e-Learning Library and Information Science: A Pragmatic View for India

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ABSTRACT

E-learning is basically the computer and network-enabled transfer of skills and knowledge. It includes the electronic applications and processes applied to teaching and learning. E-learning applications may include web-based learning, computer-based learning, virtual classrooms, and digital collaboration. The paper highlights the various steps required to be undertaken by an institution to venture into e-learning, especially in the context of a professional discipline like library and information science which has gained immense popularity in recent times. By taking reference service, it further illustrates how to design, develop, and execute a functional e-learning course. Various issues related to e-learning, which need serious attention have been discussed from the different perspectives of teacher, learner, and institution.

Keywords: e-learning, information science, reference services, e-learning, online education

1. INTRODUCTION

E-learning is learning attempted through electronic means for achieving the computer and network-enabled transfer of skills and knowledge. It refers to courses that are offered fully online, courses that mix face to face and online access to instruction and course materials and courses where teachers post notes and materials for students and provide access to online discussion forums on course topics. E-learning, blended learning, online learning distance learning have been used interchangeably and the lines of demarcation among them are blurred. The origins of e-learning, web-based education can be traced back to distance learning where participating learners would receive materials to pursue an educational or training course[1].

2. PARADIGM CHANGE IN THE TEACHING-LEARNING PROCESS

The landscape of higher education is constantly evolving due to rapid strides being made in the field of Information and Communication Technology (ICT). Traditionally, the teaching and learning process has predominantly involved face to face interaction. But the evolution of ICT has ushered the way for e-learning. It is gaining lot of popularity due to various factors such as increasing demands for higher education, rising costs, dwindling budgets, need for learner-centric distance education, training and skills, emergence of knowledge intensive global economy and the deep desire of the professionals to learn while they earn. These factors are causing e-learning to spread across the higher education sector. Concerted efforts are being made to make e-learning part and parcel of higher education. Further, the popularity of e-learning is also attributed to the vast potential of World Wide Web and its cost-effective technologies which are widely available for learning applications. It has also been observed that e-learning is gaining more user acceptance owing to change in the models of teaching and learning (from passive to participative or user centric) and internationalisation of education where delivery of cross-border education is common[2].

3. A MODEL FOR DEVELOPING E-LEARNING PROGRAMME FOR LIBRARY AND INFORMATION SCIENCE

Collis and Moonen[3] have identified important components of institution, implementation, pedagogy, and technology which need serious consideration

before any online course is designed and implemented. Jolliffe, Ritter and Stevens[4] have described an 18-step process for implementing and developing an online learning environment. Mishra[5] has specified different steps, which must be followed for implementing and developing any online course, as: need analysis, demand for online programme, course credit and equivalence, learner profile, hardware and software requirements, internet access/and bandwidth aspects, costs, organisational profile, expertise, and infrastructure and faculty development. Bixler and Spotts[6] have identified the following parameters which should be considered for implementing e-learning programmes: institutional support, course development, teaching and learning, course structure, student support, faculty support, evaluation, and assessment. The requirement for institutional support is imperative for e-learning deployment and success. The new, changed role of teachers and instructors should be duly recognised and acknowledged. Support plans for the evolution and transformation processes must be well laid out. The student support must be robust. The concept of student support is entirely different from that of traditional methods. In online environment the students learn from the programmed instructional systems that have been automated[7].

The following steps may be followed in designing and implementing an e-learning programme in LIS:

3.1 Need and Demand Analysis for Online Programme

A rigorous research needs to be undertaken to find out if online programme is needed in LIS. The research report should clearly indicate the need, problems to be encountered, and surmounted in implementing the e-learning programme. With highly successful distance learning programmes in many open-and campus-based universities and regular programmes in many of the latter, it is easy to estimate that there is a strong need of e-learning programmes in this discipline.

Apart from the regular courses, the potential of e-learning for providing continuing education to working professionals is very vital considering the onslaught of many new technologies in the library workplace. The present channels of providing continuing education are very little like orientation programmes or workshops, and tutorials and e-learning may offer more fruitful and effective on-the-job training to more number of professionals in less time.

3.2 Courses and Credits of the Programme

It should be further decided about the number of papers or courses and their credits; the content/

curriculum for each course has to be decided. How will the certification be done for the programme? The rigid course design and execution strategies followed by our universities give very little scope for total overhaul. One has to stick to the courses and credits of regular and distance courses but the course delivery may be more challenging due to the wide opportunities of simulation studies possible through e-learning.

