

Role of E- Resources in Teaching and Learning: An Overview

Satyaprakash Singh

Abstract

The main purpose of this paper is to discuss the need and advantages of e-learning and electronic resources. Nowadays e-resources are becoming more popular, since they are not only easy to use but are also reliable. Searching relevant information in a time frame is significant for both researchers and information professionals. E-resources are gaining popularity due to easy and fast accessibility. This paper focuses on the uses of various forms of electronic resources in academics and research. The new and current trend of library services has an economic and user-oriented tendency to access library collections electronically. Library professionals feel that electronic information has a vital role in providing updated information and timely delivery to the users.

Keywords: Library, Information, E Resources, Technology, Research

Introduction

Information Technology (IT) has brought a significant change in all fields of life. It has also revolutionized the role of the library. Information needs of the users in a library, which is the reservoir of information for research, education, reference and guidance may be fulfilled in many ways. Users no longer merely depend upon the printed sources of information. Advancement of information technology has led to the development of electronic resources. In this modern age of new technology in the fields of computer and telecommunication, digitization has finally reached the book publishing industry as well. Electronic resources are sources which provide on-time information in an electronic format, and the information is available at any time as per the need of users.

Electronic resources are enabled by technical capability to create search by using enormous amount of information. Electronic resources include electronic journals, electronic books, electronic database, CD ROMs, DVDs, Internet resources etc.

Features of E-Resources

- Multi-access
- Speed
- Functionality
- Content
- Re-use
- Management
- Storage
- Timeliness

Advantages of E-Resources

- Information access can be made without wasting any time
- Coping with open mouth problem of space and budget etc. in libraries and information centers
- Desired information can be retrieved within few minutes at the learning desk
- Vast collection of information can be stored in a small place
- Resource sharing at desired level among libraries and information centers.

Growth Pattern of Electronic Resources

Although information in electronic formats was created with the advent of the computer in the 1950s when the first data base suitable for searching was developed. MEDLARS were the first on demand computer-based information retrieval service, and it was developed primarily for the profession. In 1971, MEDLIN, the online version of MEDLARS was the first major online dial-up database search service. Many of the first CD-ROM products offered to libraries were versions of larger online databases and were supplied on a subscription basis with ownership of the data remaining with the publisher/producer. Initially the price of the product included licensing of the content, possibly the purchase of a computer and CD-ROM player as well.

