CHAPTER - 1

INTRODUCTION

Information technology is suggested in the context of Fourth Law of Library Science – "**save the time of the Reader / Staff"** in which **S R Ranganathan** recognized an objective relating to the internal efficiency of the library.

The rapid growths of information and communication technologies have given rise to the evolution of several new jargons like paperless society, electronic resources, portal / gateway and global digital library. In the day context, all types of libraries viz: academic, public and special are not only providing printed resources to their library users rather they provide printed, electronic as well as other Internet resources like e-books and databases for fulfilling the day to day academic and research requirements of the library users.

The challenge, the present society faces in the 21st century is keeping pace with the rapid developments in the information and communication technology, one needs to continuously upgrade their knowledge and skills. It is understood that we live in an information rich society where the amount of information and knowledge in the present world is increasing at a tremendous pace. Information literacy is the ability to evaluate information across the range information needed, locate, synthesize and using the information effectively, using technology, communication networks and electronic resources. Information literacy includes the full range of experience, and the user needs to enable the use of information literacy.

People who are not fond of reading will agree with the fact that a library is the most peaceful place on the earth. Library is like corpora of knowledge. One could find books in a library in almost all topics, like history, geography, or even science e-fiction. Libraries are considered as the shrine where all the relics of the ancient saints, full of true virtue, and that without delusion or imposture, are preserved. A library is like the whole world encompassed in one room. Without a library an institution will not be complete. It is very essential to the education and any problem, any query unanswered one can find it in one of the books stored in the library. Libraries are an integral part of the education system and one is incomplete without the other. A well- stocked library is an asset to any institution. .

A library is a place where not only books but also magazines, journals and newspapers are well – stocked for the benefit of the readers. Besides this one can also get the entire charts, Encyclopedia, government gazette, etc. A reader can either read in the library or borrow the book / journal of his choice and take it to home. The library is a popular place in the academic curriculum. With the growing popularity of internet, the retrieval of information becomes faster. In view of the above facts, it is apparent that a library is a very important place in the society.

Libraries are the repositories of knowledge form of an integral part of education. The primary objective of the library is to organize and provide access to information. This objective will never change but the format and methods that are

used will change dramatically, providing new opportunities and challenges. Libraries have witnessed a great metamorphosis in recent years. Print medium is increasingly giving way to the electronic form of materials. Library is an extremely important entity in an ever- changing society and it must be responsive to the needs of society. Information Technology (IT) has changed the complexion of today's libraries. Libraries have evolved to become information provider rather than mere document providers. The shift from the traditional libraries to the digital is not merely a technological evolution, but requires a change in the paradigm by which the users access and interact with information. This move from traditional to electronic library also alters the fundamental role of library.

1.1 IMPACT OF INFORMATION AND COMMUNCIATON TECHNOLOGY ON MODERN LIBRARIES

The advances in networking and communication technology have made the information services available to the users on their desktop. In the era of networked information, internet, the largest worldwide networks, has emerged as the most powerful tool for an instant access to information. Information at nano seconds of time to end user at any time and at any place in the world. Today's users can no longer depend on conventional information sources to cope up with the latest developments in their respective fields. E – Resources are now emerging as vital source of information for all recent and emerging thoughts and ideas coming into existence in whatever area of research. Emergence of internet and World Wide Web (WWW) has provided a platform to display these

resources globally. The features inbuilt in the search and retrieval of these resources have made the usage to the maximum.

Information and Communication Technology (ICT) has a major impact on materials for search. ICT can provide the enhanced forms of research resources, as e-resources' and is changing the shape of both the primary resources like texts, images and data, and secondary resources like catalogues. Libraries are subscribed to various bibliographic and full text databases which are of interest to the users.

Libraries have changed its face with the emergence of ICT. They have assumed the role of educators, train the users to find, evaluate and the usage of information in the library and also through electronic networks. Libraries have been using ICT in general and computer technology in particular, to automate a wide ranges of administrative and technical processes and provide better services to their users. ICT has helped the library and information science professionals in conquering space and time and rendered it possible to retrieve information from any corner of the world instantaneously and provide it to the users efficiently and effectively. In an age of information explosion, ICT is progressively replacing the old methods of information collection, storage and retrieval. Academic Library System is a major beneficiary of ICT.

Information is knowledge, facts or data. For the purpose of enabling the users to assimilate information, it should be repacked. Knowledge becomes information when it is externalized i.e., put into the process of communication.

The effectiveness of communication technology depends how well it provides its clients with information rapidly, economically and authentically. A large number of ICT enabled service including OPAC. E-resources, etc. are available in the academic library.

1.2 E-LIBRARY / DIGITAL LIBRARY

An e-library or Digital library is a physical site and/ or website that provide around the clock online access to digitized audio, video, and written material. It provides free copies of books, journals etc. available to the users. Normally these materials are classics which have no copyright digital formats (as opposed to print, microform, or other media) and accessible by computers. The digital content may be stored locally, or accessed remotely via computer networks. A digital library is a type of information retrieval system. Digital Libraries are increasingly popular research area that encompasses more than traditional information retrieval or database methods and techniques. There are many numbers of definitions.