3.3 Intended Audience

It is very important to know and ascertain whether the programme is meant for freshers or for mid-level professionals. Will there be takers for such an online programme? Will the programme be completely online, blended to support face to face learning and so on so forth? The course may be structured and delivered to the intended audience in a more flexible and modular fashion through e-learning.

3.4 Hardware and Software Requirements

The programme will require any specific hardware and software requirements. The users will need to install specific software on their terminals for accessing the course or CDs of the course content will be given to the students. The functionality of the technological infrastructure should be ensured before the programme is launched. Emphasis must be paid to always select cost-effective and open access solutions considering the nature of large number of students and professionals from the economically weaker backgrounds to benefit from the exercise.

3.5 Internet Access

It must be ensured that the students have Internet access with adequate bandwidth. The lessons may have animations, graphics, simulations, online tests, which may require lot of bandwidth to download. E-learning programmes in order to run smoothly require adequate bandwidth, technology-equipped classrooms and sufficient computing facilities for the learners. The advancement in technology should be accompanied by enhanced support system as well. The technology providers should provide e-learning solutions following common standards which facilitate interoperability[8]. The regular evolution in hardware, software, and rising expectations of the learners should be taken in to consideration by the technology providers to offer innovative products at reasonable rates. With cyber cafes, broadband Internet facility in homes, offices, colleges and universities, Internet access with good bandwidth is at the reach of many learners.

But there are still many left without such advantages and for them, e-choupals, Internet facility at

public libraries and local community centres may be activated. Since mobile technology is getting more accessible than internet, the learners and trainers also may use this for sms, alerts, and for quick contact for short queries with instructor.

3.6 Cost

E-learning offers many advantages of scalability, wider geographic reach and faster delivery speed[9,10]. It has been always observed that the work of producing multimedia training modules is expensive. The system can be cost-effective when training and education has to be imparted to thousand learners located in various distributed locations, but the initial cost is always high.

The initial cost of developing content, acquiring, arranging infrastructure, bandwidth, and system integration is always high. The cost of Internet access, course fee, etc., should be reasonable for the students to bear and sustain. The universities may set up learning resource centres where computer and Internet facilities may be provided. With recent passage of Right to Education (RTE) and better allocation for education, functional and cost- effective e-learning programmes may be evolved.

3.7 Institutional Mindset

The leaders, administrators, instructors should be prepared to undertake e-learning projects. The teachers must be prepared to embrace the use of technologies for starting an online programme and need to be trained in the use of tools and technologies for teaching in an online environment.

They should be crystal clear with the different ways of interacting with the students. They should know how to use e-mails, mailing list, group chat, online diary, discussion boards, etc. The human resources—teachers, administrators, designers, and developers—should be committed to the programme; only those professionals should be involved who have an interest in technology and ability to adopt and adapt technology.

3.8 Assessment and Awarding Marks or Grading

Assessment enhances and reinforces the learning approach which a student follows and is a pivotal part of teaching and learning process. Assessment of learners should be based on higher order thinking skills; this will ultimately ensure a deep holistic approach to e-learning by the students[11].

The online courses offer different assessment methods like the students may be assessed according to their performance in objective type multi-choice questions, and essay-type long answers. They may be further evaluated on their projects, which they submit online or on their participation in the discussions forums and so on so forth.

3.9 Selection of Learning Management Software or Virtual Learning Environment

For developing and launching e-learning programme, it has to be decided whether open source software or commercially available software will be used. The content, course pages should have multimedia—text, graphics, animation; the pages should have adequate links and should be easy to navigate. There should be provision for support tools—facility to upload files, submit assignments, availing online tests, monitoring learning progress, research reports, bookmarking facilities to mark where one stops in a particular session.

The instructors should be enabled to upload course plans, content, lessons and questions, and exercises. The system should facilitate the teachers to monitor the learners' progress and provide individual feedback to them.

There should be FAQs or help guides for the learners to troubleshoot the problems during the course of the programme. The course designer, instructor should have the administrator rights for over all management—assigning user ID, passwords; user rights to the authentic learners. The system should permit online registration and fee payment.

3.10 Orientation and User Awareness Programmes

This is a transition phase in which the mode of delivery of education is evolving; e-learning is yet to develop in its fullest form. So the users need to be made aware, familiarised with different modules and tools which they will come across in the online environment.

3.11 Staff Training and Development

For e-learning programmes to become successful the importance of staff training and development must be duly recognised[12]. This will ensure that technology can be integrated into teaching and learning process effectively with least problems.

