Types of Electronic Resources and its Usage

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Abstract

Twentieth century is the century of growing digitalization at a global level. Millions of users exchanges information and do communication on the online platform. This cross exchange of digital information leads to massive globalization. It has opened up multiple possibilities for providing quicker reach to information at the global level. In modern ICT, electronic researches are the invaluable mines of information in cyber space. They are compact form of resources which can be accessed simultaneously from infinite points by a great number of audiences.

Keywords: e-resources, e-Journals, E-Databases, E-bboks, Types of e-resources, UGC Infonet Program, Shodhganga

1.1 Introduction

The phrase "electronic resources", has broadly been defined as information accessed by a computer maybe useful as bibliographic guides to potential sources but, as of yet, they infrequently appear as cited references in their own right (Graham, 2003). Moreover, electronic resources refer to that kind of documents in digital formats which are made available to library users through a computer based information retrieval system. Because of the effective presentation with multimedia tools, electronic resources have become the source of information.

These e-resources present themselves in innumerable ways to the global audience. The beauty of e-resource is that it is infinitely creative and limitless in its presentation. The traditional models of scholarly communication are still in practice. However the design and approach of an e-resource offers limitless possibilities to communication and import knowledge.

1.2 Types of Electronic Resources

The different types of electronic resources are identified and explained as follows:

- Electronic Conferences

In the early 1990s the technological developments on the internet created as environment which was worthy for holding an electronic conference. An information system World-Wide Web played a significant role to provide a robust environment for presenting scientific information by permitting a document to contain text, figures and links to other materials. The first Electronic Computational Chemistry Conference (ECCC-1) was held in November 1994.

Electronic Conferences, variably known as electronic forums, electronic user-group, listservs, and discussion groups are important resources for researchers and scholars in every discipline. New scholars in particular get an opportunity to discover what topics are being discussed in their field, to learn who are involved in these discussions, and to make them known within their discipline by their own contributions.

- Courseware/Tutorials/Guides/Manuals

Online learning/ e-learning or the web-based educational tutorials called online courseware provide self-pace to the users especially higher degree of interactivity, flexibility. The coverage of e-learning that is available in the internet varies to a great extent from provision of basic lecture notes and lecture support materials to integrated and highly interactive tutorial packages. The online coursewares are specially designed to give e-learning to users over the internet. It may be anything ranging from technological innovation, multimedia or instructional guidance. Some coursewares are detailed resource pools focusing on developing the immediate

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practical skills. These e-sources are exclusively designed for web. Including all features offered by new technology they help in developing distance education and that too at learners own pace. Institutions of higher learning all over the world are the leaders in developing such courseware actively creating a new generation of digitally oriented smart learners.

➢ Electronic Journals

Electronic journals or e-journals like newsletter, magazine, e-zine, webzine, are the journals prepared and distributed electronically. These publications are available over the internet and can be accessed easily by using different technologies such as www, Gopher, ftp, telnet, email or listserv. Several traditional journals are now being published both on the web and in print. Current issues or content lists for most of the journals are available on the web or distributed to subscribers as e-mail text messages.

Internet-based electronic journals started to appear in the beginning of 1990.These journals were mostly delivered as an attachment to email while their back issues were mounted on anonymous ftp sites and users were required to download them from these ftp sites. The Libraries and information centre made them accessible through their gopher site. With the advent of wwwtechnology in 1993, electronic publishing became more than a novelty. Theweb as a means of delivery of electronic information has grown steadily since then. As publishers experiment with different publication modes and models, the very definition of a journal is undergoing change in the electronic environment. New journals have evolved based on the graphic capabilities of the internet that is available only in electronic form.

➢ Patents

"A patent is an exclusive right or rights granted by government to an inventor for a limited time period in exchange for the public disclosure of an invention".

The procedure for granting patents, the requirements placed on the patentee, and the extent of the exclusive rights vary widely between countries according to national laws and international agreements. Important patent-related sites are listed below:

Canadian Patent Database	http://patents.ic.gc.ca/intro-e.html
IBM Intellectual Property Network	http://www.patents.ibm.com/
US Patents & Trademark Office	http://www.uspto.gov/main/patents.htm
World Intellectual PropertyOrganization	http://www.wipo.org/

➢ Electronic Preprints and E-prints

Electronic preprints are research articles that are made available for distribution through the network in electronic format before they go through the process of peer reviewing.A few examples of preprint servers are:

Open Archives Initiative	http://www.openarchives.org/
UK e-Print Archive Mirror	http://xxx.soton.ac.uk/
CERN Preprint Server	http://preprints.cern.ch/

'E-prints', is the term generally used to describe electronically mounted copies of the final, peer-reviewed versions of journal articles. One important international movement is the Open Archives initiative (OAI), which aims to develop and promote the use of a standard protocol, known as the Open Archives Metadata Harvesting Protocol (OAMHP), designed for better sharing and retrieval of e-prints residing on distributed archives.