An e- library is the electronic information, library organizers usage of catalog, tag and search books and journals. It maintains a database as the collection of e-materials and provides services in digital form. Many libraries traditionally have been repositories of local information and heritage document such as manuscripts, rare books, maps, photographs and paintings, etc. In university libraries, documents generated in –house such as dissertation and theses, research reports etc. represents the intellectual strength of the institution. Libraries are developing digital repositories of such resourced and providing

access to internet or intranet access to these. Large public and academic libraries also provide up to date local information via internet. Digital libraries are a natural progression from electronic document sharing. The main benefit of digital library is the ability to provide around the clock, remote access to high-demand or restricted materials for multiple concurrent users. Setting up a digital library can either be done by using 'off-the-shelf' digital library products, document management products or library management products capable of digital library management or in-house system development by using open archives software. A simple definition of digital library is 'a library consisting of digital materials and services'. Digital materials are items that are stored, processed and transferred via digital (binary) devices and network. Digital library services are information services that are delivered digitally over computer networks.

1.2.1 Advantages of E- Library

1. E-library is the easiest to use the available online research tool.
2. Standards searching help the educators to integrate the technology into the curriculum, by increasing the technology literacy.
3. Students can use the search by topic feature to retrieve a manageable amount of quality content, quickly and easily.
4. Public libraries need to offer an easy –to-use research solution to patrons.
5. Point-and-click functionality ensures all the users finding the information they need.

6. Reference desk gives the integrated access to dictionary, encyclopedia, almanacs, and much more.
7. Visually impaired people are no longer disabled in searching and surfing information on digital library.

There are a number of reasons for building digital libraries such as, information explosion, dwindling budgets of the library, space problem, high information demand, available technologies etc. The other major points, which compel us for digitization of present day libraries, are,

1. Documents and other materials hashed in the collection of traditional libraries are deteriorating at a rapid rate.
2. Libraries with unique collection of manuscripts and archived should be digitized so that these rare materials should be available for extensive access throughout.
3. Digital Library Technology is to manage the large amount of digital contents such as thousands of images, audio clips etc.
4. Vast amount of information being created and stored each day makes it more difficult to find specific information later. There are electronic tools, which enable this to be dome quickly and easily by text search and also by the actual searching on the closer texture and even in shapes in images.
5. Digital libraries enable greater access to the content. They are capable of managing the content from multiple locations and provide a way to enrich teaching and learning environment from the distance.

6. The information available on the web is not uniformly distributed and only a small portion of which exists in print.

1.2.2 Functional Components of Digital Library

Though diverse varieties of digital libraries are being developed today, most of them share a few common functional components. A basic understanding of the key functional components will help in developing digital library. The key components are briefly discussed below;

Selection and acquisition **-** Typical process covered in this component include the selection of document to be added, digitization and/ or conversion of these documents to appropriate digital form.

Organization – Key process involved in this component include the assignment of metadata (e.g. bibliographic information) to each document being added to the collection.

Indexing and storage- This component carries out indexing and storage of documents and metadata, for efficient search and retrieval.

Repository – This is the digital library front-end used by the end-users to browse, search, retrieve and view the contents of the digital library. This is typically presented to the users as an HTML page.

Digital library website- This is the server computer that hosts the digital library collection, and presents the collection to the user in the form of a website home page. The user selects a suitable link on this page to go to the search and retrieval front-end mentioned above. The digital library delivers the content based

on search and retrieval operations. The digital library home page itself may be integrated with the library website through an appropriate hypertext link.

Network connectivity – For online access, the digital library website computer should have dedicated connection to the intranet and/ or internet, depending on the target user community, access may be restricted to the intranet (organizational LAN) or extended to the external users through the internet.

1.3 E.-LEARNING

E-learning is one of the fastest growing technologies and will continue its trend far into the future. The aim of e-learning is to improve the quality of learning experience for students. American society for training and development (ASTD) defines e-learning as teaching and learning delivered, enabled or mediated purpose of learning. E-learning is a form of learning that uses network for delivery. It is also known as distributed learning, distance learning and technology enabled learning. E-learning is empowering a paradigm shift from the traditional classroom to network based digital learning environment.

1.3.1 Digital Libraries and e-Learning

One of the natural responses to the challenges of e-learning environment is the introduction of the digital library to support e-learning with resources network, designed to meet the needs of the learners, in both individual and

collaborative settings, constructed to enable the dynamic use of a broad array of materials for learning primarily in digital format, and managed actively to promote the reliable access anytime and anywhere to quality collections and services, available both within and outside the network.

The introduction of digital libraries into the education process was made easier by distance education, which has developed over the years. With the internet and the World Wide Web, distance education programs can mount sets of materials on web servers to support online courses. One of the basic ideas is to aggregate the learning materials on various topics, written by many educators, in a digital library of courseware. Digital libraries have the potential to significantly change the fundamental aspects of the classroom in ways that could have an enormous impact on teaching and learning. New pedagogical methods should accompany digital libraries as an emerging technology for education to reach the compelling vision of education. Therefore, for an ideal e-learning situation, digital libraries are regarded as the hub of the library collections and services that function together in the real e-learning environment.

1.3.2 E-Learners' Expectations from the Librarians

Communication is not just important to break the isolation of students in an e-learning environment but also for a much more basic reason: Whatever one person says or writes, the receiver of the information will always interpret the information in the receiver's personal context, created through upbringing, culture, language, etc. This does often lead to deep misunderstandings. The only

way to make sure that the information is properly understood is not by reading, listening, or looking, but by being able to check or ask if things have been understood. That is why an e-learning system ignores the importance of communication which will not workout.