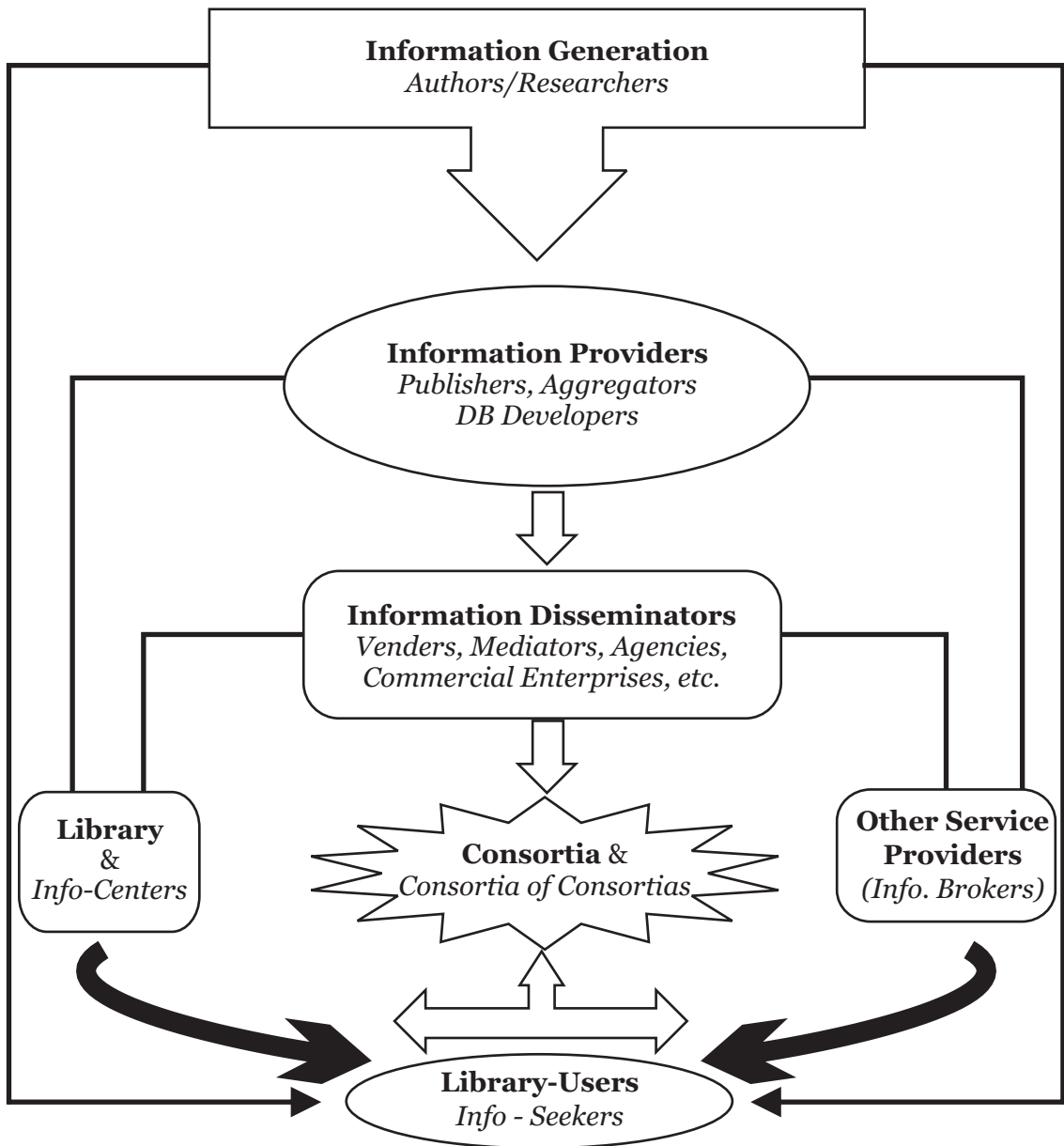


Figure 1. Information flow through “e-resources”

E-Journals

E-journals are simple electronic representations of journals. The library at the University of Glasgow provides the following definition. "Any Journal that is available over the internet can be called an electronic journal...some electronic journals (e-journals) are freely available; others have changing mechanism of different types. Established publishers issue some". Others are products from an individual academic's office, with varying quality and relevance. In other words, e-journals are those, which are available electronically to be used with the help of computer and other communication technologies. Journals available on internet, also referred to as Internet journals are networked journals. They include newsletters, magazines, periodicals and discussion lists. Some major Databases products related to science and technology and engineering are as follows: ACM Digital Library, ASCE Journals, ASME Journals, IEL online, Springer's Link, ASTP (Applied Science and Technology Plus). Electronic journals can be grouped under the following three broad categories:

- 1. Online Journals:** These are paid journals that are available on 'pay-as-you-go or cost –per-access based via online database, such as EBSCO information services. The user or the organization has to bear the cost of subscription.
- 2. CD-ROMs:** These are journals published on CD-ROM, may be bibliographical or full-text. They vary in frequency and are distributed along with search software to access and print.
- 3. Networked e-journals:** Networked e-journals are available over networks, such as Internet or many other commercial networks. Many of the networked e-journals are based on mailing list software, such as listserv, majordomo etc. and are distributed in one of the following two ways. The central computer holds a list of subscribers and sends them content pages and abstracts by e-mail when a new issue is published. Subscribers can then retrieve articles through file transfer (FTP) and deliver to their mailboxes or else Subscribers are automatically sent the full-text of each issue by e-mail.

E-Books

An e book is an electronic representation of a book, usually a parallel publication of a print copy, but occasionally born digital. The new concise oxford English dictionary (2001) defines e-book as, "an electronic version of a printed book which can be read for this purpose." According to Ormes (2009),

“The term e-book is used specifically to describe a text, which requires the use of e-book software or hardware to read.”The term book includes audio, video, electronic books or e-books. E-books are made on cassette, compact disc, floppy disc, CD-ROM, or downloadable program.

Electronic books are portable computerized devices that allow readers to download text and then read and mark it. E-Book is also referred to as a paperless book and is read on a specially designed device such as personal digital assistant (PAD), or a desktop or laptop computer. There are two types of e-books. Those, which represent an e-version of a whole book (Print) and those, which are effectively database of linked materials.

E- Databases

Electronic database is an organized set of data stored in a computer and can be searched automatically. Database contains usable raw data or description of the sources where data can be found. Database generally refers to machine readable file or bibliography records but may be used more specifically to refer to a shared collection of structured data managed by a set of special software. According to Jennifer Rowley, Database that might be available to information users in the public arena, and which might be accessed either remotely via an online search service or more locally on CD-ROM can be categorized as follows.