➢ Projects (Ongoing and Completed)

It is an existing type of e-learning offering time based research assistance to multiple types of receiver like individuals or institutions. Information on projects that are ongoing or those that are completed is now easily available through directories such as

Boston University: Research Projects Directory	http://scv.bu.edu/PROJECTS/
Knowledge Discovery in Databases: Projects.	http://orgwis.gmd.de/explora/pages.html
Signal Processing Information Base (SPIB)	http://spib.rice.edu:80/spib.html
Social Science Research Resources	http://socsci.colorado.edu/POLSCI/RES/

➢ Science/Research News

Science/ research, news helps in giving updated information on the latest innovation: several key disciplines have exclusive area of imparting such news to the subjects. Some of the important resources on science and

research news include:

UniSci: International Science News	http://unisci.com/
Earth Research: Research News	http://www.earthresearch.com/links.sht
News Center: Up to the Minute News	http://gwis2.circ.gwu.edu/~gprice/tech
The Scientific world New slab	http://www.thescientificworld.com/

- Software

Software is a conceptual entity which is a set of computer programmes,procedures andassociated documentation concerned with the operation of adata processing system.Software is a collection of computer programmes and related data that provide the instructions for telling a computer what to do and how to do it.

There are a large number of free software and scripts of all kinds and types available on the Internet. People have freedom to run, copy, distribute, study,change and improvethe software under General Public License (GPL). Someof the sites that provide free software are as follows:

GNU Downloads.com	http://download.cnet.com/
Free Software Directory	http://www.gnu.org/directory/listing.html
Freeware Home	http://www.freewarehome.com/
Shareware.com	http://www.shareware.com/

- Standards

Standards are accepted and agreed norms for the operation of a system. Technical standards specify how materials and products should be manufactured, defined, measured or tested according to proven and accepted methods. Standards maybe issued by companies, or by other organizations both national and international. Standards are very important both in the library and computer fields. MARC and its variant are bibliographic standards that are used most extensively in the libraries for cataloguing of bibliographic records. Similarly, AACR -II is a standard for rendering, display and printing of bibliographic records. Universal Decimal Classification Scheme (UDC) is a British standard (BS-1000). Someof the important websites providing information on standards are as follows:

British Standard Institution	www.bsi-global.com/
Bureau of Indian Standards	http://www.bis.org.in/
IEEE Standards	http://ieeexplore.org/lpdocs/epic03/
World Standards Services Network	http://www.wssn.net/WSSN/index.html

- Technical Reports

It is a paper/article giving a detailed knowledge of a particular subject. they are generally prepared by the researchers themselves for submission to their employer, funding agency or to others interested in the work. Technical reports are todaya major source of scientific and technical information.

Sponsors/ academic paper require technical report. They are non-archival publications and are free to be published elsewhere without changes. Some of the important Internet-basedsources of information for technical reports are:

DOEs Scientific and Technical Literature	http://www.osti.gov/bridge/
National Technical Information Service	http://www.ntis.gov/
NASA Technical Reports ServerNTRS	http://techreports.larc.nasa.gov/cgibin?
Networked Computer ScienceTechnical	http://www.ncstrl.org/

- Electronic Theses and Dissertations

For the award of doctoral degree, it is needed to submit the theses to the universities. These theses constitute a handy source of information for further practices. A thesis contains record of an original contribution to the knowledge.Although a large number of doctoral theses are submitted to every university each year, they are not being used to their fullest potential because most libraries keep them in closed-access collections.Doctoral theses submitted to universities and academic institutions are originally created in digital format using word processing software packageslike MSWord, LaTex, Word Perfect, word Pro, etc. These documents are undisputedly highly valuable collections especially in digital format that qualify to be an important component of a digital library. Several universities and institutions have already implemented electronic submission of doctoral dissertations under the overall umbrella of an international digital library initiative called “Networked

Digital Library of Theses and Dissertations (NDLTD)". Some of the important sites for electronic theses and dissertations are:

Networked Digital Library of Theses and Dissertations	http://www.theses.org/
Academic Dissertation Publishers	http://www.dissertation.com/
Theses and Dissertations	http://www.umi.com/
UMI Digital Dissertations	http://wwwlib.umi.com/dissertations/

1.3 Databases, Data sets and Collections

- Abstracting and Indexing Databases (Bibliographic Databases)

Databases are an organized collection of records pertaining to a specific field of study that consist a number of bibliographic databases with abstracts of chapters in books, journal articles and conference proceedings are now available on various media. Increasing technical equipments like the availability of CD-ROM, as a media with high storage capacity, longevity and ease of transportation, triggered production of several-ROM based information products including several bibliographic databases which were earlier available only through online vendors or as abstracting and indexing services in printed format. Some of the important online databases accessible on the internet include:

