

# Libraries—a Key to Harness E-Learning: Issues and Perspective

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## ABSTRACT

E-learning is a nebulous term; meaning teaching-learning facilitated through the modern media like web, satellite, cable networks, etc. Though it is successful in spreading its wings on today's higher education sector, its linkages with the libraries are still feeble. The academic and other types of libraries, especially from the developing countries such as India, are struggling to cater to the increasingly heterogeneous requirements of the e-learners and associated community. This paper presents the key role of LIS professionals in the e-learning paradigm. After a thorough analysis of the e-learning scenario, authors have realised that libraries and librarians have an important role to play possibly through the digital libraries—a contemporary movement growing along-with the e-learning. The aspirations of e-learner community from the LIS professionals in this new era of e-learning are propagation of the movement itself, course content development, technical facilitation, technical trouble shooting, fuelling open-archives, improving user interfaces, identifying and training the usage of free and open source software tools to the user community to ensure maximum participation in teaching-learning process. The paper also discusses e-learning-library linkages and the innovations implemented in the top ranking off-shore public libraries that the Indian LIS community can follow. It reveals an emanating strongly bonded model of e-learning–library linkage required for the sustenance and mutual growth of the duo. This will also lend a hand in emerging an open knowledge culture and ultimately beneficial for the evolving knowledge society.

**Keywords:** E-learning, libraries, digital library, digital reference service, content management system, courseware federated search, education

## 1. INTRODUCTION

E-learning is a term generally used for computer-enhanced learning. It is often extended to include the use of mobile technologies such as PDAs and MP3 players. E-learning includes the use of web-based teaching materials (hypermedia in general), multimedia CD-ROMs, websites, discussion boards, collaborative software, e-mail, blogs, wikis, text chat, computer-aided assessment, educational animation, simulations, games, learning management software, electronic voting systems, etc. with possibly a combination of different methods being used (Wikipedia, 2008). Today, most of the e-learning activities are delivered using Internet. Some of the present applications of e-learning are online training, distance learning, learning with threaded discussions or interactive bulletin boards, website-based curriculum, courses that post assignments online, correspondence course-style read-and-test

programs, etc.<sup>1</sup> The worldwide scenario in the higher education sector reveals the dominant force of e-learning which could be the only solution to satisfy the diversified needs of the learner community increasing by leaps and bounds. The institutions of higher learning are opting for this new media of education to reach their patrons in the nooks and corners of the world, however without much thought on the supporting academic facilities. Amongst these neglected academic support services, library tops the list and needs a serious rethinking for the very sustenance of the e-learning model.

Technologically, e-learning seems to be far ahead of the traditional academic libraries. Therefore, fear tends to exist regarding the possible obsolescence of the traditional academic libraries, which find it hard to catch up with the swift pace of the technology and thus still

searching for a permanent and serviceable position that is quick enough to be flexible, accessible, and up-to-date with the wider educational institute set-up. The same is true for the other types of the libraries. It is an undisputed fact that libraries should gear up hand in hand with the modernisation of the traditional classroom activities with electronic elements customised for the learners. Technology being the common link between the e-learning and the modern libraries; lots of new avenues are seen emerging for the LIS community. This new environment is providing opportunities for libraries to design and disseminate new services to the users. The economic concerns also forced these to choose electronic collection, especially journals rather than their counterparts. This repositioning strategy was adopted to help libraries extend the services of a traditional library by enabling activities such as access to materials outside the physical confines of the library. Thus the complimentary linkage between libraries and e-learning will help to widen the access. However, at the same time it is putting enormous responsibility on the libraries to quickly adapt to the changing environment by developing their expertise, abilities, and resources in order to take a leading role in the new e-learning environment.

## **2. E-LEARNING: AN EMERGING PEDAGOGICAL APPROACH**

E-learning refers to learning that is facilitated using digital tools and contents. It involves some form of interactivity, which may include online interaction between the learner and their teacher or peers. According to Kaplan-Leiserson<sup>2</sup> e-learning covers a wide set of applications and processes such as web-based learning, computer-based learning, virtual classrooms, and electronic collaboration. It includes the delivery of content via Internet, Intranet/Extranet (LAN/ WAN), audio- and videotape, satellite broadcast, interactive TV, and CD-ROM. In other words, e-learning is concerned with learning facilitated and supported through the use of information and communications technology (ICT). It can cover a spectrum of activities from supported learning, to blended learning (the traditional and e-learning practices), to learning that is entirely online. Whatever the technology, however, learning is the vital element. e-learning is no longer simply associated with distance or remote learning, but forms part of a conscious choice of the best and most appropriate ways of promoting effective learning.

