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Evolving Roles of Library & Information Centres in E-Learning Environment

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Abstract:

B.F. Skinner, the noted psychologist in the late 1950s and early 1960, referring to the first days of his `teaching machines', wrote, "I was soon saying that, with the help of teaching machines and programmed instruction, students could learn twice as much in the same time and with the same effort as in a standard classroom". This has become reality with the advancement in information and communication technologies, where e-learning and online learning are evolving as a new method for teaching and acquiring knowledge. Likewise, the libraries' role is also changing, they are expected to serve as information literacy trainers, experts in organizing and providing access to online resources, content providers through digitization projects and providers of print resources for learners. This paper aims to discuss evolving roles of library and information centres in e-learning and online learning environment.

Key words: *E-learning, Digital Libraries, Digital Repositories, Institutional Repository, Library Consortia.*

Introduction

E-learning includes all forms of electronic supported learning and teaching, which are procedural in character and aim to effect the construction of knowledge with reference to individual experience, practice and knowledge of the learner. Information and communication systems, whether networked or not, serve as specific media to implement the learning process. Web-based training, computer-based training or web-based learning, and online learning are a few synonymous terms that have over the last few years been labelled as e-learning. Each of this implies a "just-in-time" instructional and learning approach and there is a slight difference in between them.

E-learning can be defined as the delivery of a learning, training or education program by electronic means. It involves the use of a computer or electronic device in some way to provide training, educational or learning material. Wang and Hwang (2004) say, e-learning "denotes information and communications technology enhanced learning by delivering learning contents and activities via internet, intranet/extranet, audio/video, satellite broadcast, interactive TV, and CD-ROM." Many authors agree with this definition and the fact that e-learning is blended traditional face-to-face teaching and learning that is combined with using communication technologies to enhance student focused and directed learning and teaching processes (Ojedokun, 2003; Akeroyd, 2005) that support both life-long and distance learning.

Australian National Training Authority (2003) proposes that ". . . e-learning is a broader concept [than online learning], encompassing a wide set of applications and processes which use all available electronic media to deliver vocational education and training more flexibly [. . .] the general intent to support a broad range of electronic media (internet, intranets, extranets, satellite broadcast, audio/video tape, interactive TV and CD-ROM) to make vocational learning more flexible for clients". Brunel University (2004) equates an e-learning strategy with web-enhanced learning. However, e-learning involves more than just the presentation and delivery of the materials using the web – the learner and the learning process should be the focus of e-learning. In defining e-learning CARL (2005) points out that "e-learning encompasses research, learning and teaching in the digital environment", where students have access to courses offered online with instruction and course materials, instructors notes, course topics, and discussion forums, all of which are accessible online.

Unfortunately, the term e- learning is often used as a more generic term and as a synonym for online education. Kaplan-Leiserson (n.d.) has developed an online e-learning glossary, which provides this definition:

"E-learning encompasses research, learning and teaching in the digital environment; e-learning includes courses that are offered fully online, courses that mix face-to-face and online access to instruction and course materials (often called blended learning), and courses in which instructors post notes and materials for students or provide access to online discussion forums on course topics. E- learning covers a wide set of applications and processes, such as Web-based learning, computer-based learning, virtual classrooms, and digital collaboration. It includes the delivery of content via Internet, intranet/extranet (LAN/WAN), audio- and videotape, satellite broadcast, interactive TV, and CD-ROM."

Whatever, the case may be, the term e- learning is not very precise, and it should be pointed out that learning is just one element of education. So, the term online education should cover a much broader range of services than the term e- learning. One may also claim that e-learning companies often focus on course content, while online education institutions cover the whole range of educational services.

Need for E-Learning

Earlier, the students need to learn and syllabus with near by libraries or materials sent by the course organizer. Later, media such as radio and television were also introduced in the distance mode of learning. These media benefit a lot the learner, but they have their own limitations. The distance mode of learning process is further strengthened by video conferencing. This has created the environment of the classroom and enables direct

interaction between the teacher and learner. Now internet has shown new paths to learning, the educational resources are accessible to students. Though e-learning is said to be a means for distance learners, it is equally benefiting regular students also. Manjunath and Patil (2006) have listed following reasons explaining why e-learning is necessary in present environment:

- E-learning is self-paced and gives students a chance to speed up to slow down necessary,
- E-learning is self-directed, allowing students to choose content and appropriate to their differing interests, need and skills levels,
- It accommodates multiple learning styles using as verity of delivery methods geared to different learners, more effective for entrain learners,
- It is designed around the learner, and eliminates geographical barriers and opens up broader education options,
- Its accessibility makes scheduling easy and allows a greater number of people to attend classes on demand access means learning can happen precisely when needed travel-time is reduced or eliminated,
- Overall students' costs are frequently less in e-learning rather than tuition, residence, food etc.,
- Its potentially lower costs for companies needing training and for the providers,
- It fasters greeters students interaction and collaboration, and also fasters greater student/instructor contact,
- E-learning enhances computer and internet skills,
- It draws upon hundreds of established pedagogical principles, and
- It has the attention of every major university in the work, most with their own online degrees, certificate and individual course.

Thus, e-learning is becoming an influential force in higher education today; a force, which has some kind of presence on almost every campus and in an ever-increasing number of university courses. It is creating a growing and dynamic environment, one in which fluidity and change is the norm culturally, institutionally and technically.

Libraries and E-learning

The libraries are playing important role in education for a long time, hence the development of digital libraries is also linked to e-learning. Today's libraries have travelled from paper to paperless society and from print to non-print environment and are transforming into digital ones. Digital libraries provide technology based information and services to enable learners to access relevant information and services anywhere anytime, as well as provide empowerment for innovative and life-long learning. The digital library serves mainly as a facilitator in organizing and providing knowledge and resources to its users. Sharing knowledge and information among library staff, researchers, faculty, students, and other departments within the institution encourages them to work together, develop their skills, and form strong and trusting relationships.

Krishnamurthy (2005) defines digital libraries as "electronic libraries in which large number of geographically distributed users can access the contents of large and diverse repositories of electronic objects". These may be networked text, images, maps, sounds, videos, catalogues, or the data sets. These libraries, particularly the academic ones apply appropriate communication technologies to provide support to e-learning by providing

seamless access to electronic resources and services. The range of electronic resources include online catalogues, databases, multimedia, online journals, digital repositories, electronic books, electronic archives, and online/electronic services (Barton, 2005; Lukasiewicz, 2007). The use of cutting edge technologies by libraries to provide access to resources and services in support of learning, teaching, and research has benefited both on-campus and part-time/distance learners. Both students and lecturers can undertake learning and research without being in the library. But its main benefits are being credited to distance learners.

The accessibility of online learning and research resources "requires the involvement of all stakeholders," such as web developers, product vendors, university instructors, programme directors, courseware designers, librarians, persons with disabilities advocates, and most importantly, students representing the various types of learning needs and abilities. Although academic libraries do not always play a direct role in the creation of the online resources they offer access to, it is their responsibility to make sure that all resources are accessible to every facet of their user community. Burgstahler (2002a,b) and Black (2005) provide a series of steps which the academic libraries can follow for ensuring accessible online services and resources. Several of these steps include:

- Check to see what policies the respective government and university have in place for ensuring accessibility.
- Establish, review, and renew an accessibility plan/policy statement specifically for the library.
- Assign specific library staff members (management, information technology, librarians, etc.) for ensuring that accessibility standards are maintained and revised as necessary. For online resources and services that are created and maintained by the library, ensure that all pages validate with current standards, while fixing "simple" errors immediately.
- Advocate for accessible online resources and services purchased from outside organizations (e.g., vendors), while testing previously acquired resources for accessibility, then contact the product vendor, if necessary, to see how accessibility barriers can be resolved.
- Assign a qualified library staff member as a contact point for [learners especially] persons with disabilities.

By ensuring above steps, the libraries can provide better access of information to their learners in e-learning / online environment.