AGRICOLA	http://www.nal.usda.gov/ag98/
ERIC Databases	http://ericir.syr.edu/Eric/
PubMed Medline	http://www.ncbi.nlm.nih.gov/PubMed/
SciBASE	http://www.thescientificworld.com/scibase/

- Citation Databases

A citation is a significant part of an article generally known as a reference to an article or part of article identifying the documentin which it may be found. References given at the end of an article are called"cited articles" while the article that provides references are called "citingarticle". A citation index consists of list of cited articles, each one of them followed by the citing articles. ISI Citation Databases are multidisciplinary databases of bibliographic information gathered from thousands of scholarly journals. It is indexed so that one can search for specific articles by subject, author, journal and author address. The important citation indices produced bythe Institute for Scientific Information (http://wwwisinet.com/) and Web of Science are as follows:

Science Citation Index Expanded
Social Science Citation index
Arts and Humanities Citation Index
BioSciences Citation Index
Emerging Source Citation Index
Conference Proceeding Citation Index
Book Citation Index

- Digital Collections (Images, Audio, Video)

Digital collection or Digital Repository is an online platform of digital database for which the Internet and web technology is a suitable channel. It includes information in the form of text, images, sounds and movies. The web hosts a rich collection of sounds and images, many of which can beused for commercial as well as personal purposes. A few examples ofmultimedia digital collection on the web are:

NASA's multimedia Gallery	http://www.nasa.gov/hqpao/library.html/
The Great BuildingsCollection	http://www.greatbuildings.com/
The Nine Planets	http://seds.lpl.arizona.edu/nineplanets/

- Scientific Data sets (Numeric, Property and Structural Databases)

Scientific data sets (numeric, property, structural databases) contain factual data like numeric, property and structural information on the topic. The databases are critically assessed by experts, then authentic source of information for researchers. Important examples of scientific data sets are:

Aladdin Database Server	http://www-amdis.iaea.org/
Data Analysis in theSocial Sciences	http://uts.cc.utexas.edu/~fackler/data.html
GrainGenes	http://wheat.pw.usda.gov/
LIGAND	http://www.genome.ad.jp/dbget/ligand.html

➢ Library Catalogues (including Union Catalogues)

Librarians, as the earliest inhabitants of the Internet and the web started puttingtheir contents on the web. Not only did the libraries build Met resources for their home pages, they also web-enabled their library catalogues. Most standard library software packages have web interfaces to their catalogues. Several integrated library packages are now moving towards doingall operations using Internet clients. The sites given below also provide linksto the Library's Web OPAC:

The British Library	http://www.bl.uk/
Library of Congress (LOCIS)	http://lcweb.loc.gov
Library of Congress Catalogue	http://catalog.loc.gov/
Melvyl Homepage	http://www.melvyl.ucop.edu/

➢ Museum and Archives

The virtual museum websites facilitate virtual visits of users to a museum andexamine the exhibits closely from their desktop. Using various tools andtechniques, the user is also able to rotate an object in any direction. Art auction sites are also using similar techniques to promote auction of their art works.Some of the virtual museum and auction sites are:

Virtual Library Museums Pages (VLMP)	http://www.icom.org/vlmp/
Smithsonian Institution	http://www.si.edu/
World Wide Arts Resources	http://wwar.com/
Art Museum Network	http://www.amn.org/

➢ Virtual Libraries

"Virtual Library"/ "library without wall" are the Meta resources/ subject portals giving virtual platform of digital collections from several sources without the users even knowing where the resource actually resides. The size of virtual libraries varies depending upon the person who uses it. The……includes any online facility giving access to multiple platform.

It may also be used to refer in a collective manner to the entire number of online books and other literary material related to any subject available on the Internet.

Virtual libraries can be very useful and very diverse in what they contain. The options for what they can include are virtually endless, and become more and more boundless as technology advances. Some of the content of virtual libraries may include, but certainly is not limited to CD-ROM, Internet subscriptions, lists of annotated web links, internal work products, proprietary databases and even web spiders or push technology that deliver targeted research to the user.

1.4 Electronic Books, Online Book Selling and Print-on-Demand

➢ Electronic Books

Borchers (1999) defines an electronic book as a portable hardware andsoftware system that can display a large quantity of readable textualinformation to the user and let the user navigate through this information. Ane-book is digital reading material that a user can view on a desktop or notebook, personal computer, or on a dedicated, portable device with a large storage capacity and the ability to download new titles via a network connection.

