



**GNITED MINDS**  
Journals

*Journal of Advances in  
Science and Technology*

*Vol. VI, Issue No. XI,  
November-2013, ISSN  
2230-9659*

**ACCESSING OF ELECTRONIC INFORMATION  
RESOURCES: A CASE STUDY OF AWARENESS,  
ATTITUDE AND RESOLUTIONS IN ACADEMIC  
LIBRARIES**

AN  
INTERNATIONALLY  
INDEXED PEER  
REVIEWED &  
REFEREED JOURNAL

# Accessing Of Electronic Information Resources: A Case Study of Awareness, Attitude and Resolutions in Academic Libraries

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**Abstract** – Library is a repository of resources that create a fundamental change in education. Adequate electronic resource facilities empower and enrich the higher education system in meeting the best academic needs. Users are able to access e-resources either by local or remote locations. In this paper, we consider only electronic resources available at National Institutes of Technology (NITs) libraries across the country. The electronic resources consist of online journals databases, CD-ROM material and audio/video course materials. The survey finds majority of libraries use 11 to 15 number of online journals databases, whereas 25 per cent libraries have the facility of more than 16 number of online journals databases. Very few libraries (20%) indicate that they have less than 10 online journals databases at their end.

Eighty five percent of libraries have the facilities e-resources on CD-ROMs/DVDs form. About 90 per cent of libraries obtain audio/video course materials. This study also reveals the zone-wise performance among NIT libraries in India with respect to electronic resources availability. The South zone (75%) libraries have better off in comparing to the other zones libraries.

In late 20<sup>th</sup> and early 21<sup>st</sup> centuries, library automation and the Internet revolutionized information access and library operations around the world. The effect on academic institutions has been profound. It enables users to access library resources from sites hundreds or thousands of miles away. Libraries in academic institutions can now provide information access to off-campus faculty and students wherever they are located.

Earlier information resources were considered physical entities but now these have evolved from traditional print documents to electronically stored information resources. In this time of lessening finances, myriad forms of resources and rising expectations of user community, libraries face many challenges to operate competently. The demand to provide more electronic information resources often results in a need to find creative ways to get the most out of our limited financial resources. Present paper discusses the Electronic Information Resources (EIR) in detail explaining their advantages and various types. Also depicts how consortia approach will be helpful in harnessing EIR for a developing country like India. The paper also tries to describe major prerequisites for consortia initiation and benefits that can be expected from a successful consortium. It is concluded that Indian libraries must seriously think, proceed and commence consortium movement for maximum utilization of EIR at a reduced cost, time and space.

E-resources are resources in which information is stored electronically and it can be accessible through electronic systems and network environment. E-resources are a very broad term that includes a variety of different file formats. Instant access is quite possible with E-resources within a fraction of second. Acquiring knowledge from E-Books, E-Journals, Online resources, CDROM, Internet with related Databases are the impact of E-Resources.

## INTRODUCTION

Academic system largely relies on teaching, learning and research. Eternally, education depends on information resources. These resources are the driving forces for making an educated society. The educated society can exist only when information is stored, shared and utilized properly. In an academic

arrangement, both 'education' and 'library' are inseparable – indivisible concepts, working for the promotion and evolution of teaching, learning and research for greater use of academia.

Library is a repository of resources. It is an integral part of the educational system whose primary function is to serve users (students, faculty,

researchers and staff). Computers and related electronic resources have come to play a central role in education (Lang,2008). Electronic resources are the prime ingredients and they become a common part of the suite of most academic library resources today.

AACR2 Rule 9.0A1 states “electronic resources consist of data (information representing numbers, text, graphics, images, maps, moving images, music, sounds, etc.), programs (instructions, etc., that process the data for use), or combinations of data and programs.” (Brinkley, et al. 1999). In early 70s, most of the electronic sources were available on magnetic tapes and some of these were online (Ravichandra Rao,2000). Various kinds of resources that are available and accessed today are intranet (locally produced e-resources), internet also called online (remotely stored e-resources) and physical media (stored data on CD-ROM, audio, video cassettes etc) based. The third one is much like the traditional paper based publications with the exception that they require computer hardware and software for their utilization (Jodelis,2003). Building electronic collections is largely influenced by a set of library policies and user (faculty and students) preferences in the academic environment (Clarke, 2004).

The proliferation of electronic resources has had a significant impact on the way the academic community uses, stores, and preserves information (Heterick, 2002). These e-resources are added value to the academic libraries to offer better services to users. These e-resources are accessible from many different approaches. Users are able to access e-resources either by local or remote locations (Clarke, 2004).