Developing Library Services for E-Learning

What do e-learners need from librarians? Suggestions advocating change in librarians' roles in support of e-learning in the information age appear throughout the literature-librarians "must assert themselves as key players in the learning process thereby changing their roles from information providers to educators" (Cooper and Dempsey, 1998), and they have been transformed from "information gatekeepers" to "information gateways" (Haricombe, 1998). Lippincott (2002) advocates librarian involvement in learning communities: "The librarian can shift the focus from explaining library resources to meeting the ongoing information needs of the students in the broad information environment". Librarians somewhere have found to developing web based modules to support course integrated instruction session, encourage students to actively follow the librarians'

presentation using their own topics for selected searches. Students receive immediate feedbacks on search strategies during the session and can return at any time to refresh their skills for subsequent assignments. Reference librarians may use the material to guide students in using information resources specific to their assignments at the reference desk. This blended approach to information literacy offers students and instructors with an ability to address diverse learning styles and encourage active participation along the presentation to a 24/7 access that may foster increased student contact with the librarians. Many librarians especially university librarians are working with online course developers as well as instructors in traditional courses to provide online guides and help for library research, which include modules that introduce students not only to specific resources but to critical evaluation of resources, specific about thesis preparation and the like. But for this, the librarians need to be a part of e-learning by being - proactive in questioning the selection of learning management systems and complementary e-learning tools by faculty and departments and actively seeking representation through appointments to committees that deal with selection, management and governance of online instructions systems on their campus.

Librarians, especially the academic librarians are becoming a part of e-learning process and are actively participating by providing online and in person modules, guides, subject and class based lists, as well as reference service. They offer classes and courses on research strategies, help students in determining useful scholarly resources, work with the faculty in planning and developing distance education courses to integrate concepts of information literacy throughout the curriculum. Faculty needs support in these activities because the ability to articulate information needs, find appropriate information resources and critically assess the results of an online search are key to success in e-learning and this leaves the faculty to focus on course content. It is seen that the librarian facilitating the e-learning are establishing a positive relationship between the academic achievement and use of open shelf library books.

Thus, the rapid spread of Information Communication Technologies (ICTs), recent reduction in technology costs and increasing computer awareness in learners also facilitated e-learning (Dhiman, 2003). Many libraries are in the process of delivering the information services and resources through the online chat rooms, e-mail services, listserves or fee online databases and reference services, tele-conferencing and toll-free numbers. E-Learning has revolutionized and democratized the delivery and accessibility of education and has also changed how critical support services such as library and information services are provided. Here, library professionals need to understand the mechanics and concepts of e-learning and develop various services for distance learners. According to Vatnal, Matapathy and Prakash (2004), access to information services, consultation service and inter-library loan services etc., can be created in libraries for developing e-learning. Various areas of library services which can be developed and created for distance learners include :

Access to Information Resources: Students at remote sites are required to get the information resources supporting for their learning. Computer search services are to be extended with full text document delivery. The establishment of digital library can be a good step for providing e-learning. Digital Library will break all the barriers of data transfer, as it can store a large amount of information in various forms i.e., text, audio, video, graphic material. Learners can make effective search for the information in digital libraries with sophisticated search engines and download into their system.

Consultation Services : Consultation can be conducted through e-mail, toll-free telephone service, pre-packaged mail out information or scheduled remote site visits by using these facilities in libraries through Internet.

Inter-Library Loan and E-journals in Consortia: Inter-library loaning is one of the oldest forms for sharing resources among the libraries. The effective electronic transmissions of document demand help quicker inter-library loans and information services. Distance learners may make the use of e-journals. Some electronic journals are freely available, others have charging mechanisms of different types. There are aggregators of e-journals and they provide access to the full text content for authorized users. Usually they are IP-authenticated, i.e., they are made available only to computers with the specified IP numbers for which subscription is made, however, the publishers issue some journals directly. Today's another form known as consortia (Dhiman and Rani, 2007) is coming out in digital environment, which provide access of many documents to multiple participating libraries. INFLIBNET, DELNET, CALIBNET etc. are making their utmost efforts in this direction, particularly the INFLIBNET is providing free access to more than 4500 + e-journals to participating university libraries in India (Murthy, Kembhavi and Cholin, 2004).

Electronic Reference Service : Information & Communication technologies have also transformed the way academic libraries provide reference services to the students and faculties. The expectation and demand of users is for academic libraries to provide personalized assistance irrespective of location and time (Dollah and Singh, n.d.; Mardikian, 2007), because such assistance can be provided electronically without users being physically available in the library.

The provision of electronic or digital reference services involves the use of networked technologies through which users can ask questions and receive answers online. The services generally include, among others, face-to-face reference service, e-mail reference service, interactive reference service using chat technology, links to e-resources including free resources, frequently asked questions (FAQ), feedback form service, web form or query form service, question point service, video-conferencing, and collaborative reference service through library consortia (Maharana and Panda, n.d.). The ready reference services in the form Frequently Asked Questions (FAQ) is most convenient for the learners. Collaboration in providing electronic reserve services can also be done at institutional level, where institutions within the same consortia work together to provide access to relevant resources and services in support of learning, teaching, and research. Such collaboration eliminates duplication of effort where resources are already available.