Project Gutenberg started digitizing public-domain texts for download in 1992.The Project has a team of volunteers re-keying texts. New kinds of businesses are now emerging on a new scale involving a large number of publishers to make thousands of books available online for libraries and individuals at relatively lower cost. Three major companies that have recently emerged in the market are Questia, ebrary and Net Library.

➢ PDAs and Pocket PCs

A personal digital assistant (PDA), also known as a palmtop computer or personal data assistant is a mobile device that functions as a personal information manager. It is a handheld device that combines Computing, Telephone, Fax, Internet and Networking features. Current PDAs often have the ability to connect to the Internet. A PDA has an electronic visual display, enabling it to include a web browser.

➢ Online Bookselling

Amazon.com started a new phenomenon on the web with its online bookshop, which has been expanded to

include other products like CDs, music, electronics, toys, art works, computers and other store items. Amazon.com was termed as the "Earth's Biggest Library" although it does not perform all the functions of a library. There are several sites that are now in the business of online book selling. Some of them are:

Abebooks.com	http://www.abebooks.com/
Amazon.com Bookstore	http://www.amazon.com/

- Print- on- Demand

Print-on- Demand (POD), is about printing things only when there is ademand; instead of keeping an inventory, Print-on-demand is essentially digital printing with high end production printing machines supported by a system which can streamline and automate the process of printing books and documents. Print-on-demand books are digitally printed from electronic files by high quality laser printers, and then bound and cut. It is a process of replacing traditional paper media with digital print files. Printing becomes a demand process where the end-user determines the requirement for printed copies. The Print-on-Demand method is quite new and is a cost-effective and efficient way to print one copy at a time. Print-on-Demand with digital technology is used as a way of printing items fora fixed cost per copy, regardless of the size of the order. While the unit price of each physical copy printed is higher than with offset printing, the average cost is lower for very small print runs, because setup cost are much higher for offset printing.

- Reference Sources

The important works have been converted into web based reference sources for further customer support by the commercial publishers. There are numerable achievements: The Oxford English Dictionary, the Grove Dictionary of Art, and the Large Reference Works published by the Gale Group are pioneers in this gradual mobilization of reference resources to the World Wide Web (WWW).

- Dictionaries

Thousands of general-purpose and subject-specific dictionaries are now available on the web. A few important dictionaries available on the Internet are mentioned as:

Academic Press Dictionary of S&T	http://www.harcourt.com/dictionary/
Dictsearch: Search in Online	http://www.foreignword.com/Tools/

- Electronic Encyclopedia

Availability of enormous storage space in the CD-ROM coupled with sophisticated search software witnessed the appearance of severalencyclopedias on CD-ROM. Later, web versions of these encyclopediasbecame available as important reference tools on the web. Web versions of several important encyclopedias are available over the Internet. A few examples are given:

En cyclopedia Britannica	http://www.britannica.com/
Columbia Encyclopedia	http://www.bartleby.com/
Encarta Encyclopedia	http://encarta.msn.com/

- Biographies

A biography is a detailed description or account of someone's life. More than alist of basic facts, biography also portrays the subject's experience of those events.

A biography presents the subject's life story, highlighting various aspects of his or her life, including intimate details of experience, and may include an analysis of the subject's personality. Biographical sources provide information about people considered important in various disciplines. Some of the important ones are mentioned below:

Biography.com http://www.biography.com/

Lives, the Biography resource	http://amillionlives.com/
World Biographical Index	http://www.biblio.tu-bs.de/wbi_en/
Biographical Dictionary	http://www.s9.com/biography/search/

- Acronyms and Abbreviations

An acronym is a word formed by using the initials of a phrase or other groups of words. An acronym is often considered to be a type of abbreviation. Generally, if an abbreviation is pronounced as a word rather than as the

letters individually, it is considered an acronym. Often the distinction is not always made between acronyms and abbreviations, especially when the abbreviation is more widely known than what it stands for, such as 'PVC' (PolyvinylChloride) and 'ATM' (Automated Teller Machine).

A few of them are listed Below:

Acronyms and abbreviations	http://www.ucc.ie/info/net/acronyms/
AF: Acronym Finder	http://www.acronymfinder.com/
BABEL	http://www.cis.columbia.edu/glossary/
Abbreviations and acronyms of the U.S Government	http://www.ulib.iupui.edu/subjectareas/

➢ Thesauri and Subject Headings

The term thesaurus is regarded as a reference of a work which may be defined either in terms of its functions or its structure. In terms of function, it is a terminological control device used for translating from the natural language of documents into controlled vocabulary. In terms ofstructure, a thesaurus is a controlled and dynamic vocabulary of semantically and generically related terms in various fields have been published in order to achieve a unity of indexing terminology in their respective field.