What do e-learners need from the librarians? Suggestions advocating the changes in librarians' role in support of e-learning in the information age appear throughout the literature. Librarians must assert themselves as key players in the learning process, thereby changing their roles from the information providers to educators, and they have been transferred from 'information gatekeepers" to information gateways and advocates the librarian’s involvement in teaching communities so as to shift the focus from explaining library resources to meeting the ongoing information needs of the students in the broad information environment.

In responding to the need to provide ongoing digital library support, librarians have worked at translating what they do in a traditional library into virtual or digital environments while customizing their services and resources for e-learners. The traditional role of academic library services has always been to provide information resources for the teaching and learning activities within the academic sphere. Its role in supporting the virtual learning environment is not different. The linking of digital libraries and virtual library environments is required to provide a meaningful connection between learning activities and learning resources. The digital libraries can help to provide information content to teaching staff who are engaged in e-learning. Traditionally, libraries offer circulation services, interlibrary loans, course reserves, an information desk, a

reference desk, and library instruction. To serve learners connected to their institutional libraries primarily through a computer network or internet, librarians are providing remote access to, and delivery of, library resources and are using communication technologies to deliver electronic reference services and instructional support.

As the literature suggests, e-learners are a wider community of learners than "students". An academic library's learners may include students, faculty, staff, teachers, etc. The library is seen as a source of training and guidance to a community of learners who are concerned with navigating the complexities of locating and using digital resources and services. Moreover, the move towards a digital environment has resulted in a shift from the systematic one-to-one information flow of the past to a new model in which the users and the providers of information are able to relate in a many-to-many, dynamic relationship. For example, in the traditional model, a librarian provides a bridge between the learners and the information providers by selecting and cataloguing the resources and by providing assistance with these resources. In the new model, the library serves as a facilitator by offering ongoing support, enabling the learners to interact and exchange knowledge with others, to communicate directly with the publishers and vendors of information resources, and to participate in a collaborative endeavor to make available rich collections of online scholarly information resources.

1.3.3 Parameters of Success in e-Learning Implementation

The success of e-learning depends on how learning takes place online, that is, the underlying pedagogy and the real value of e-learning lies in our ability to deploy its attributes to train the right people to gain the right knowledge and skills at the right time. The successful implementation of e-learning depends on the adherence to underlying principles that are embedded in the e-learning experiences. Though these principles apply to both the e-learning and the traditional classroom delivery method, they are yet to be included in the former. These pedagogical principles should form the basis for inclusion of features in e-learning management systems. Bixler and Spotts (2000) have identified seven parameters affecting the successful implementation of e-learning: institutional support; course development; teaching and learning; course structure; student support; faculty support; and evaluation and assessment

The availability of strong institutional support is crucial for e-learning deployment and success. The changing roles of staff must be recognized and acknowledged. Support strategies must be developed for management of the transformation processes. Standards must be set and applied consistently. Although the teaching and learning process encourages a flexible and independent approach to knowledge acquisition, the notion of student support is markedly different from the traditional method.

Learning is supported through the use of information and communication technology. E-learning can take place in one of the two modes:

Synchronous e- learning : It is a computer assisted e-learning where

instructors and participants can log on and interact with the instructors and other participants at multiple locations.

A Synchronous e-learning: Computer assisted training where the instructors and participants are involved in the course at different times.

Example:

Web-based training,

Electronic bulletin boards,

Blogs and e-mails.

E-learning includes a number of different delivery methodologies within it, including self–paced contents, virtual classrooms, online chats, threaded discussions etc.

1.3.4 Merits of E-Learning:-

- E-learning is fast and easy to create.
- It is interactive and collaborative.
- Easy to track any given information.
- It has the ability to merge text and graphics by enabling the instructors to prepare quality learning materials.
- It has the ability to serve the large members of students at a reduced cost.
- It is consistent and cost effectiveness.

- It is beneficial for working professionals who have no time for classroom learning.

E-learning components:

Depending on the course objectives with experience or expertise of learners, e-learning may include some of these components like:

- Defined learning objectives
- High-resolution graphics.
- Video/ animation sessions.
- Authoring or programming
- Simulations
- Technology
- Training