- **Bibliographic Database:** In bibliographic database, all those databases are counted in which the information related with documents such as books, periodicals, encyclopedias etc. are contained and users use them for access of information
- **Full text Database:** This category contains not only full text of the documents but gives information regarding the source also.
- **Numeric Database:** Numeric Database is that which contains numeric, statistical or survey type information to give answers of numeric queries.

CD-ROM

Today CD-ROM has become a popular e-media for archival, retrieval and distribution of information. Now every possible title on commercial and technology products, entertainment, database, education and business applications are available on CD-ROMs. The rising demand for multimedia applications, due to easy accessibility of PCs is also fueling its growth.

Features of CD-ROMS

The success of CD/DVD-ROMs over traditional removable media such as floppy disk, tapes can be attributed to following key factors:

- Cross-Platform standard
- Capacity
- Durability
- Portability
- Inexpensive
- Random access

Multimedia Capability

CD/DVD-ROM allows different data types such as text, audio, video to be played in synchronized fashion, for example, an encyclopedia CD/DVD-Rom can simultaneously show text and video clips while playing sound track.

DVDs

DVD- digital video disc or Digital Versatile disc for the computer industry is the next generation to compact Disc in optical disc storage technology. A DVD looks just like a CD (Both have 120 MM Diameter)but has a higher data storage capacity. CD data is recorded on DVD in a spiral trail of tiny pits, and the discs are read using beam. The larger capacity of DVD is archived by making the pits smaller and spiral tighter, and by recording the data in as many as four layers, two on each side of the disc

The main feature of DVD is compression technology and storing of data on multi-layer sides. A single-sided layer DVD holds 4.7 GB and two layer DVD can hold 8.5 GB of data.

Features:

- The high storage capacity of DVDs as compared to CD-ROM
- The quality of sound and video in DVD is better than CD-ROM
- DVD can deliver the data at a higher rate than CD-ROM
- Drives can read both CD-ROM and DVD-ROM
- Multilingual database can be handled
- Better security of data
- Printing and downloading information are feasible

- By using DVD database, it might be possible to avoid CD-ROM, Jukeboxes.

Internet Resources

Internet has been defined as a “networks of networks”. It opened new vistas for information seekers during 1990. During the period, the internet transformed into a widespread, popular and commercial means of communication, accessible by a large number of people, organization and libraries of all kinds. Individuals/institutions use the Internet as a key information server tool; the World Wide Web (WWW), set up most amount of Information. Many journals, reports, papers and reference sources are available free on Internet and they even constitute sites on the web. For the better use of these resources, library consortia came into existence. Library Consortia are all about sharing resources and improving access to information. These resources are shared among libraries that have common missions, goals and clients (users) and act on those commonalities. Earlier library resources were shared through inter library loan, but in this Information communication technology (ICT) age it has gained momentum even in the developing countries.

E-Journals Consortia: Indian Scenario

INDEST

The Ministry of Human Resource Development (MHRD) has set up the 'Indian National Digital Library in Engineering Science and Technology (INDEST) Consortium' on the recommendations made by the expert group appointed by the minister under the chairmanship of Prof. N. Balakrishnan.

The ministry provides funds required for subscription to electronic resources for 47 Institutions including IISC, IITs, NITs, IIMs and a few other centrally funded Government institutions through the consortium headquarters set up at the IIT Delhi. Government or Government aided engineering colleges and technical department of universities have joined the consortium, as an open-ended proposition, and welcome other institutions to join it on their own for sharing benefits it offers in terms of highly discounted rates of subscription and better terms of agreement with the publishers. All electronic resources being subscribed are available at the publisher's website. The consortium has an active mailing list and a web site hosted at the IIT, Delhi.

E-Resource INDEST-AICTE Consortium

The INDEST-AICTE Consortium subscribes to the following resources for

various categories of institutions. All electronic resources subscribed are available at the publisher's web site. Local hosting of resource has been considered at this stage.