## **3. NEW GROUND IN E-LEARNING PARADIGM**

The library is a hub of any institute or organisation. A hub in a digital network has lots of significance. In that sense, the conventional library should go through some

major transformations in terms of its knowledge sources, knowledge delivery management, and connecting all the above elements with strong bonds. Library is often referred as a heart of the institute of higher learning catering information needs of all the people associated with the institute. Till recently, libraries used to furnish the information needs of users by means of their vast print sources. However, now due to the impact of ICTs, this arena is fast changing. The new electronic era, having Internet in the forefront, is pushing libraries towards the digital environment. This has led libraries to acquire, organise and provide access to electronic resources required for their users. It has made it mandatory for these to have both print and non-print collections. Non-print collections include CD-ROM/ DVD databases, online full text electronic journals, databases, e-books, etc. ICT applications have helped libraries in terms of space, time, and cost. In addition to these resources libraries have started using ICT in managing various housekeeping activities of the library, thereby reducing the repetitive processes involved in acquisition, cataloguing and circulation of resources, and time of the users and staff. The crux of the story is the transformation of the libraries and librarians in terms of their tools, media and the modus operandi in knowledge exploration and management. The conceptual model of the framed is shown in Fig. 1.

This has been further complimented by new e-learning environment being introduced in higher education system, where various courses are being offered through Internet, allowing students do away with visiting the universities or colleges. The enhancement of traditional classroom activities with electronic initiatives such as course management system is changing the way faculty and students access, create, and use information. It is providing new opportunities for libraries to design and to disseminate new services. In other words, e-learning integration offers libraries a powerful medium for reaching faculty and students directly as they engage in teaching, learning, and research. In turn, the integration will enrich services to academic community using traditional library services and offers an opportunity to reach those faculty and students who have began to ignore the library and go directly to the web for their information needs. In other words, libraries have to find strategies for making their resources and services readily available in the environments faculty and students prefer and use, otherwise their existence will be at stake. Libraries in the e-learning environment have already made some progress by providing access to their catalogues, databases, electronic journals, Internet resources, etc. to the user's community on the Intranet or Internet. However, libraries are still capable of providing many more value-added services, if the following issues are addressed amicably.