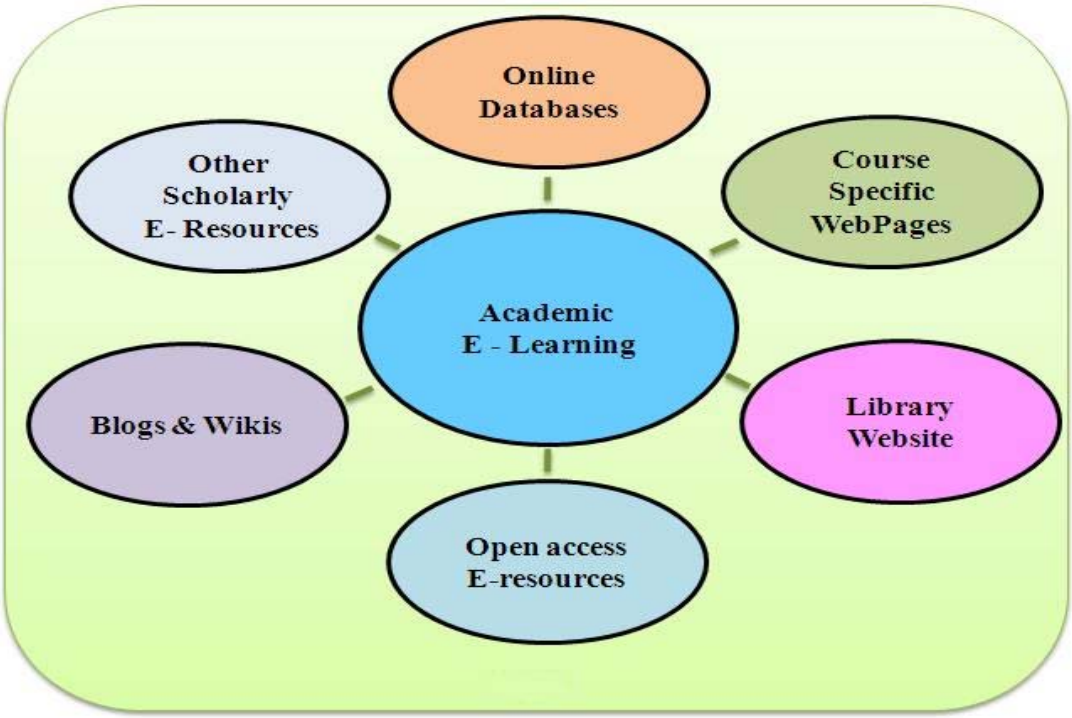

Figure : 1 An academic e-Learning model

Assessment reinforces the learning approach of a student and is an indispensable part of teaching and learning. Evaluation and assessment of learning should be based on higher order thinking skills so that students may adopt a deep holistic approach to e-learning. Based upon the underlying parameters, the authors have developed the above conceptual academic e-model as depicted in Figure: 1

1.3.5 E-learning is required in Educational Institutes because:-

- To increase the academic performance of students community.
- To encourage independent learning
- To improve the quality of teaching by introducing various pedagogical methods.
- To develop current learning, learning materials in interactive e-learning.
- To determine the information needs of the students through e-learning.
- To identify the appropriate existing multimedia systems.
- To identify the appropriate existing infrastructure systems.

E-learning improves the quality of the learning experience of the students. The driven changes are numerous and learning quality ranks poorly in relation to most of them. A student who is learning in a way that uses information and communication technologies (ICTs) is using an e-learning. These interactive technologies support many different types of capabilities. Internet

access to digital versions of materials unavailable locally, internet access to search transactional services, personalized information and guidance for learning support, simulations or models of scientific systems, tools for creativity and design data analysis, modeling or organization tools and applications. Over the past few decades, the new information and communication technologies have a huge impact on the world economy corporate management, globalization trends and education at all levels, including higher education.

1.4 E- RESOURCES

Internet and World Wide Web (WWW) have the biggest source of information with widest coverage and the fastest access. It is the most powerful tool for global communication and exchange of information. The amount of publicly available information on the web is increasing consistently at an unbelievable rate. It has revolutionized the way that people access information, and has opened up new possibilities in areas such as digital libraries, information dissemination and retrieval, education, commerce, entertainment, government and health care. The WWW can be a great place to accomplish research on many topics but finding quality web materials.

E- resource is an electronic information resource that can access on the web, on or off campus. Material (data and / or program (s) encoded for manipulation by a computerized device. This material may require the use of a peripheral directly connected to a computerized device (e.g. CD- ROM drive) or a connection to a computer network (e.g. Internet).

E-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 based, 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 be marketed. These may be delivered on CD- ROM, on tape, via internet and so on. Over the past few years, a numbers of techniques and related standards have been developed which allow the documents to be created and distributed in electronic form. Hence to cope up with the present situation, libraries are shifting towards new media, namely electronic resources for their collection developments that the demands of users are better fulfilled. E- resources on magnetic and optical media have a vast impact on the collections of university libraries. These are more useful due to the inherent capabilities for manipulation and searching, providing information access is cheaper to acquiring information resources, savings in storage and maintenance etc. and sometimes the electronic form is the only alternative.

Users are increasingly expected to use the electronic resources. Studies were undertaken to determine the level of using of this type of resource, how users feel about various issues surrounding electronic resources and whether attitudes change dependent upon subject studied to determine the level of using of various electronic information resources, ways in which they felt electronic resourced had hindered or improved their academic career, if they perceived themselves capable of using the resourced, would the standard of

their work suffer without the use for these resource and the various methods employed to acquire the skills necessary to use the sources.

In conjunction with these technological advances, many stand alone CD-ROMs, which have been in operation for the last decade, are being increasingly networked, providing access from any networked computer terminal in the institution not solely within the library itself, hence improving the user accessibility.

Electronic information sources offer today's user's different opportunities from their predecessors. The advantages of e-resources for the user, the information needed can be delivered from the most appropriate source to the user; the user can re-specify his or her needs dynamically; the information is obtained when it is wanted, so becomes 'just in time' rather than 'just in case'; the user selects only the information needed to answer the specific question and, finally, the information is only stored for the user's wish. Electronic information can therefore provide a number of advantages over traditional print based sources.

These advantages include the fact that electronic information sources are often faster than consulting print indexes, especially while searching retrospectively, and they are straighter forward while wishing to use combinations of keywords. They open up the possibility of searching multiple files at one time; a feat accomplished more easily that while using the printed equivalents. Electronic resources can be printed and searches

saved to be repeated at a later date; they are updated more often than printed tools. One main advantage, especially to distance learners or those with limited time to access the library, is their availability from outside the library by dial–up access.