Typical examples of standard subject headings used inlibraries are: Library of Congress Subject Headings (LCSH), Medical subjectHeadings (MeSH), Subject Headings in Engineering (SHE) and Sears List ofSubject Headings (SLSH). Some of the thesauri and subject headings availableon the internet are:

Roget's Thesaurushttp;//www.thesaurus.com/Roget_Alpha-Ind

M-W Thesaurus http://www.m-w.com/mw/thesaurus.htm

➢ Handbooks and Manuals

Handbooks are treatises on a special subject containing concise informationwritten primarily for practitioners. A number of handbooks are available on theweb in various subject specialties. Some of them are:

Country Studies/ Area Handbooks	http://lcweb2.loc.gov/frd/cs/cshome.html
Earthquake Preparedness Maps	http://www.lafd.org/eqindex.htm

Maps constitute a special collection in a library consisting of documents thatmake plane representation of the earth's surface or its part indicating itsphysical features, political boundaries, etc. internet contains a large number ofsites that provide maps and other geographical information.

Map.com	http://wwwmaps.com/explore/atlas/
Worldtime	http://www.worldtime.com/
Quick Map of the World	http://www.theodora.com/maps/abc_world maps.html

➢ Employment / Career Sources

The Internet is a good source of information both for employers and those whoare seeking employment. Important employment and career sources on Internetare:

EmploymentSpot.Com	http://www.employmentspot.com/
jobs.com	http://www.jobs.com/
Employment Service	www.employmentservice.gov.uk/
Employment .com.au	http://www.employment.com.

➢ Funding / Grants Sources

Information on funding and grant-giving agencies can be easily sourced through the Internet. Most grant-giving agencies have their websites on the Internet. Moreover, there are web sites that provide information on various grant-giving agencies. Some of the important Internet resources are as follows:

SRA International Grants	http://www.srainternational.org/newweb/
Web	Grant web/index.cfm
The Regional Alliance :Resources	http://ra.terc.edu/resources/

➢ Libraries / Information Centres

The Libraries in the modern times have also revolutionized the service pattern in sync with the digitalization. Library homepages are beging made serving as an integrated interface to various networks.

The LibDex(http://www.libdex.com/) which maintains a worldwide searchable directory of library websites

list more than 17000 libraries. Each record in the index provides links to web-based OPACs (Online Public Access Catalogues).Further, Libweb, the Digital Library Sun SITE Project (http://sunsite.berkeley.edu/Libweb/) maintained by the University ofCalifornia at Berkeley, lists more than 6100 libraries with websites from over100 countries organized by type of library for United States listings, byContinent and alphabetically for others.

Some of the important libraries, library catalogues, union catalogues, sources of information for libraries and information centers are as follows:

Libweb-Library	www Servers http://sunsite.berkeley.edu/Libweb/
The LibDex	http://www.libdex.com/
The British Library	http://www.bl.uk/
Library of Congress (LOCIS)	http://lcweb.loc.gov
Library of Congress Catalogue	http://catalog.loc.gov

- Organizations/ Research Institutes/ Companies/ Societies

As far as the excellence source of information is concerned so one can find none other than internet. Internet is known to be an excellent source of information for organizations, business houses, research institutions, companies, societies and associations. The sources materials of these institutions are available on internet through their website or through other websites that lists them, which can be accessed through any of the web search engines. Some of the important sources on organizations/ research institutes/ companies/ societies on the Internet are as follows:

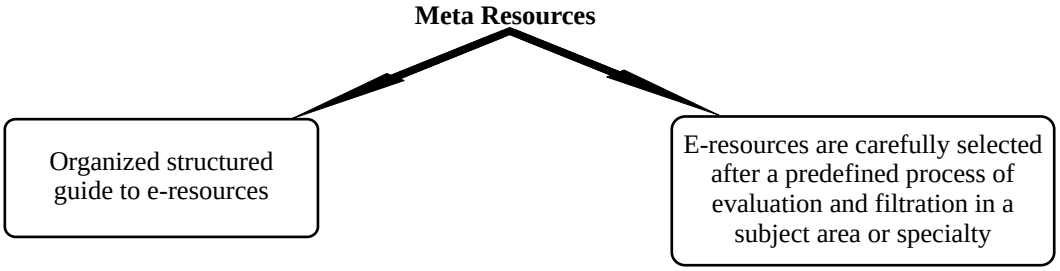
Associations on the Net	http://www.ipl.org/ref/AON/
The Nation Directory	http://www.thenation.com/directory/
International Organizations and NGO Websites	http://www.uia.org/website.htm

- People/ Experts/Scientist Directories

The Internet hosts a plethora of information about people, experts and scientists through the websites that these people host either on their institute's site or on personal website or through various websites that contain information on people, experts and scientists. Further, the Internet also hosts compilations like biographical sources, telephonic directories, regional directories, etc. There are several sites on “Ask-an-Expert” or “Ask-a-Scientist”. It can be used to obtain profiles of leading personalities or subject experts in specific fields. Details regarding their areas of expertise, affiliations, contact information, their research interests, etc can also be obtained. Some of the important sites are as follows:

AgNIC: Agricultural Network Information Centre	http://www.agnic.org/
Profiles in Science-	http://www.profiles.nlm.nih.gov

1.5 Meta Resources:



Portals, vortals and hortals are other concepts evolved primarily from the concept of Meta resources. A portal is a website that offers a broad array of resources and services and is intended to be the main point of entry to the Internet for the users. Portal is a term, generally synonymous with gateway, for a Worldwide Web site that is or proposes to be a major starting site for users when they get connected to the Web or that users tend to visit as an anchorsite. There are general portals and specialized or niche portals. Some majorgeneral portals include Yahoo, Excite, Netscape, Lycos, CNET, MicrosoftNetwork, and America Onlineís AOL.com.

A vortal is a portal website that provides information and resources for a particular industry. Vortals are the

Internet's way of catering to consumers'focused-environment preferences. Vortals typically provide news, research andstatistics, discussions, newsletters, online tools, and many other services thateducate users about a specific industry.

Hortal or horizontal portals are interesting group or community-specific portals that provide a business-to-consumer e-commerce web site which allows large numbers of community-based consumers to transact electronically with a limited number of suppliers.

1.6 Advantages of Electronic Resources

➢ Easy Access

Accessing e-resource is easier for the users. They can access the desired material within minutes, or even seconds, on their desktops, provided equipment is available. Large collections of material can be searched and retrieved simultaneously and instantly.

➢ Speed

High speed and efficiency benefits the publishing and distributing electronically. Authoring and publishing systems can be integrated easily by computer-readable text.

➢ Linkages

Linkages can be enabled by hypertext and hypermedia formats among sections within an electronic resources. E-mail contacts would be easier among users, publishers and suppliers. Users have more creative ways to have their information queries answered.

➢ Costs

The e-resources are published electronically rather than in paper and no new costs are introduced.

➢ Multimedia

Innovative ways of presenting research results can be supported by electronic page layout. Interactive three-dimensional models, motion video and sound area few possibilities. Commenting on the advantages of electronic resources, Dadzie (2007) writes that electronic resources are invaluable research tools that compliment the print-based resources in a traditional library setting. Their advantage s includes:

- Access to information that might be restricted to the user due to geographical location or finances.
- Access to more current information
- Provision of extensive links to additional resources related contents.

1.7 Disadvantages of Electronic Resources

➢ Financial Constraints

Infrastructure required displaying, storing or print electronic resources are expensive. Downloading and printing will be a costly affair.

➢ Social Constraints

Electronic interfaces can take a long time to master. Electronic searching, downloading and printing replace the traditional activities of physically browsing, scanning and photocopying.

➢ Technological Constraints

The academic community can be divided into 'haves' and 'haves -not' because of access to equipment and network. The network or connection speed can betoo slow. Screen quality of graphics and photos is still primitive when compared to print.