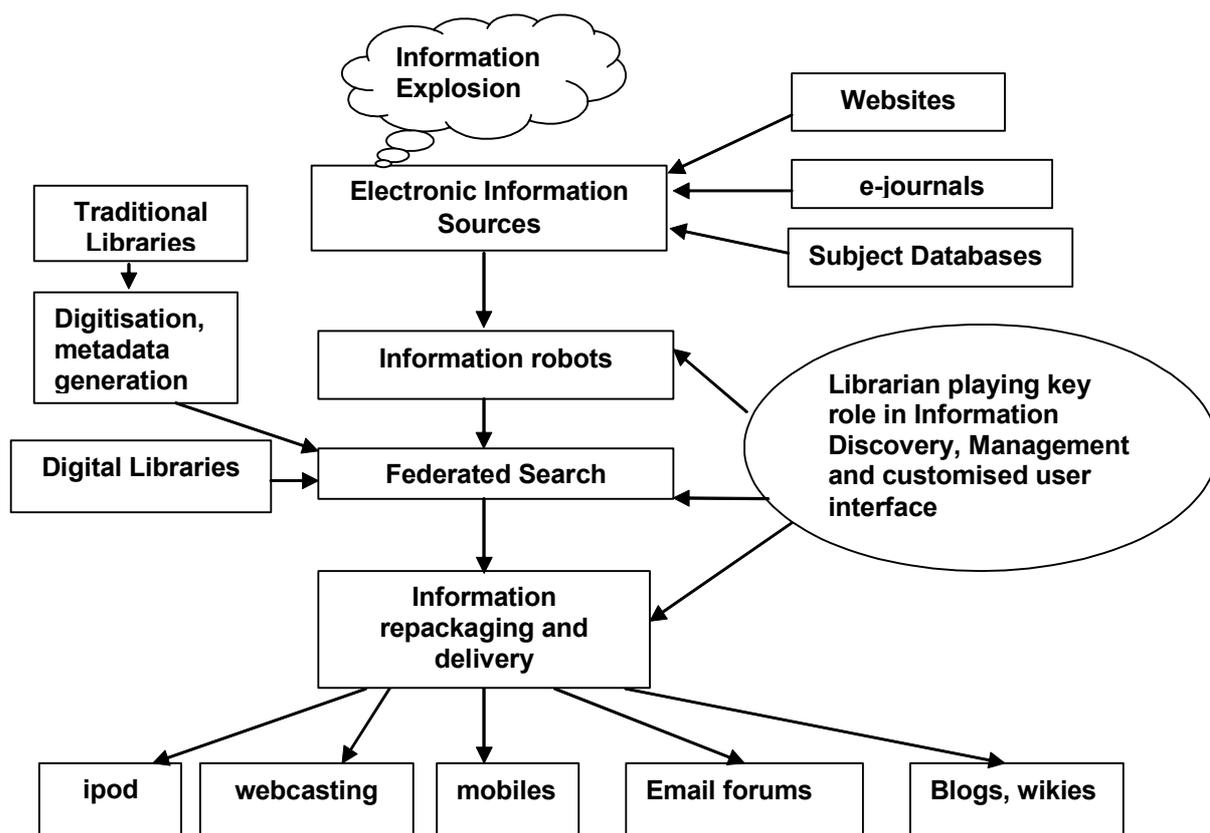


Figure 1. Transformations of libraries and librarians with knowledge explosion.

### 3.1 The LIS Perspective

The issues that need to be resolved for building the bridge between e-learning and LIS profession are:

#### 3.1.1 Standards

The standards need to be taken into consideration for effective utilisation of library resources in the e-learning environment. Firstly, the interpretability standard for exchange of metadata and digital objects between different systems must need to be in place. The standards such as Dublin Core for exchange of metadata need to exist. Secondly, standard for seamless resource discovery mechanisms and scaleable solutions is required for effective integration of services.

#### 3.1.2 Collaborations

The faculty, the library, the IT, and the instructional design departments need to collaborate in developing sustainable and seamless infrastructure. However, very few institutions systemically attain such a coherent strategic approach. Efforts need to be made in undertaking collaborative work from the beginning to provide effective services. Here library can take a lead in bringing together different coherent groups to maximise

the best use of library resources and services. In other words, libraries have to deploy their services in a new learning environment using a technology outside their control.

#### 3.1.3 Costs Control

E-learning environment ensures cost control in the dissemination of information. Even though initial cost of converting resources and services will be higher to suit to e-learning environment, but over a period of time, this will come down, as only maintenance of services will be required in later years. This will have a greater benefit for libraries, as administrators always consider them as spending institutions. Hence, authorities may sanction appropriate budget for libraries to provide access to e-resources and services in the e-learning environment.

### 3.2 Resources and Services in E-Learning Environment

In order to support access to crucial electronic resources, libraries organise online tools to provide metadata for online materials, link online index entries to individual journal articles and provide mechanisms for requesting printed articles. Some of the areas, which libraries can provide access to and initiate measures to implement the same are:

### 3.2.1 E-resources

Electronic resources are available in various forms such as databases, journals, pre-print archives, working papers, etc. Some of these are priced but many of them are available free of cost on the Internet. Libraries have to devise a mechanism to identifying the resources required for their users and provide access to them through their website or portal on Intranet or Internet. This will enable users to access these resources remotely from their offices or homes, which is a preferred mode of users in the present e-learning environment. This will also enable distant learners to get benefit of such services.

In a recent case study Low and MacColl have shown that the resource discovery has been overlooked as a function of virtual learning environments (VLEs) by vendors<sup>3</sup>. Recent digital library work based on open architectures and web services has allowed the initially closed environments of VLEs to be opened in order to allow library resources to be searched dynamically with result sets made consistent through metadata mapping and capable of being displayed in a variety of portal interfaces. In this way, library services have been proactively developed in order to be flexibly retrofitted to learning environments. The value of the service oriented approach has been proved, and user studies have encouraged further development, which is likely to include enrichment of discovered resources with user annotation and other useful information, as well as putting resources into appropriate use such as reading lists.

### 3.2.2 Content Management

In today's Internet era Content management has become absolute necessity. Managing the scattered online information resources, which is growing at phenomenal rate, has now become vital. The user desires to have all information in electronic form from a single point of access. The access point is usually a library website, which provides access to all types of local and remote electronic resources. Hence, libraries have to gear up and establish Content Management Systems using open sources or commercial software such as MyLibrary or Plone to provide customised services to the users.