Internet and electronic information with no print equivalents present new challenges to the scholars. Increasing information is being published only in electronic formats, and questions about how to cite these sources in academic papers which have become frequent at library service desks.

1.4.1 Types of E- Resources

The e-resources are basically divided in to two major types

1. Online e-resources, which may include
    - E-journal (Full Text & Bibliographic Databases)
    - E- books
    - On-line Databases
    - Web sites
2. Other e resource may include
    - CD ROM
    - Diskettes
    - Other portable computer databases

These components are explained in the following sections.

1.4.1.1 E- Journals

Electronic issues of journals and articles to periodicals the library subscribes in. It consists of Full-text and Bibliographic Databases. Full- text databases contain the whole content of an article such as citation information, text, illustrations, diagrams and tables. Bibliographic databases only contain citation information of an article, such as author's name, journal title, publication date and page numbers. An e-database is an organized collection of information. It supports flexible and in-depth searching of different fields, e.g. journal title, article title, author, abstract, year, etc. We can only search for journal title in the Library Catalogues, but not the title or author of individual articles. Therefore, e-database is extremely useful to find out the articles on particular topics, e.g. Peer assessment in classroom. A particular journal articles can retrieve from e-database, which could not find the same information via the Library Catalogue.

Libraries have been exploring easily to cope up with the problems of ever increasing prices of the journals, space requirements and decreasing level of usage as the journals get older. Nevertheless, libraries are required to maintain back the issues of the journals, usually in bound form. Electronic Journal helps the librarians in addressing these problems to a great extent without significantly affecting the service levels. Electronic journals can be accessed via internet from any web enabled PC. Depending on the type of subscription, one or more users can access the service simultaneously, either directly from an independent web enabled PC or in a local area network through a proxy server (IP addresses based access). Electronic journals also offer benefit of full text searching and

downloading of articles. Many publishers of electronic journals offer their journals through consortia of libraries at much lower rates. INDEST and INFLIBNET are two such consortia operating in India. Access to articles in electronic journals can also be made through aggregator services which offer searchable databases of contents of e-journals from several publishers, and links to journal site for full text. Emerald, OCLC and J-Gate are some of the example of e-journal aggregator services. The main disadvantage of electronic journal is that libraries cannot physically posses the journals.

E-journals are becoming increasingly in demand both as a means of rapid desktop access to current research materials and as a way to view past volumes. E-journals offer a range of potential advantages to libraries and end-users:

- Allows remote access
- Can be used simultaneously by more than one user
- Provides timely access and at the rate of 24 X 7 X 365 formula
- Supports different searching capabilities
- Accommodates unique features (e.g. Links to related items, reference linking)
- Saves physical storage space
- Supports multimedia information

As a result of the above advantages, libraries today buy licenses for an ever-increasing number of Electronic Journals from a range of different publishers and providers, and use a diverse set of technologies for information delivery.

1.4.1.2 E- book

Any library is to provide quality information services for complete user satisfaction through optimum utilization of the resources the library has. In order to achieve this goal libraries acquire, preserve and disseminate the documentary as well as the non-documentary records of information. In earlier days, the library documents were mostly in the form of “traditional” books with a designated format, i.e. a physically distinct creation made up of a collection of pages and presented in a bound volume. Recent information handling technologies have significantly influenced the basic nature of traditional print-based libraries and have created electronic, digital and virtual libraries containing electronic documents like e-books, e-journals, etc.

Especially in Libraries and Information Centers of Indian Universities, Institutions of Higher Education, and other institutions of national importance like IITs, IIMs, and IIScs etc. It can be concluded that there is a need to formulate a workable and sustainable strategy in Academic Libraries. It also urgently needs that systematic efforts are taken to develop suitable information infrastructure for providing access to e-books. This impact will definitely enhance in future when demand and usage of e-books will be much more than now.

1.4.1.2.1 Origin & Evolution of E-books

The first printing press with movable type that was invented in 1450 by Johannes Gutenberg revolutionized the printing process by making it simpler and more affordable. Although the first hypertext novel was published in 1987 (Afternoon, A Story by Michael Joyce), electronic books did not capture the public attention until the online publication of Stephen King's novella Riding the Bullet in March 2000. Within 24 hours, the text had been downloaded by 400,000 computer users.

The modern concept of e-books became common after Martin Eberhart and Jim Sachs both started their own companies and developed Rocket eBook and SoftBook, the first two handheld e-book reading devices. In 1999, nowadays, there is an increasing interest in the use of e-books and other forms of online documentation to disseminate information and provide global access to it.

1.4.1.2.2 Role of E-books

E-books are preferred by the users for their features like portability, upgradeability, note making, citation, changeable font size, references, links to other relevant sites, searching, etc. The libraries purchase the e-books and view them on monitor or some specific e-book readers.

E-books can also be circulated as printed books.

- Their portability gives a new chance of learning, eg., Distance learning.
- Can be carried and transferred anywhere.
- Their feature like changeable font size makes it easy for use.
- Searchable and navigable through links are provided.

1.4.1.2.3 Types of E-Books

There are ifferent types of e-books available in the market. Some of the types are explained in this paper

Figure : 2 A user viewing an electronic page on in eBook reading devices

Downloadable e-Book

The contents of e-book are available on a website for downloading to the user's PC. The users do not have to purchase any special reading device and can employ standard and well-known web techniques to obtain the book.