Full –Text E-Resource

Name of Journals	Web sites Address
ABI/Inform Complete	http://www.il.proquest.com/pqdauto
ASCE Journal	http://scitation.aip.org/publications/mybrowsepub.jsp
ACM Digital Library	http://portal.acm.org/portal.cfm
ASME Journal	http://enterprise.astm.org
Journals:	http://journalsip.astm.org
CRIS INFAC Ind. Information	http://www.crisil.com
Digital Engineering Library	http://digitalengineeringlibrary.com
EBSCO Database	http://search.epnet.com
Elsevier Science Direct	http://www.sciencedirect.com
Engineering Science Data Unit	http://www.emeraldinsight.com
Emerald Full Text	http://www.emeraldinsight.com
Emerald Management extra	http://www.emeraldinsight.com
Euro monitor (GMID)	http://www.portal.euromonitor.com/portal/server.pt
IEEE/IEE Electronic Library	
Online (IEL	http://ieeexplore.ieee.org
Indian Standards	Internet Version
INSIGHT	http://www.insight.asiancere.com
Nature	http://www.nature.com
ProQuest Science (formerly ASTP)	http://il.proquest.com/pqdauto
Springer Link	http://www.springerlink.com
IET Digital Library	http://www.ietdl.org

Bibliographic Databases

COMPENDEX on El Village <http://www.engineeringvillage2.org>

INSPEC on El Village <http://www.engineeringvillage2.org>

MathSciNet <http://www.ams.org/mathscience>

UGC-INFONET

The UGC-Infonet Digital Library Consortium was formally launched in December 2003 by Honorable Dr. A. P. J. Abdul Kalam, the President of India soon after providing Internet connectivity to universities in the year 2003 under the UGC Infonet programme. The consortium proved to be a boon to university libraries which had been discontinuing subscription of scholarly journals because of "Serials Crisis". The term "Serials Crisis" refers to exponential and continuing increase in subscription cost of scholarly journals. The crisis is a result of rise in cost of journals much faster than the rate of inflation, increase in number of journals and the paucity of funds available to the libraries. The consortium provides current as well as archival access to more than 5000 core and peer-reviewed journals and nine bibliographic databases from 23 publishers and aggregators indifferent disciplines. The program has been implemented in a phased manner. In the first phase that began in 2004, access to e-resources was provided to 50 universities who had Internet connectivity under the UGC-Infonet Connectivity programme of the UGC. In the second phase, 50 more universities were added to the programme in the year 2005. So far 153 Universities out of 171 that come under the purview of UGC have been provided differential access to subscribed e-resources. These e-resources covers almost all subject disciplines including arts, humanities, social sciences, physical sciences, chemical Sciences, life sciences, computer sciences, mathematics and statistics, etc.

UGC-Infonet Digital Library Consotium

The UGC Infonet Digital Library Consortium subscribes to the following resources for its member institutions:

Full Text E Resources

- American Chemical Society <http://www.pubs.acs.org/>
- American Institute of Physics <http://scitation.aip.org/publications/mybrowsepublish.jsp#ASP>
- Annual Reviews <http://arjournals.annualreviews.org/>

- Blackwell publishing <http://www3interscience.wiley.com>
- Cambridge University Press <http://journal.combridge.org>
- Oxford University Press <http://www.oxfordjournals.org>
- Royal Society of Chemical <http://www.rsc.org/publishing/journals>
- Project Mouse <http://muse.jhu.edu/>

Bibliographic Database

- MathSciNet www.ams.org/mathscinet
- Royal Society of Chemical <http://www.rsc.org/publishing/journals>
- ISID <http://isid.org.in>
- JCCC <http://jccc-ugcinfonet.in> or www.jccc-ugcinfonet.in

FORSA

FORSA came into existence in the year 1982, for sharing the resources available in astronomy libraries in the country. In this consortium, subscription for print and electronic format are paid through the supplier. The agreement is meant for only astronomy journals published by a particular publisher. As per this agreement each member maintains its own print subscriptions and with an additional 12% of its print subscription can access the journals subscribed by other libraries electronically. The entire negotiation was based on the number of the print journals. It is a win-win situation for both the members and the publisher in terms of decreased cost for electronic access to members and a greater number of journals at the same price.

Conclusion

The growth of internet witnessed the emergence of several e-resources that were launched only for internet without a printed counterpart. However, as technology and popularity of internet grew, several mainstream resources primarily available for print subscription also started appearing on the web. The transition from Stone Age to the Agrarian Age to the Industrial Age occurred slowly, unfolding over generations. The 20th century library has faced and conquered the challenges thrown by new formats of materials, from print to microfilms, audio-visual materials, CD-ROMs, computer software, and machine-readable data files. Beginning in the mid1990s, electronic journals access through the internet has made librarianship more challenging. Even though major issues inherent in electronic access management have been raised, not all have been resolved. Librarians are continuing to seek way to

make access for users as easy as possible. While they are confused with the challenging aspect of hunting for creative solutions, they are rewarded in seeing the surprise and amazement of users when told that they can access needed journal articles and other library resources with their computers from their homes and offices.

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