Students and lecturers can request for materials online through OPAC and receive e-mail response when request material is available. Customers also receive e-mail communication regarding overdue materials. Mardikian and Kesselman (2007) has identified following opportunities of providing electronic reference service in an academic library:

- Providing proactive service at point of need by being a roving reference librarian on the floor.
- Network users with specialists in other institutions for them to get relevant information including full text and multimedia.
- Providing information literacy over the networked environment using interactive tutorials.

- Developing interface to link users to access appropriate information resources on specific subjects.
- Develop expert systems to assist users with information retrieval and filtering based on need, and
- Partnership with teaching and research whereby a librarian works within the faculty and together with individual lecturers consult with students on progress with assignments and research projects and provides relevant assistance.
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Web-based reference service is an emerging field in reference services, which enables students and faculty to get seamless access to relevant resources on a 24/7 service. Moyo (2004) point out that the "24/7 availability of the web has resulted in users expecting 24/7 online help" at the time of need. Virtual learning environment is also an upcoming area which according to Hall (2001) is a *Learning Environment* based on software and designed as an all- in-one solution that can facilitate online learning for an organization. It includes the functions of a learning management system for all courses within the learning environment, however, it may not be able to track online courses that were not created within this particular learning environment. A learning environment is characterized by an interface that allows students to register and take courses, staying within that environment for the duration of the course. The programme usually includes some self- instructional portions, along with an academic model of a multi- week course. This model is often facilitated by an instructor, where a group can proceed on a week-to-week basis with seminar assignments. Most learning environments also include an authoring capability for creation of additional courses for the instructor.

Library Blogs: Blogs are the extension of what we already do identify, organize, and make information accessible in libraries. They give us an opportunity to be more responsive, to reach out to the faculty and students via our library blogs to highlight news, post student/faculty book reviews and invite comments, announce events, list new acquisitions, etc. Blogs are a simple and efficient way for librarians to stay informed and for libraries to disseminate information in a timely manner (Dhiman and Sharma, 2008a). Library blogs can be used in current awareness service to highlight news or resources of interest; and to post book reviews from students, faculty and the staff members; and to list new acquisitions and to announce library news and events. Using of systems such as RSS technology is another blog application in libraries for selective dissemination of information. But it is amazing that despite the increasing popularity of blogs, few libraries have taken advantage of what they offer.

Digital Repositories or Institutional Repositories: Institutional repositories have been posited as a requirement for universities in order to preserve the intellectual record of the institution (Akeroyd, 2005). Institutional repositories bear many characteristics of a traditional institutional archive, except that the content is always digital and is usually aimed exclusively at research and teaching material rather than institutional records or special collections (Dhiman and Sharma, 2008b; Dhiman, 2010). Their role is to deposit publications or research output for ease of accessibility to researchers and they serve a multiple purpose of preservation, archiving, and dissemination of information for knowledge sharing amongst learners.

Many academic institutions nowadays use D-Space open source platform for accessing, managing, and preserving scholarly works. Institutions can customize the D-space system for management of their digital materials. IISc; IITs (Delhi & Kharagpur); National

Institute of Technology (NIT), Rourkela; National Aerospace Laboratories, Bangalore; National Chemical Laboratory, Pune; INFLIBNET, Ahemdabad; National Institute of Oceanography, Goa; Raman Research Institute, Bangalore etc. have established *Open Access Institutional Repositories* (Singh et al., 2006) in India. *Vidyanidhi* of University of Mysore is the example of document type specific collection repository, which store and provide access to theses and dissertation collection. It accepts any thesis or dissertation from any researcher or the student, accepted by Indian Universities or the institutions.