Dedicated e-Books

The contents of the books are downloadable to a dedicated hardware device; this has a high quality screen and a special capability for book reading. Much of the activities of dedicated e-book arena centers around the emergence of dedicated e-book reader's hardware devices specially built and designed to improve the reading experience and they incorporate special control to make book reading easy and simple. There is no need for PC or Internet access

facilities, because the readers incorporate modems that dial directly into the e-book publisher's server to download books.

Web accessible e-Books

The book remains on the providers' web site and can be accessed on a fee basis. Readers can purchase the books to receive indefinite access. Users require PC to access this kind of e-book.

Print-on-Demand Book

The content of a book is stored in a system connected to a high speed, high quality printer from which printed and bound copies are produced on demand. The contents may be accessible chapter by chapter basis, to enable the creation of single copies of customized books.

Formats of E-books

There exist many standard formats in which e-books are available. Some of the standard formats are being discussed as under:

Image files

An e-book can be distributed as a sequence of images, one for each page.

Rich Text Format (.rtf)

RTF files are actually ASCII files with special commands to indicate formatting information, such as fonts and margins.

Hyper Text Markup (e.g., Mozilla, Language (.html)

E-books using HTML can be read using a standard browser Firefox, or Microsoft Internet Explorer.

TEX

The TEX format is a popular academic format for technical writing applications in the scientific communities of mathematics and computer science.

Portable Document Format (.pdf)

PDF files are created mainly using Adobe Acrobat that provides a standard form for storing and editing printed publishable documents.

PostScript (.ps)

It is used for describing the contents of a printed page in a higher level than the actual output bitmap.

Exe-book (.exe)

It is a compiler that produces an e-book file that, when executed, produces a simulated book onscreen, complete with page texture.

DesktopAuthor (.EXE and .dnl)

It is used for the creation of digital web books with virtual turning pages, including brochures, e-books, digital photo albums, etc.

Technologies Available for Reading E-Books

There are two types of technologies available for using e-books:

- online or Internet-based
- offline or specific e-book reader based

In the online version the user can read the text through an Internet browser and this opens up possibilities of linking to other resources, cross-text searching, and utilization of dictionaries and so on. There are several organisations which each offer access to tens of thousands of e-books from a range of different publishers. Examples include:

- Netlibrary (http://www.netlibrary.com)
- Ebrary (http://www.ebrary.com)
- Questia (http://www.questia.com)
- Adobe reader in PDF format (http://www.adobe.com/products/ebookreader)
- Hiebook reader in HI format (http://www.hiebook.com)
- Microsoft reader in LIT format (http://www.microsoft.com/reader/downloads/default.asp)
- Mobipocket in PRC format (http://www.mobipocket.com)
- DX Reader
- dotReader
- Palm reader in PDB format (http://www.palmdigitalmedia.com/products/palmreader/free) (Sulli, 2004; Gibbons, 2005).

E-book Resources and Accessibility

Electronic books are accessible via the Web in a number of forms. Generally, they are texts that have been scanned or typed and either published on a Web server or made available on the Web for downloading.

The International Digital Publishing Forum (IDPF),

Formerly the Open eBook Forum (OeBF), is the trade and standards organization dedicated to the development and promotion of electronic publishing. It provides information on the industry through statistical reports, policy documents, educational programs

- Project Gutenberg (http://www.promo.net/pg)
- University of Virginia e-book Library

  (http://etext.lib.virginia.edu/ebooks/ebooklist.html)
- Electronic Book eXchange (EBX)
- University of Illinois Electronic books

  (http://www.press.uillinois.edu/epub/books.html)
- University of Pennsylvania Online Books

  (http://onlinebooks.library.upenn.edu/)
- The National Academies Press (http://www.nap.edu/)
- Open Reader Consortium
- Great Books Online: Bartleby.com
- Digital Book Index
- Free Tech Books

- Google Book Search
- Free-books4Doctors!
- WikiBooks

Commercial Publishers and Aggregators of E-Books

- Springer
- Wiley Inter Science Online-books
- NetLibrary (http://www.netlibrary.com/Gateway.aspx)
- Kluwer Online (Recently merged with Springer) (http://www.kluweronline.com/ebooks/sales/)
- Safari Tech Books Online: (http://proquest.safaribooksonline.com/)
- John Wiley (http://www.wiley.com)

1.4.1.6 Limitation of E-Book

Though the e-book has great potential and bright future to attract the users it also have some limitations.

- Physical and Mental Strain: to read an e-book is not comfortable in comparison with printed book.
- Reading an e-book while travelling in train or bus is not so easy and cheaper comparison with printed books. Laptop or Palm top with battery system is urgently necessary to read an e-book, which is more costly than a book.
- In addition to cost, the user has to carry the machine which is difficult and a matter of risk like breakage / damage or theft.
- E-book is costlier than printed book.