The electronic resources empower and enrich the academic system. But, the increase in information generation at an estimated rate of 13 per cent per annum has made the task of collection, organization and retrieval of information very difficult (Subba Rao, 2001). Alternatively, the academic libraries often prefer electronic resources to substitute print collections for optimum use. Many reasons including physical space, escalation in journals' prices, digital literacy, discovery system, and skilled manpower force the academic libraries to opt for electronic resources in meeting needs of the large community of users.

By the turn of the 21<sup>st</sup> century, library automation and the Internet had revolutionized information access and library operations around the world. The effect of this revolution has been profound, especially on academic institutions. Libraries in such institutions can now provide information access to off-campus faculty and students wherever they are located – even to sites hundreds and thousands of miles away.

To meet the ever-increasing demands from users for remote access to information, academic libraries now subscribe to electronic resources such as e-books, full-text e-journals and online bibliographic databases, in addition to housing these resources in their printed

formats. While the availability of these electronic resources enables remote access to needed information, they concomitantly present issues and challenges.

The information arena today witnesses an explosive situation with the advances in technology. Not only the definition of resources embedding information has changed but also the concept of information resources has changed completely due to rapid and widespread development in the technology. Earlier information resources were considered a physical entity but now these have evolved from traditional print documents to electronically stored information. In most simple words, when we process data and convert it into meaningful and useful form, it becomes information, when this information is fetched in electronic form; it is called electronic information resources (EIR). Thus, EIR are the information resources, which is available in remotely located databases and can be accessed through interactive communication with the help of computers and communication channels. It also includes collection of library or archival materials converted to machine-readable format for preservation or to provide electronic access. EIR are being added to library collections at exponential rates. Libraries do extensive work to make e-resources available without the need for individuals to enter the library complex. Since the creation of EIR, its potential as an instructional tool and learning environment has attracted intense academic interest and commercial development.

Today libraries are providing electronic access to a wide variety of resources, including indexes, full-text articles, and complete journals with back files and Internet / Web resources. In fact, libraries have been moving towards an electronic environment, in which sufficient computers are necessary for patrons to access information.

The array of electronic resources available in libraries today is an outgrowth of the changes in information delivery made possible through advances in both computer technologies, such as powerful personal desktop workstations, and information storage and delivery mechanisms, such as CD-ROMs and user-friendly graphical user interfaces (GUIs). These advances made the ongoing efforts to replace other traditional services and processes with electronic versions attractive and economically feasible for many libraries.

## ELECTRONIC RESOURCES CONCEPT

Evolution and growth of e-publishing industry in the field of ICT has given birth to electronic resources. It is an umbrella term for all digital resources. Digital information exists in a format that a computer can store, organize, transmit and display without any intervening conversion process. It is described as 'born digital'. They refer to the use of information technology in the production of publication and the

electronic distribution of text through computer terminals. These resources play an important role in the creation, transmission and storage of information.

Electronic resources encompass many genre, formats, storage and delivery mediums. It is a combination of those resources that are 'born digital' and 'made digital'. The storage refers to the medium used to store and deliver contents to the users. The delivery medium may be a CD-ROM, a magnetic tape or a server that is accessed through the Internet (Johnson, 2004). Thus electronic information arena involves resources covering a wide variety of materials, including indexing and abstracting services, electronic books and serials, electronic databases offered by information aggregators, document delivery services and web sites. Many of these resources may be locally mounted on a library's server or they may be accessed remotely by modem or through direct Internet connections maintained by the library.

The importance of electronic information resources in academic institutions is ever growing. Their primary motto is to provide access rather than ownership. The initiatives like consortia approaches and e-resources in university libraries are expanding and gaining momentum for eg. use of UGC Infonet, NPTEL Courseware. University libraries must move with minimal disruption from a library model directed primarily at ownership of materials to one in which access and delivery play a more central role (R.M. Michalko & Hughes, 1991).

Electronic resources located and remotely accessed by librarians have been characterized by continuous, incremental growth in products and services. They present unique considerations like comparing various delivery and access media for the same content, complex pricing structures, access to retrospective files, copyright, security, bibliographic control, indexing, archiving and contractual licensing issues and high expenses. The wide spread availability of electronic resources posed new challenges in the library acquisition process such as site licensing, copy right issues and means to provide access to various electronic resources (D. Sivaraj et al, 2007). Best standards and practices are still in the development stage to handle the compatibility of the systems, standard format, interoperability, data encoding and transmission scheme to convey information.

## **E-RESOURCES**

An electronic resource is defined as a resource which requires computer access or any electronic product that delivers a collection of data, be it text referring to full text bases, electronic journals, image collections, other multimedia products and numerical, graphical or time based, as a commercially available title that has been published with an aim to being marketed. These

may be delivered on cd rom , on tape, via internet and so on. Over the past few years, a number of techniques about related standards have been developed which allow documents to be created and distributed in electronic form. The e-resource on magnetic and optical media has a vast impact on the collections of university libraries.