The teachers need to keep abreast with the latest tools and technologies in order to teach in online environment. This means the teachers will have additional workload which some of them detest. The success of online courses depends on the instructors'

familiarity with the latest technologies, which they can adopt easily.

3.12 Evaluation

Evaluation is an important activity, which needs to be undertaken to find out if a particular activity is helping the intended audience. An e-learning programme should be evaluated to find out the following:

- ✄ Number of enrolment over the years.

- ✄ Success rate of the students.

- ✄ Cost-efficiency of the online course as compared to the traditional programme.

3.13 Maintenance of the System

Success of online programmes require constant monitoring and updation. The staff should be available for 24x7 monitoring and maintenance. There are many problems like server errors, occasional breakdowns, busy signals, lack of access, which can hamper optimal utilisation of various tools, cause frustration among the learners, and adversely affect the learning process. These problems cannot be completely eliminated; but efforts should be taken to ensure the functionality of the technological infrastructure.

4. ILLUSTRATION OF E-LEARNING COURSE FOR REFERENCE SERVICE

For designing an online reference service course the following steps need to be undertaken:

Curriculum: The content or syllabus of the course or paper needs to be identified and should include concept of reference service, history of reference service, need and relevance of reference service, components of reference service, different reference sources, free online reference sources, use of Web 2.0 tools for providing reference service, and evaluation of reference sources.

Creator: It has to be decided whether the content will be designed and developed in-house or outside experts are to be involved or content from public domain will be taken. Since e-learning involves no trainer in campus, there is no need that all the instructors should be on roll of the institute, collaboration at regional, national and international levels with experts in the field may be worked out for creating lessons and also as course faculty.

Format: The e-lessons should be created on the identified topics. E-lectures of teachers can be recorded and archived for the students. Since e-content can include text, PowerPoint presentations, pictures,

animations, graphics, audio and video, a balance of these formats should figure in the e-learning materials to make the lessons livelier. Which format should suit a particular learning may be decided based on the availability of the desired materials or through pilot testing in the initial e-learning sessions. Since learning can be better achieved by doing, scope for enough practical sessions requiring learner involvements in the topics dealt should be included. The e-lessons should be interspersed with short, focused video clips of reference desk, reference interview, which takes place in an academic library. The video clips will motivate and engage learners and sustain their interest for long.

Question Bank: The question papers on reference service of different universities can be digitised and archived; to help the students some model answers may be provided. E-quizzes comprising reference questions which the library staff may expect from users, may be provided. Online tests, short answer, fill in the blanks, objective-type and essay-type questions with model answers and key may be provided on the course site.

Creating e-base for the Course: Apart from locally created course materials and course packs, there should be reading lists at the end of each chapter. The resources should be clickable and accessible. The institution may create course web portal based on information available free on the Internet and purchased/ subscribed e-books, e-journals, e-databases relevant to the course. All resources of interest to a learner, to successfully complete the course and fruitfully meet the knowledge requirements may be accessed from the portal.

Course Delivery: The main source for the learner to take the course is through the course website/portal. The various resources provided on the site plus its hyperlinks of e-base helps the learner to achieve the various learning objectives of the course. Asynchronous discussion forums allow for comments to be posted and viewed at a time of convenience to the students and the instructors; there is no need to be connected at the same time. Asynchronous discussion forums may be used by the teachers to provide information or instructions to the students on the course content, administrative matters or comments which are for all students. The students may answer to the postings. The instructors are supposed to actively respond to the postings by the students. An instructor can post a topic for the students to debate upon; for example the importance of reference service in the Internet age. The students may be asked to write a short essay of 800 words or so. They can be assessed and awarded marks for participation which should be made obligatory for the students; it should not be optional.

Podcasts: Podcasts are digital media files which play audio and/or audio and video and which can be opened or downloaded. Educational podcasts are digital audio files which have meaningful content for learning. Educational podcasts may be prepared for a particular type of student group. Popova and Kirschner[13] have proposed a frame work which may help teachers to decide upon the most appropriate type of podcast to support learning. More effective teaching and learning takes place when learners can interact, share knowledge, experience and understanding of others. This helps in supporting and enhancing collaborative and conversational learning among the students. Interview of a reference librarian of a university can be taken and podcast. The learners will get to hear practical experience of a reference librarian—what problems are encountered in day-to-day routine reference work.