Challenges and Issues for Libraries in E-Learning

Today e-learning is considered as alternative tools of empowering knowledge and skills. It is also treated as alternative means for classroom teaching. Now with the help of Internet, it is possible to deliver the information with highest degree of precision which is not possible with traditional skills. It has overcome several constraints of traditional learning system, but the development of e-learning has thrown up new problems focused on the copyright and intellectual property rights implications of electronic text. Students, researchers, staff, employees and other end users affiliated with virtual university or digital libraries are to be allowed to print-on-paper excerpts of digitally available works on the same conditions according to which they may make photocopies of print material. The library authorities have to discuss seriously with publishers on this aspect in order to evolve some mechanism profitable to users, publishers as well as to the authors. Users may be charged for each access, downloading from servers and/or each kind of digital library collection. This would provide a reverse for publishers, authors and libraries. Security aspect is another most pressing challenge of digital affairs. Piracies of database, viral invasions, and parallel satellite networking stress are some other issues for digital libraries, which are confronted as a way of routine. According to Jayaprakash and Venkatramana (2006), major challenges can be enumerated as under:

- There is no mechanism available to establish standards for internet materials, instruction, design and quality of interaction.
- Information providers are more interested in profit than quality services.
- Lack of organization of information on Internet, as not all sites are updated regularly.
- Lack of expertise as not many vendors/experts are available in the country and abroad as well. Overseas vendors charge too much and also reluctant to import techniques/technology, and
- Lack of motivation, because in a classroom instruction the teacher and students interact in discussing and understanding the subject spontaneously, which creates motivation among the students towards learning. Whereas, in e-learning, due to lack of motivation sometimes it may appear dull.

Vatnal, Mathapati and Prakash (2004), have pointed out additional issues, which hinder the development and pose challenges among libraries in e-environment. These are:

Instruction and Training : One of the main problems in e-learning system is the sufficient knowledge and skills of usage of information technology. Web-based education require much training as the e-learning involves different types of multimedia files and learners should have the knowledge of the same. There is also seen lack of awareness in using electronic equipment.

Interaction : The lack of interaction between learner and subject specialist is another problem. It may possible for subject expert availability, but for teacher may be possible to access via e-mail. Sometimes, face to face interaction can be made possible through online conferencing. E-learning designers also need to increase the interactivity.

Speed of Network : Internet connectivity is essential to access the information or learning materials. As e-learning involves multimedia file, higher speed of network with sufficient bandwidth is required. Sometimes, low speed and connectivity cause frustration among the learners or the users of Internet. Further, Internet has not reached in remote areas and has limited reach to users, only in urban areas.

Budgetary Support : Considerable infrastructure such as hardware, software and manpower require heavy investment. Organizations which want to start e-learning system should have enough funding. The lacuna on this part hinders the creation of better and interactive e-environment.

Quality of the Services : Regular user surveys are needed to test the materials to ensure the higher quality of the services to its users, hence they should be repackaged on periodical basis.

Copyright : Libraries need to distribute copies of the same information to the distance learners. So librarians must be familiar with the sufficient rights to acquire intellectual property, especially in digital environment.

Thus, above major problems need the attention of the policy makers and of the librarians to be solved out for creating better e-learning environment.

Conclusion

A recent study by Pandey (n.d.) shows that only 12 percent of the school children continue their study till 10th standard and about only 10 percent of the people eligible to take admission in universities get themselves enrolled in one of those 18600 colleges and 360 universities. This needs alternative means for education and several distance learning programmes have already been started in India for such people who can not take admission into regular courses due to several reasons. Surprisingly ever since faculty and instructors have also begun to adapt e-learning strategies as a part of their teaching repertoire and libraries are playing a key role by way of helping to find and organize resources to complement programmes and courses making use of e-learning and to provide support as students work their way through their assignments. In e-learning process the future libraries will emerge as active bridge between the learners and information (Dhiman, 2008). E-learning supported by digital library is very much significant and critical in higher education and research. The librarian can help in creating and developing repositories and content management. E-learning helps the learner to acquire education quickly and economically. The importance of libraries is very crucial in online environment, and this is narrated by CARL (2005) in following words :

"If there is no provision of library information resources there can be very little learning, online or otherwise. Libraries serve as information literacy trainers, experts in organizing and providing access to online resources, content providers through digitization projects, and providers of print resources for learners."

However, we should not forget that e-learning is only the tool and its effectiveness will depend on the quality of the content including the learning resources and the use made of the communication tools. All aspects of developing an online environment need to be carefully monitored and evaluated to ensure that the student learning experience and the change in current education practice is enhanced and that the libraries and its staff be remain sustainable in the 21st century.

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