Electronic publishing has lead to new era of communications and information sharing. It creates opportunities for users as well as authors and publishers. Many of the electronic books or electronic publisher's web site freely permit and encourage readers to provide feedback on works, often directly to the author rather to the publisher. Nevertheless users may establish their own accounts, charge services to credit cards or to pay by prearranged method, and have requested material delivered directly to them by fax, e-mail, etc. today, libraries of all kinds have been spending larger and larger shares of their budgets to adopt or gain access to electronic resources from publishers and vendors. This is due to the fact that e-resources have enabled libraries to improve services in a variety of ways. First, most e-resources come equipped with powerful search and retrieval tools that allow users to perform literature searches more effectively and efficiently. Moreover, since most relevant e-resources are now available through the web, users can have desktop access to them 24 hours a day.

There are several forms and types of electronic resources which are available on the internet, some of the popular ones that are gaining ground are the electronic journals, standards, technical specifications, reports, patents, full text articles, trade reports and hosts of other document sources. Also the printed editions of scholarly journals are available on the web. The publishers of journals are themselves providing services like contents, abstracts of articles, full text, before the actual printed edition is put on the stands. Majority of this kind of service providers are those publishers who have several journal publications to their credit, e.g., Elsevier, Academic Press, Springer, Oxford University Press, Taylor and Francis Blackwell Science and others. Their services are available to anyone having access to RSS feed with free of cost.

Some of the journals are only available on commercial basis for which to pay and use the required amount, and for these journals, users have to pay for the view and if needed, per copy for the print also. UGC-INFONET and INDEST- Consortium are two major initiatives that have come to the rescue of academic libraries so that they can cater to the needs of academia with reasonable subscription fee.

Organizing e-sources is one of the important and crucial works to provide services to the users of the

library information system. In a modern digital library information system, the professionals should have skills like computing, database management, networking, and other management skills relating to IT environment. Therefore, library information professionals should keep in mind the followings points while organizing the e-resources.

- 1) To include those resources either in OPAC or to make difference list for browsing
- 2) Organized to access the e-resources either by alphabetical or under specific subject headings for browsing.
- 3) To set up gateway to e-resources for easy access.
- 4) To develop the institutional repositories for the institutional publications journal and proceedings papers.
- 5) To check the method of access to e-resources, abstracting or full, since most of the users search the resources under subject heading predominantly, organization of e-resources should be in a such a way that the users could be able to retrieve different sets of information records.

## ADVANTAGES OF EIR

EIR are very useful to all institutions and individuals to get instant, relevant, and comprehensive information. Keeping these factors in view, largely organizations are concentrating to build e-collections for their use. EIR are having an edge over its print counterparts because of the browsing, searching, multi-access capability, 24x7 access, remote accessibility, etc. Some of the major advantages of EIR are listed below.

1. Maintenance of Updated information: Data can maintain aptitude so that user will have access to latest version of information. It is very easy to retrieve, manipulate and merge data.
2. Rapid and accurate information retrieval: EIR provide aids for connectivity, audio visualization, customizability, creation and revision of document, interactivity and rapid retrieval of information.
3. Distribution: The major advantages of EIR are their global distribution, their hyperlinks and the ability to access from different sites and ability to reach distant places.
4. Compatibility with search engines: There is good number of search engines available to access and retrieve the appropriate information from the EIR. Most of EIR are providing access to information on the basis of keywords, author search etc.
5. Cost Factor: Whole world is moving towards electronic publishing and the cost of the e-publishing is

much cheaper than that of the print version. Access to EIR is now considered most important element of collection building.

6. Multiple user access: Most of EIR are providing multiple user access which enables many users to access EIR concurrently. Many users can use the same EIR at the same time at any place.
7. Manageability: EIR can easily be managed by adding bookmarks and personal notes to the sites or by downloading it to private files or databases for coping and editing.
8. Availability: Libraries managing collections of IER can support patrons from all over the world via the Internet. As far as electronic resources are concerned, the library is "open" twenty-four hours a day, seven days a week.
9. Technology Savvy: Best suited for the users, who are more technology savvy and are demanding and expecting to meet their all information needs not only on demand, but also in anticipation of demand.
10. Convenient: Patrons can access EIR at their own convenience. "We are here for you" is the motto of these easy-to-use resources. Such notions generate satisfaction among users.
11. Space saving: EIR are less bulky than paper, thus saving incredible amount of space storing documents.