1.8 Educational E-Resources provided by selected Academic Institutions in India

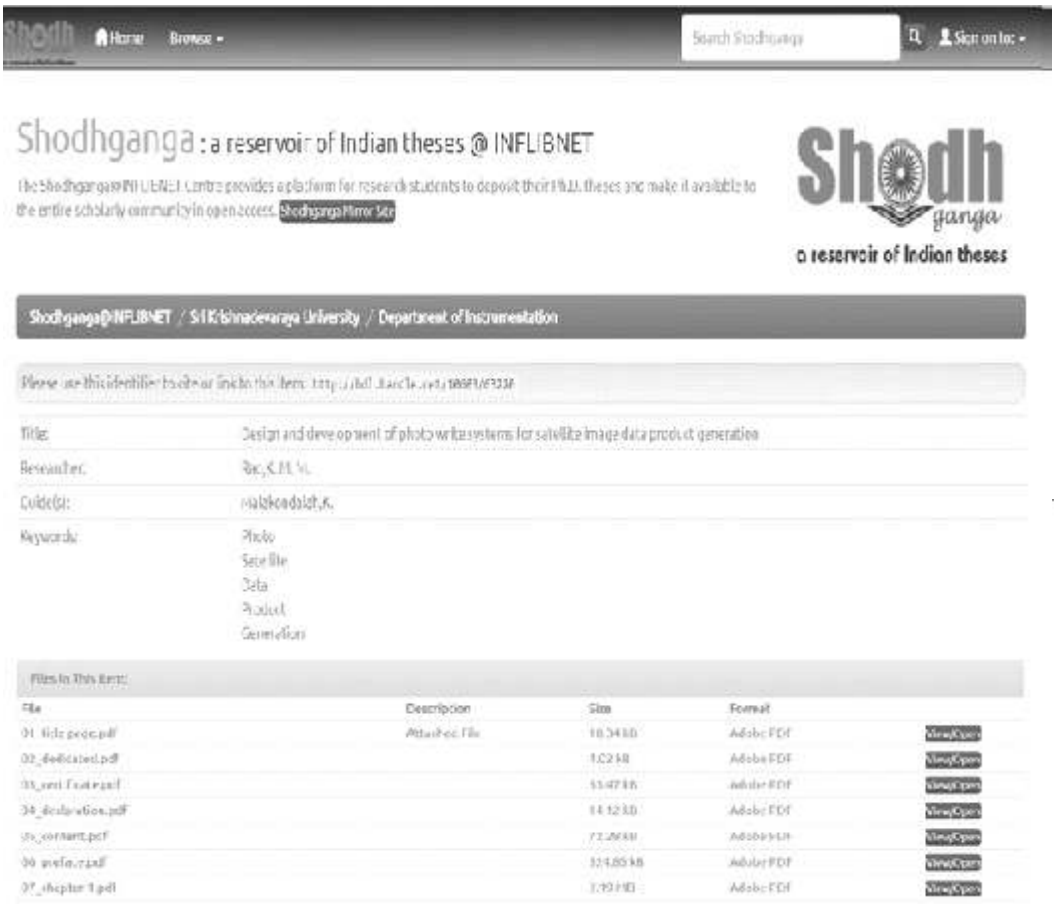
Some of the recent inventions like OER and OCW have been established as e-resource platform which are relevant for achieving equitable access to quality education. Some of the e-resources such as OER are open platform to access worldwide from a common portal or gateway.
The importance of OER has been recognized by the Indian institution to bridge the learning in the country. Recently, India's National Knowledge Commission (NKC) has called for a "national e-content and curriculum initiative" to stimulate the creation, adaptation and utilization of OER by Indian institutions.

1.8.1 UGC- Infonet Digital Library Consortium

His Excellency then President of India, Dr. A.P.J. Abdul Kalam, launched the UGC-Infonet Digital Library Consortium on the concluding day UGC's Golden Jubilee celebration at Vigyan Bhawan on 28th Dec. 2003 dedicating a bouquet of e-resources to the academic community in universities.
"After the globalization of education and competitiveness in research the demand for the e-resources has been increased over the years. Due to the scarcity of funds, libraries are forced to discontinue the scholarly resourcesin spite of their best trials to continue. In order to provide current literature to the academic community in universities, the UGC has initiated the UGC- Infonet Digital Library Consortium. The Consortium enables access to a large number of scholarly resources from reputed publishers, aggregators and society publications to universities. Provision has been made ot access 7500 full texts scholarly electronic journals under the consortium. It includes 10 bibliographic databases from 28 publisher, scholarly societies and aggregators including the university presses in different disciplines across the globe. Current as well as archival access to core and peer-reviewed journals to 195 Universities and 14 National LawSchools/ Universities including all the Inter University Centers (IUCs) of the UGC is given by the consortium. The resources of the Consortium covers the subject areas of arts, humanities, social sciences, physical and chemical sciences, life sciences, computer sciences, mathematics and statistics, etc. This programme is funded by the UGC for universities under its purview and monitored by the INFLIBNET" (Information Library Network [INFIBNET], n.d.).
The article is made with this background in mind attempt has been made to understand the utilization of e-resources.
From the review of literature, it reveals that there is a deficiency of studies on e-resources in the context of Indian universities. As such, the present study endeavors to find out the extent of use of e-resources.

1.8.2 Shodhganga: A Reservoir of Indian Theses (http://shodhganga.inflibnet.ac.in/)

Theses and dissertations are known to be the rich and unique source of information, often the only source for research work that does not find its wayinto various publication channels. Theses and dissertations remain an un-tapped and under-utilized asset, leading to unnecessary duplication and repetition that, in effect, is the anti-theses of research and wastage of hugeresources, both human and financial. A thesis reflects quality of research workconducted by a student and the ability of an institution to lead and supportoriginal work of research in a given discipline.
"Shodhganga" standsfor denoting digital repository of IndianElectronic Theses and Dissertations set-up by the INFLIBNET Centre.Shodhganga stands for the reservoir of Indian intellectual output stored in arepository hosted and maintained by the INFLIBNET Centre. The Shodhganga@ INFLIBNET is set-up using open source digital repository software called Space developed by MIT (Massachusetts Institute of Technology) in partnership between Hewlett Packard (HP). The DSpace uses internationally recognized protocols and interoperability standards. Shodhganga provides a platform for research scholars to deposit their PhD theses and make it available to the entire scholarly community in open access. The repository has the ability to capture, index, and store, disseminate and preserve ETDs submitted by the researchers. Online availability of electronic theses through centrally maintained digital repositories will not only ensure easy access and archiving of Indian doctoral theses, but will also help in raising the standard and quality of research.