### 3.2.3 Digital Library/Institutional Repository

The Internet era has caused proliferation of electronic documents in all the subjects and also forcing institutions to bring out their publications in electronic format for wider publicity, and distribution. The number of such documents has been increasing steadily at a phenomenal rate thus causing problem of managing

these resources. The libraries attached to institutions need to develop digital libraries to have a control and provide access to documents, which are of interest to institute's employees. In addition, libraries can also develop an institutional repository for providing wider access to their institute's publications. Libraries can develop such digital library systems using any open source software such as Greenstone, DSpace, etc.

### 3.2.4 Courseware

Enhancement of classroom activities, beyond the four walls, with electronic documents resulted in rise of course management systems either developed within the institute or by an outside agency. The courseware enables students to have access to resources, including those offered by libraries from a single web space. This makes the most effective and cost-efficient use of institutional resources bringing the library's traditional role as resource-sharer into the world of digital objects and environments. The courseware environment provides an opportunity for libraries to take their services directly to the students. Libraries can offer access to courseware from their website or portal.

### 3.2.5 Digital/Virtual Reference Service

A digital/virtual reference service is a service requested and provided over the Internet usually through e-mail and instant messaging (chatting) by the library staff responsible for providing reference service to the users. This service is a new way of answering users' reference queries without them visiting the library. This service is provided using e-mail answering queries over a period of time or through real-time chat messaging services. Users' get connected to this service through library website by clicking on a link 'Ask a Librarian' or 'Live Chat Reference Services'. This enables libraries to meet users' expectations in the web-centric environment without wasting their valuable time.

### 3.2.6 Electronic Discussion Forums

Electronic discussion forum is a special usage of e-mail that allows for widespread distribution of information to Internet users on a given topic. Many a times it brings in interesting discussion on the topic among the registered members and also helps in bringing consensus on the topic. Various web service providers such as Google, Yahoo and MSN provide this service free of cost to members in the form of groups. Through these lists, researchers in various subject fields exchange views, expertise, and information on the current topics. In the present environment, it acts as an important tool to keep library members informed about new library collection, services, updates, and upcoming events.

### 3.2.7 Federated Search

It is a search for information using software designed to query multiple networked information resources or databases through a single search interface. These interfaces are designed to search local and remote library catalogues, abstracting and indexing databases, full-text databases, and digital repositories using standardised protocols such as Z39.50 and OAI-PMH. Federated search has gained a momentum in the e-learning environment as library users are no longer interested in searching information from multiple sources. Hence, libraries can make use of this tool by cross linking their databases, catalogues, and contents from the subscribed e-journals available from single search box. This could be specific to parent organisation or part of a search engine such as Google or Google Scholar.

### 3.2.8 Social Networking and Web 2.0

Social networking is the grouping of individuals in a specific groups like small rural communities or experts in a particular field to discuss or exchange views online through a website. Facebook and Orkut are the best examples of such mushrooming sites on the Internet. In order to be part of social networking site, membership is a must and then depending upon the interest, one may interact with friends or groups or anybody in general on topics of common interest. These sites can be used as a good tool by libraries to get users' feedback, ranking for services, library notices, etc. In the web 2.0 environment, the sites providing social networking play crucial in enhancement of library services.

### 3.2.9 Education and Training

Role of libraries does not end by simply providing access to the traditional or electronic resources. They have to provide an orientation to the users in the use of such resources either by classroom teaching or through online tutorials. In the e-learning environment, to reach the remotest users, libraries have to develop online tutorials for using various electronic resources and services and make these available from their website.

In a recent a survey<sup>4</sup> conducted by Jane Hart, Head of the Centre for Learning & Performance Technologies, Somerset, England to know the non-librarians perception regarding the usefulness of the library databases as e-learning tool they can access courtesy of their local library, not a single online library database could make its mark in top 10 amongst the 100 e-learning tools short listed by 64 e-learning experts. The top amongst these were the Firefox Web browser; social book marking tool like del.icio.us, followed by Web-based e-mail, specifically Gmail from Google. This indicates that the librarians have to go miles towards the

education and training aspect to create the awareness regarding the e-resources. There should be some rethinking regarding the critical licensing issues of the e-journals and databases so as to make them available for the common man. Even some innovative knowledge-based marketing efforts are required by librarians in collaboration with the domain experts. Some open tests/quizzes could be assigned to the students to encourage them to find the answers from the e-journals/databases. The popularity of Google and Google Scholar amongst the academic community forces some rethinking regarding the user interface and regularity of the updation of the knowledge resources for the e-journal and e-databases trying to attract the e-learning community.