Webcasting: It is dissemination of recorded or live content over the Internet; generally webcasts are live presentations, which may enable the learners to ask questions and receive answers, even though they may be away from the expert. Guest lectures are important tool to give students an enhanced learning experience by offering theory as well as practical experience. The lectures of reference librarians, keynote addresses of experts can be webcast and the learners can raise queries too.

Blog: A blog is a personal website that contains content organised like a journal or a diary. Entries are dated and displayed on the webpage in a chronological manner. An instructor may use blog to post class information—reading lists and deadlines for assignments to be submitted. Instructors may create their own blog; provide links to resources related to the topics of the curriculum. The blog serves as a source for providing supplemental information to the students. For example, if a conference or seminar is being organised on Web 2.0 tools for reference service, a link to the conference website may be provided. The students can be encouraged to blog on specific topics related to the curriculum.

Evaluation: At the end, after the minimum time, students should have the facility to take on-demand online examination for certification. Apart from continuous evaluation and end of course evaluation, the instructors should encourage the use of resources listed at the end of each chapter and some additional marks may be awarded to the students for using the resources. The course module should provide practical tips on how to use Web 2.0 tools for providing reference services. For example, the course content should have provision for enabling students to create an account and start a blog using free blogging service. There should be some provision for the students to have interaction among them and get feedback; individually from the teachers. Baggley[14] has classified levels of interactivity under 12 categories like browsing-mail; question/answers: no feedback; real time polling; text forums; text chats, A/V conferencing; question/answers: feedback, collaborative
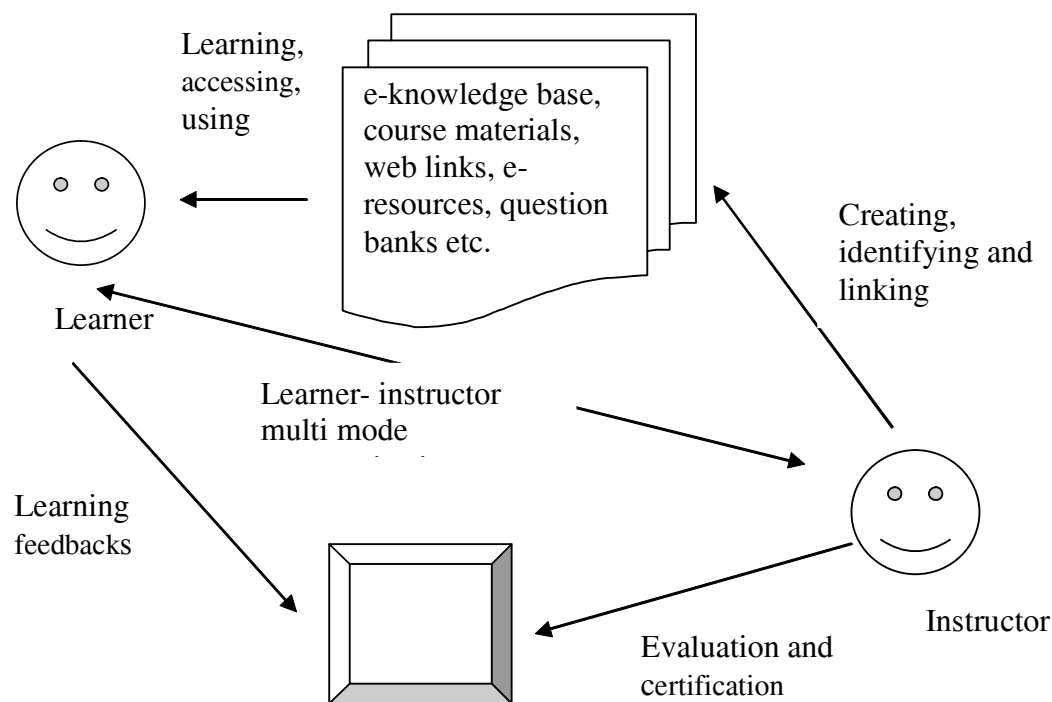

Figure 1. A schematic of a pragmatic e-learning framework.

activities; real-time and CRM: no feedback; and real-time CRM: feedback.