## REVIEW OF LITEARTURE

Asemi and Riyahiniya (2007) conducted a survey to investigate the awareness and use of digital resources by 250 students in the libraries of Isfahan University of Medical Sciences, Iran. The results were that 70 percent of students were aware of digital resources, but only 69 percent of them have used them; 62 percent were aware of offline databases, whereas only about 19 percent used them through the Central Library LAN network. In total 87 percent of students felt that the available data resources met their information needs. Users are faced with problems like low speed connectivity and shortage of hardware facilities. An exploratory study by Vezzosi (2009) at the University of Parma (Italy) on information behaviour of doctoral students showed that, doctoral students rely heavily on the internet for their research work. Students demonstrated progress throughout the years of their doctorate course in terms of awareness and information competence. Parameshwar and Patils (2009) paper highlights a large portion of user population in the university are aware about the internet, but they do not know all its techniques and applications. Further, a few users of the university still have no knowledge about the internet and related applications. For this purpose, there is need for effective user education, to develop awareness and knowledge of the users. More efforts by librarian at Gulbarga University are needed to



educate users to effectively use the internet and its techniques and applications.

Umesh Kumar Agarwal and Rajesh Kumar Dave (2009) have studied the use of internet by the scientists and research fellows of Central Arid Zone Research Institute(CAZRI), Jodhpur (Rajasthan) was assessed on the basis of a questionnaire survey in CAZRI. Further, it also attempts to assess the frequency of use, location where used; search engine accessed; purpose of use, etc. The study revealed that the respondents accessed Google search frequently (100%) followed by Yahoo (85.29%). It is also observed that equally (97.06%) respondents use the internet for education and research. The strong desire of respondents is that the library initiate various functions and services like e-portals, on-line information, abstracts retrieval along with internet. Govinda raju (2010) found by his survey that the use of electronic resources is found to be significant among the users of the Andhra University.

This is quite natural and expected in the present day implementation environment. Some of the resources such as e-book, e-encyclopedias, e-dictionaries are less used. He also felt that to further maximize use of the e-resources, wide publicity and imparting trainings were found to be necessary. Kattimani and Kamble (2010) made a study on awareness of Internet and online information resources.

His study is confined only to the Honey well library, Bangalore. Data collected from the administrative staff, supportive staff and software engineers. The response rate is 80%. The study revealed that about 80.2% of the library users have quality awareness on Internet information resources.

## **APPROACH TO HARNESS EIR IN INDIA**

The Library and information Centers, in India, are increasingly being called upon to provide more relevant, up-to-date and timely information to a wide range of users. To satisfy the varied user needs, libraries require availability and accessibility to a variety of EIR. Users expect their libraries to built and maintain a collection of EIR while simultaneously maintaining and growing traditional print collections. To cope with thorny problems of tremendous explosion of information, financial constraints, availability of information in different forms etc., the resource sharing networks has emerged as important alternatives. The advent of e-journals and e-databases coupled with high speed data communication facilities has paved the way for the present form of library consortia. A Consortium could be described as a group of organizations who come together to fulfill a combined objective that usefully requires co-operation and the sharing of resources. Resource sharing in the form of cooperative acquisition and management of resources

is not new to the library; the only difference is that these days efforts are made to the cooperative acquisition and management of resources in electronic form. Thus in present form of e-consortia, a group of libraries are coming together for buying e-information. Voluminous development has urged the libraries to adopt new philosophies and techniques for collection development and reduce the cost of information; the reduction of cost is achieved by the e-consortium acting as an agent on behalf of all member libraries to negotiate a purchase price of EIR that is lower than that available to an individual institution. One of the libraries or agencies work as coordinator, for identification of libraries for each publisher, negotiation, legal matters etc. The e-consortia can be an ideal solution in present context, if that has been established and managed at the wider interests of the society and the mankind in total. The activities and operations of the library and information centres are being influenced and drastically changed with this new approach to information management. Cooperation in form of e-consortia has emerged as an essential facet of modern library management in most developed countries of the world, but in our country it is still in the normative stage.

## **CONCLUSION**

Teaching, learning and research are the main concern of higher education system. Library is a supporting organ though, it is an integral part of the higher education system whose primary function is not only to obtain resources but also to serve the academic community timely. Building electronic resources is a significant that enriches the academic library system largely. For many reasons, the academic libraries often prefer electronic resources alternatively to substitute print collections for the optimum use.

The perpetual job of libraries are collection development, preservation, retrieval of information for providing users service. These everyday jobs have become more complex with the preamble of EIR. In a developing country like India, different steps are being taken to disseminate information embedded in EIR as these are emerged as quick sources of information. Consortia approach will be the hallmark of libraries in order to harness EIR effectively.

In India, we are yet to get into the mainstream of consortia development, which entails changes in attitudes and functions on the part of library professionals. By utilizing the support of the regional & national level networking, libraries in India should work cooperatively towards establishing library consortia for offering and sharing EIR. Establishment of better consortium for integrating intellectual access will be a remarkable step in moving towards the electronic libraries. In the nutshell, consortia have

pivotal role to play in management of EIR for Indian libraries.

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