## 4. E-LEARNING: NOTEWORTHY INITIATIVES

Libraries can provide access to various resources and services to the users in the e-learning environment. The initiatives taken by some libraries in meeting the challenges of e-learning environment in order to retain their base have been presented here. The study includes only few selected academic, research and public libraries of India and the world.

### 4.1 Indian Scenario

In addition to the libraries mentioned above, e-learning initiatives are in nascent stages in certain other libraries of India. It is certain that, after sometime, these libraries will also have full fledged e-learning activities to support the information requirements of their clientele. The survey (Table 1) shows that, libraries in India have started gearing up towards the e-learning environment. However, still they have to introduce many services such as federated search, courseware, training, content management, web 2.0, etc.

### 4.2 World Scenario

According to study undertaken by Christina Laun<sup>5</sup> some of the best libraries, who have made best use of technology and innovation in providing the effective services to their patrons' in the e-learning environment-are summarised in Table 2. A fading demarcation exists in western countries in public and academic libraries. Many of the public libraries are seen serving the academic community. In this sense, the suit may be followed by the Indian academic libraries from the viewpoint of implementing technological methodologies as well as increasing access to common man.

## 5. CONCLUSION

The e-learning environment has ushered new avenues for libraries to blend their traditional resources and services with electronic ones to meet the

**Table 1. Libraries in the e-learning environment**

S. No.	Libraries	Resources and services provided in the e-learning environment
1.	IIT Libraries	Digital library (DL)/institutional repository (IR) VRD/Ask the Librarian e-Resources (Journals/Databases) e-Print archives Online Public Access Catalogue (OPAC)
2.	IIM Libraries	OPAC e-resources (Journals/Databases) DL/IR e-Print Archives Ask a Librarian
3.	IGIDR, Mumbai	DL/IR OPAC e-Library Content Management System e-Resources (Databases/Journals) OII
4.	University of Hyderabad Library	Ask a Librarian DL e-Resources OPAC
5.	NAL Information Centre	e-print Archives/IR e-Resources OPAC
6.	IISc Library/NCSI	DL/IR e-Print Archives Ask the librarian e-Resources (Databases/Journals) OPAC
7.	NIT Library, Calicut	DL e-Resources (Databases/Journals) OPAC
8.	Indian Statistical Institute (ISI) Libraries	DL/IR e-Resources (Databases/Journals) OPAC
9.	Bangalore University Library	Ask a Librarian e-Resources (Databases/Journals)OPAC
10.	Raman Research Institute Library	DL/IR e-Resources (Databases/Journals) OPAC

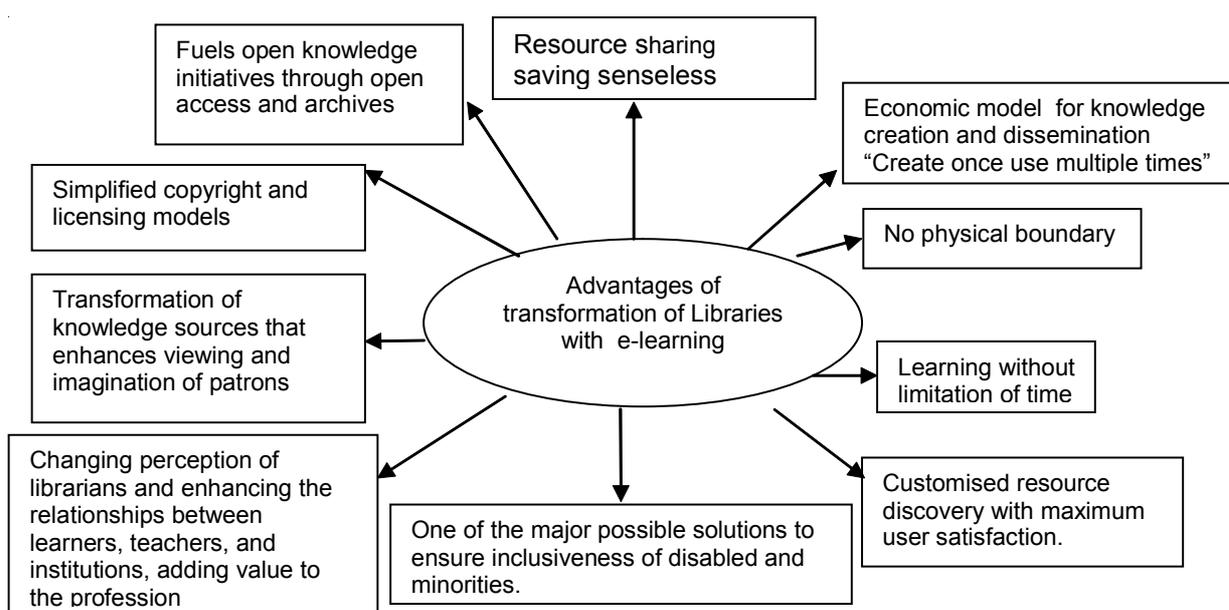
information needs of wider clientele. The benefits paved with the synergic combination of e-learning with LIS are shown in Fig. 2. But there are still serious concerns regarding the low visibility of the e-resources for the e-learning in the academic community. The libraries are definitely transforming and getting modernised with the e-learning movement. However, this force shouldn't become brutal to convert the libraries into the stores as seen by the latest naming conventions of libraries worldwide. Librarians have a major role to play to maintain the piousness in the e-learning environment by gradually taking the mastery of the technology hand in hand with the conventional library practices. The psyche of the librarians regarding the technology as "cutting the mustard" needs to be changed. Accordingly, they have to gear up for this challenge by developing new mechanisms such as portals, digital library, courseware,