5. PROBLEMS OF E-LEARNING

The problems relating to e-learning which need immediate attention are:

5.1 Issues Related to Teachers

In online environment, a teacher has to be an administrator as well as instructor. Basically, a teacher has to have four main skills of an administrator, facilitator, technical supporter, and evaluator. They should have administrative skills to ensure that the programme runs smoothly. General feeling among teachers is that for implementing e-learning programmes they have to work in addition to the routine work of traditional teaching; they have to write course materials, check assignments, attend to users' queries, and provide feedback through e-mails. Studies have revealed that teachers need nearly twice as much time to teach an online course compared to a traditional course. So they need to be supported and facilitated in terms of resources to ensure that e-learning courses are developed appropriately and needs of the students are optimally met. They should get help and support through the transition period before e-learning courses become commonplace. It takes more time on the part of faculty members to develop content and provide online versions of content[15] therefore, teachers should be given incentives and appreciations from accredition agency for engaging in e-learning applications.

Professional development of teachers is a prerequisite for any e-learning programme to be sustained over a period of time. The teachers should be offered training at regular intervals so that they are well versed with latest technologies and protocols and are ever prepared to embrace and implement e-learning in their teaching work unhesitatingly. The administrators and faculty members have an indifferent attitude towards introducing innovations in education. They feel they will not be rewarded for the additional work and efforts which they take. The university authorities and accreditation bodies should give some recognition or incentive to those who initiate ICT-enabled teaching and learning procedures.

5.2 Issues Related to Institutions

Institutions often have to cope with shrinking budgets and weak infrastructure to engage in any sort of innovations with regard to teaching and learning. Complain about quality assurance has acquired lot of importance in higher education sector. The national bodies like NAAC and NBA (of AICTE), which provide guidelines for development and maintenance of quality assurance and procedure should also develop and set benchmarks for e-learning programmes. The accreditation bodies should clearly cover areas such as course structure, development, student support service, teaching and learning, and assessment and evaluation. Presently, the online degrees do not have the credibility and recognition in the society and the market. The lack of interaction between the teachers and the learners and the low admission standards for online courses are the causes of concern among the employers and the public. More concerted efforts should be taken for wider recognition from accreditation bodies of the country, which in turn would help to gain more learner interest in e-learning programmes.

5.3 Issues Related to Students

It should be widely communicated among the student community and potential employers that e-learning programmes are at par with the traditional ones. This will certainly encourage the students to go for online courses. For instance, the LIVE programme of IGNOU has less than 10 students whereas the equivalent distance learning course of the same university has students in hundreds.

Generally the institutions, universities complain of paucity of funds and dwindling of budget, which prevent them from implementing e-learning programmes. To overcome this problem, some policy needs to be laid down and a certain percentage of university budget should be earmarked for piloting and implementing e-learning programmes. The students are also found not to be techno savvy so they avoid taking e-learning courses. Those students who are comfortable with e-technologies and spent hours in chatting and surfing also have a negative mindset in applying the same for the purpose of education and training. The students need to have skills of critical thinking, research and evaluation as there is abundance of information in electronic environment[16]. Students are highly independent and need to be immensely motivated to learn[17]. The e-learners perform as well as the learners in the conventional system; but there is higher incidence of drop outs[18].

The learning outcomes are affected by e-learning system quality, e-learning readiness, and e-learners' competencies. Efforts should be taken to improve upon e-learners' online learning skills of self direction, meta cognition, and collaboration[19]. The e-learners should also get adequate learner support system to succeed. They may not know how to participate in discussion forums, bulletin boards, make use of blogs, wikis, podcasts and vodcasts and so on so forth; they doubt if they will get teachers' support. For this, training sessions, user awareness and orientation programmes should be

organised before e-learning courses are launched. Students may take time to get accustomed to the new e-learning environment. They should be told how to access and use courseware and other electronic resources; pop-up boxes in the courseware can be incorporated in order to provide advice and guidance to the learners.

6. CONCLUSION

Laurillard[20] has remarked that a university is known and recognised by its academic excellence and not by the advance technology which it uses and implements. Laurillard wanted to stress that whatever technology is followed, research, learning and teaching should be the pivotal focus of the whole thing.

Oblinger and Hawkins[21] have also emphasised that e-learning will be an important part of higher education and after some time would eventually be dropped as technology is just a tool or enabler to accomplish the goal of teaching and learning. Developing and implementing an online course requires a thorough understanding and planning of various steps and procedures. It requires coordination and concerted efforts of all the stakeholders—students, administrators, teachers, course designers, and developers.

The potentials of e-learning are too many for a country like India not only for formal degree programmes but also for effective continuing education strategies for placing its multitude of professionals well- equipped for the challenges of the knowledge economy. Beyond technology and resources, the mindset is one big hindrance to usher in the benefits of this functional and flexible mode of teaching learning.

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