1.4.1.2.4 Perspective and Benefits of E-Books

- Single platform for users to access all our e-Content, with a simple, easy-to-use interface
- Anytime, anywhere access
- Supports your users in a variety of ways—provides access to content through Web site and downloads to portable digital devices, when possible
- Trusted content from the world's leading publishers—known for comprehensiveness, quality and desirability
- Automatic check in; no shelving; no lost, stolen, damaged or overdue materials

- Robust reporting facilitates collection development decisions
- Integrated with leading ILS systems, including SIRSI, Dynix and Innovative Interfaces

1.4.1.2.5 perspective and future of e-books

- Multiple formats: eAudiobooks, eBooks, eJournals, eMagazines and eDatabases
- Multiple languages: English, Chinese, French, Spanish
- Remote authentication accessibility; materials are available inside and outside library, 24/7
- Collection development tools such as TitleSelect, TitleDirect, Patron-Driven Acquisition, Library Resource Center and more
- Full-level OCLC MARC cataloging records included
- Search functionality within and across all NetLibrary content

1.4.1.3 On-Line Databases

On-line Database is a collection of information categorized by specific fields. Databases are usually searchable by keywords topics. An e-database is an organized collection of information, of a particular subject or multi-disciplinary subject areas. The information of an e-database can be searched and retrieved electronically. Contents include journal articles, newspaper articles, book reviews and conference proceedings, etc. Information organized and stored in a database, with structured cross-document search and retrieval, relational data structured, efficient query mechanisms.

On-line search access to databases has generated the concept of libraries because the literature reported in the on-line searches is scattered in many libraries. The libraries instead of acquiring everything on their subject field, will depend more on the network of which they will form a part and share the resources among themselves.

1.4.1.4 Websites

A library web page or Universal Resource Locator (URL) facilitates single window access to various web enabled library services. A URL could b e as simple as a library web page listing the services with some links to catalogue and external free and subscribed resources or may include advance features like interactive helps and value added services such as subject gateways, self-help tools and frequently asked questins, and information about the library such as timings, calendar, rules etc can be hosted on the library web site a part from the ICT enabled conventional services. Libraries are making use of potential of internet and computing power to provide new and innovative services. It is intended to help guide its users towards understanding the consciousness. The ability to view the most recent content from hundreds of websites from a single program not only keeps up-to-date on the news and information, it is fast and easy to use.

Web pages are the presentation of information which can be presented in a carefully chosen media most appropriately. Web pages can be static or dynamic, meaning that the content is the same each time someone visits the webpage or is taken form a database which is updated with new content. For

example if a webpage, say the home page, had a ‘news’ area describing current news in relation to a company or event, then when a new news item came up or expired, new item would appear and old news item disappear from the news section on the homepage.

Content and its presentation is the most important part of website. It is what people visit and hopefully recommend the website for. Websites content can be presented in many forms, the most common and accessible being text and graphics. For example, a website aimed at blind or partially sighted people is going to be a non- visual website making best use of the text (which can be heard using a text to audio web browser) spoken word and sound.

1.4.1.4.1 Merits of Website

- Fast and easy access to website content.
- No spam, few ads (about to change), only content and photographs.
- User chooses the sites and content they want.
- User controls what they see and don’t see.
- User sees the most recently updated content without having to prowl around the site.
- Less time searching and hunting for commonly needed information and resources.
- Information is presented in excerpts of full articles, free of styling and heavy-handed site designs and layouts-content and information is the priority.

- Replaces email and newsletters to alert users of updated, new content, and other typical information like press releases and events.
- Provides another form of content delivery in addition to the website itself.

1.4.1.4.2 Objectives of Library Websites

- Promote the library usage
- Provide information about the library and its activities
- Provide online access to local information sources
- Act as a gateway to the networked information resources (CD-ROM, Intranet / Intranet)
- Integrate Push-based services.

1.4.2. Advantages of E- Resources

The reasons for actually embarking on the purchasing of electronic resources are generally accepted because of the ease of usability, readability, affordability and accessibility. The following are the advantages of e-resources over the print media

a) **Multi-access**: A networked product can provide multiple points of access at multiple pints round the clock and to multiples simultaneous users.
b) **Speed:** An electronic resource is lot quicker to browse or search, to extract information from, and to integrate that information into other material and to cross-search or reference among the different publications.

c) **Functionality**: E- resources will allow the user to approach the publications to analyze its content in new ways by clicking of the mouse on search mode.

d) **Content:** The e-resources can contain a vase amount of information, but more importantly the material can consist of mixed media i.e. images, video, audio animation which could not be replaced in print.

e) **Mobility**

f) **Savings physical Space**

g) **Convenience**

h) **Saving time& money**

1.4. 3 Disadvantages of E-Resources

Now, more and more people prefer e-resources to traditional ones, because it can save their time and money. However, with various e-resources flooded in, more and more people are aware of the disadvantages of e-resources.

a) The fact that, e-resources require special devices or personal computers can be looked as a disadvantage. Many e-resources are typically produces to be compatible for certain software which in turn may be not easily available. Since e-resources are dependent on other equipments, certain hardware or software failure may affect it. Unless the hardware, Internet connection or battery power that is required by an e-resource reader is readily available, then its electronic document

is useless. In addition, e-resources depending on hardware and software and are more easily damaged than a printed book.

b) E-resource reading devices are surely more expensive than printed books. All devices of e-resources require power. There is a growing concern that the e-resources at present may not be accessible or compatible to the futureS e-resources software or devices.

c) Screen glare and eyestrain are a serious concern for many potential users of e-resource technology. A major worry of reading from an e-resource reader could hurt the eyes. The display resolution of computer screens and electronic devices is considerably less than the print quality produced by a printing press.

d) Reading from a computer lacks the familiarity and comfort of reading from a book. A paper book can be opened and flipped; through, while an electronic text is more difficult to navigate.

e) E- Resources have unreliable life span. Paper has a much longer life span than most digital forms of storage. Because of the rapid development of new computer systems it is difficult to judge whether the software or hardware will become outdated. As new hardware is developed, structures must be put into place to allow for the migration of existing materials to the new platforms so that they can still be accessed. Methods of preserving the electronic document must also be

developed. A high degree of reliability of the equipment must be a part of the electronic devices that handle the replacements for printed books.

f) Many titles that are available in traditional print books are not yet available in an electronic book format.

g) New technologies always require time, experience, and money in order to take full advantage of its capabilities.

