider Implementation of LMS in Higher Education: a Swedish case study", 2006-2011. Eleed, Vol. 9. Pp 3-17, 2012.
- [2] Bongalos Y. Q, Bulaon D. D. R., Celedonio L. P, de Guzman A. B., Ogarte C. J. F., "University teachers' experiences in courseware development. In:" British Journal of Educational Technology, 37, Pp. 695-704.
- [3] Dutton, W. H., Cheong, P., Park, N., "The Social Shaping of a Virtual Learning Environment. In:" Electronic Journal of e-Learning, 2(2), Pp. 1-12. 2004.
- [4] N.A. Adzharuddin, L.H. Ling "Learning Management System (LMS) among University Students: Does It Work? " International Journal of e-Education, e-Business, e-management and e-Learning, Vol. 3, No. 3, Pp 248-252, 2013.
- [5] Zameer Gulzar, "Educational System of J&K in the light of Evolutionary Multimedia Technology: A Case Study": IJARCSMS Volume 2, Issue 4, Pp 66-75, 2014.
- [6] Sherry Turkle, "Life on the Screen: Identity in the Age of the Internet "New York: Simon & Schuster, Pp. 180-81, 1995.
- [7] Gregory Krippel, A. James McKee, Janette Moody, "Multimedia use in higher Education: promises and pitfalls "Journal of Instructional Pedagogies, Pp .1-8, 2007.
- [8] Ellis, Ryan K. "Field Guide to Learning Management Systems", Learning Circuits, ASTD, 2009.
- [9] ASHE: Annual Status of Higher Education of States and UTs in India, 2009, 2013.
- [10] I. M. Shehabat, S. A. Mahdi, "E-Learning and its Impact to the Educational System in the Arab World ", International Conference on Information Management and Engineering, IEEE Computer Society, Pp 220-225, 2009.
- [11] Appana, S, "A review of benefits and limitations of online learning in the context of the student, the instructor, and the tenured faculty". International Journal on E-Learning, 7 (1), Pp5-22, 2008.
- [12] Green, K. Managing online education. WCET Conference, 2010.
- [13] Katarzyna.M, Jerzy.R "Barriers to Introduction of e-learning: a Case Study", IEEE EDUCON, Learning Environments and Ecosystems in Engineering Education, Pp 460-465, 2010.
- [14] Mishra, S., Ed. E-Learning, New Delhi: IGNOU (STRIDE Handbook 8), Pp 134-138, 2009.
- [15] Welcome to Computer service centre retrieved from <http://www.cc.iitd.ernet.in/CSC/> on October 20, 2014.
- [16] National Mission on education through ICT retrieved from <http://www.nmeictmoodle.iitkgp.ernet.in/moodle/> on Oct 20, 2014.
- [17] Two weeks ISTE workshop retrieved from <http://www.it.iitb.ac.in/moodle/> on October 20, 2014.
- [18] E. M. Rogers, Diffusion of innovation. Glencoe: Free Press, 1962.
- [19] A. Dillon, "User Acceptance of Information Technology", in W. Karwowski (Ed). Encyclopedia of Human Factors and Ergonomics. London: Taylor and Francis, 2001.
- [20] Govindasamy T., "Successful implementation of e-learning. Pedagogical considerations". Internet and Higher Education, Vol-4, Pp287-299, 2002.
- [21] J. Rutkowski, K. Moscinska, "Barriers to innovation in e-pedagogy – a case study", Proc. 13th IASTED Int. Conf. on Computers and Advanced Technology in Education (CATE), Maui. Hawaii, Pp .147-151, 2010.