etc. in order to provide access to resources and effective services to users. It lays greater responsibility on library professionals to develop their skills to meet challenges posed by e-learning environment.

As far as scenario of the developing countries like India towards making the libraries techno-savvy is concerned, it showcases awesome trends. Although, India is regarded as the nation with best techno-competent human resource, their participation and contribution in 'Library Movement' is not noticeable. It is high time now to change the Indian psyche of a librarian's image as the person taking care of security of books, but to the information manager. This might be possible with changing the recruitment profiles for the librarians and/or by incorporating more technology-based components in today's bachelors and masters

**Table 2. Most modern libraries**

S.No.	Name of the Library	Technology and Innovation
1.	DOK (Delft Public Library)	Wired to deliver a text message to phone when user enters, books and cards. RFID, LCD screens available around the building filled with information, stations for podcasting and videocasting.
2.	Turku City Library, Finland	Books, DVDs, CDs classified together as per subject.
3.	Bow Idea Store	Combination of technology with conventional resources.
4.	Cerritos Library	Huge multimedia lab, thousands of laptop stations, wireless headsets and computers for librarians and an RFID tracking system for books.
5.	Cuyahoga County Public Library, Ohio	Text message delivery of library notices, offers access to 85 colleges and universities through its online OhioLink program, participates in a podcasting program and places videos of speakers and visitors to the library online for all patrons to enjoy.
6.	Pace University Library, New York	Internal streaming system called MediaPatch that facilitates library to share various types of media across campuses quickly and easily. This also solves several copyright concerns as the information never leaves the school's secure servers but still allows distance learners and those in the classroom to quickly and easily access information.
7.	Richmond Public Library	Library users express check out stations so librarians are free to do other things.
8.	Denver Public Library	Uses extensive webpage, a podcasting series, and a huge digital download site. Audio books, online movies and e-books for use on their computer or MP3 player.
9.	San Diego Public Library	Free wi-fi along with a variety of e-books and audio books, online assistance.
10.	Cleveland Public Library	With a NetNotice plan the information is sent on the library or reserved materials directly to patrons' inboxes.
11.	Carnegie Library of Pittsburgh	Uses online chat with librarians, an RSS feed, a blog, podcasts, online requests, downloadable media, reach out to teens with MySpace and Facebook pages.
12.	New York Public Library	Worked with Google to create a selection of digital books and offers patrons a large number of online text collections. The library is also highly tech savvy with an active RSS feed as well as podcasts on iTunes



**Figure 2. Benefits paved with the complementary hand-in-hand marching of library and e-learning.**

program of library and information science. The trends in the offshore libraries reviews in the article evidences their technological capability, as well as the use of diversified media tools such a podcasting, chatting for reaching the library resources to the patrons. The notable fact is the technology has been effectively used to keep librarians free to study, research, explore, and experiment more innovations.

There is no doubt that the winds of e-learning are forcing the libraries and LIS community to lead towards the Library 2.0 movement. In order to achieve the goal of Library 2.0, there is a need of common exploration by academicians, e-learning experts, and library professionals. Together they can come out with innovative technological platforms such as a common search service, linking of portals to databases, webcasting of information, customisation of e-journal article search for the e-learners etc.

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