.Figure1: Shodhganga homepage

1.8.3 Vidyanidhi: Digital Library and E-Scholarship Portal(http://www.vidyanidhi.org.in/)

Vidyanidhi, a digital library is an Indian initiative originated from Sanskrit which means 'Treasure of Knowledge'. It stands for facilitating the creation archiving and accessing of doctoral theses. It is widely regarded as an information infrastructure, a digital library, a portal of resources, tools and facilities for doctoral research in India.Vidyanidhi is a direct consequence of government policy initiatives and isintended to demonstrate the utility of digital library technologies in maintaining and enhancing access to and visibility of Indian academic research.

Vidyanidhi is envisioned to evolve as a national repository and a consortium for e-theses through participation and partnership with universities, academic Institutions and other stake holders. The vision of Vidyanidhi is to involve into an information infrastructure to strengthen the research capacities of Indian Universities by developing accessible digital libraries of theses and dissertations, sensitizing and training doctoral research students in scholarly writing, e-publishing and ETDs, developing appropriate policies and developing and making available requisite tools and resources.

1.8.4 eGyanKosh of Indira Gandhi National Open University (IGNOU)

(http://www.egyankosh.ac.in/)

One of largest Educational resources repository E-GyanKosh (A National Digital Repository) initiated by

Indira Gandhi Open University in 1985, aiming to provide open access to self learning materials (SLMS) developed for different programmes of IGNOU. It stores index, preserve, distribute and share the digital learning resources etc.These SLMs are in text and video formats. These are being widely used by curricula designers and course writers of State Open Universities and other distance learning providers. These materials are also highly used by lifelong learner communities for various purposes such as preparation of competitive examinations, preparation of examinations.

E-Gyankosh is accessible to registered users only, however registration is freeof charge.

Education Broadcast is a webcasting facility available in e-GyanKosh providinga link to IGNOU channels like GyanDarshan, GyanVani and EDUSAT. Virtualclass also provides links to all the online programmes of the University.

1.8.5 SAKSHAT: A One Stop Education Portal (www.sakshat.ac.in)

The President of India Dr. A.P.J. Abdul Kalam, to facilitate lifelong learning for student, teachers and those in employment and to pursuit the knowledge free of cost launched a portal named Sakshat: a one stop Education Portal on October 30, 2006.

The content development task for 'SAKSHAT' was looked after by the Content Advisory Committee (CAC) for the respective subject, which consisted of representatives from educational institutions like IGNOU, Delhi University,Kendriya Vidyalaya Sangthan (KVS), National Institute of Open Schooling(NIOS) and National Council for Educational Research and Training (NCERT)and the prominent academicians in the field. In addition, some NGOs had also provided the contents developed by them free of cost for this portal.

The vision is to scale up this pilot project 'SAKSHAT' to cater to the learning needs of more than 50 crore people through a proposed scheme of 'National Mission in Education through Information and Communication technology (ICT)'. The scheme is to provide connectivity to all institutions of higher learning to world of knowledge in the Cyber space, to leverage the potential ofICT, in providing high quality knowledge modules with right e-contents, to address to the personalized needs of learners, in order to take care of their aspirations. These modules are to be delivered through 'SAKSHAT'.

1.8.6 National Science Digital Library (NSDL) of the National Institute of Science Communication and Information Resources (NISCAIR).

(http://nsdl.niscair.res.in/)

The open source movement is driving the emerging knowledge society that is aimed at making information resources being freely available and such freely available information resources are being stored and managed on open source technology oriented platforms. NSDL envisages making available high quality contents through the open source technology platforms.

National Science Digital Library (NSDL) is envisaged as first of its kind to benefit the students at undergraduate level in Indian universities and colleges by providing Internet access to digital resources of curriculum related material in science and technology.

As curriculum based focused content is not easily available to the students leaving a gap in the information needs of the student community. To bridge this gap, NSDL embarked upon to create original and targeted contents by identified panels of experts for selected science disciplines.

Keeping the open source philosophy in view, Dspace the open source software had been selected for the digital library. The content creation and development of NSDL has gone through rigorous procedures to make available quality content for the students. Authored by eminent teachers and validated by renowned faculty in Indian universities and colleges, NSDL envisages bringing finest content to the students.

Conclusion

The position of higher education in the State University needs attention in terms of finance and infrastructure as compared to other state universities of India. It is highly essential to know the use of electronic resources especially under the UGC-Infonet E-resources Consortium lunched by the UGC in January 2004. The purpose of the this article is to know the use e-resources and how the e-resources benefited the faculty, and research.

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