1.4.4 Indian Scenario for E-Resources

Libraries function as an essential integral component in higher education system. Academic libraries in India are facing a lot of problems due to static budget and exponential price hike of library collections. The library environment is currently undergoing a rapid and dynamic revolution leading to new generation of libraries with the emphasis on e-resources. A lot of efforts have been taken in the past few years to overcome this problem of financial crunch by resource sharing through consortia for university libraries. UGC-INFONET and INDEST-AICTE consortium are the two major initiatives for university library users. These revolutionary steps are providing scholarly resources including peer reviewed journals, databases, abstracts proceeding etc. These efforts must be boon to university library users which will definitely boost the level of higher education in our country.

Library Consortium is a group of two or more libraries which have agreed to co-operate with one another in order to fulfill certain similar needs, usually resource sharing. It usually, refers to co-operation, co-ordination and collaboration between, and amongst the libraries for the purpose of sharing information. Consortia are basically, evolving a form of cooperation among the libraries which come together to share the resources electronically. It has gained momentum even in developing countries like India.

Some of the successful library consortia setup so far in India are;

1) UGC-INFONET E-journal consortium.
2) Indian National Digital Library in Engineering, Sciences and Technology (INDEST) consortium.
3) Inter University Centers (IUC_DAEF Consortia)
4) Health Sciences Library and Information Network (HELINET)
5) Forum for Resource Sharing in Astronomy and Astrophysics (FORSA)
6) Council for Scientific and Industrial Research (CSIR e- journals consortium)

Apart from the mentioned consortia, there have been efforts to setup similar kind of consortia by ICAT, ICMR, ICSSR and other government agencies to provide and access to e-resources. Among the above all consortia, UGC-INFONET and INDEST- AICTE consortium are proving to be a boon for the academic users. These two major initiatives have come to the rescue of academic libraries so that they can cater to the needs of academic depending upon them. These revolutionary steps are providing scholarly resources including peer

reviewed journals, databases. Abstracts, proceedings etc. these efforts will boost the higher education system in India.

1.4.5 Motivation for the Effective Utility of E-Resources

Today availability of e-resources in an academic library is very common. But their proper and maximum use is a matter for discussion. Advances in computer applications during the past few decades have brought radical changes on the way information is gathered, store, organized, accessed, retrieved and consumed. The application of computers in information processing has brought several products and services to the scene. The internet and the Web are constantly influencing the development of new modes of scholarly communication; their potential for delivering goods is quite vase as they overcome successfully the geographical limitations associated with the print media. Further, the distribution time between product publication and its delivery has been drastically reduced. The internet can be used for efficient retrieval and meeting information needs. This is very important for university libraries since most of them call for more and more research work. This important fact is convincing many libraries to move towards digital e-resources, which are found to be less expensive and more useful for easy access. This is especially helpful to distant learners who have limited time to access the libraries form outside by dial-up access to commonly available electronic resources, mainly CD-ROM, OPACs and Internet, which are replacing the print media.

1.5 NEED AND SIGNIFICANCE OF THE STUDY

With ever increasing information needs of the information seekers on one side and the information explosion on the other side followed by the ever shrinking library budget, price exculpation has become an inevitable problem in providing the right information to the right user at right time.

With the advent of computers, the nature of libraries has changed dramatically. Today almost every important reference tools is available in electronic format whether offline or online, providing convenience of use, storage, timeliness and currency of information. Computer storage and compression technologies have made it possible to store large amount of data and information on small digital and optical media, eliminating requirement for large space for holding the printed sources. It is also faster and easier to keep the electronic sources up to date.

To cater the information need of the researcher's libraries required accessibility to a variety of information sources, particularly the digital information in addition to the printed documents. There is a need to study the usage of electronic resources by professional institutions in Vellur District in Tamil nadu.

The main objective of this study is to analyse the awareness of Web browsers, satisfaction with the e-resources provided by the library, ranking of e-resources, performance of library and barriers to access e-resources. The research scholars are posed to an array of electronic resources through internet for research. They should be able to differentiate between relevant and irrelevant information and should be able to access the needed information effectively and efficiently.

1.6 OBJECTIVES OF THE STUDY

The Primary objectives of the study are to identify the usage of electronic resources amongst the faculty member's researchers, students and staff members of E Resources Users. The specific objectives of the present investigations are:

- To examine the awareness of Library users for E-Resources ;
- To identify the availability of different types of electronic resources in professional Institutions library;
- To evaluate the frequency, time spent, purpose and utilization of E- Resources by the library uses;
- To identify the frequently used databases /E-journals; and
- To find out the problems, prospects and measures for improving the usage of e-resources in Vellur District Educational Institution Library

1.7 BRIEF RESUME OF THE SUCCEEDING CHAPTERS

Chapter II deals with the review of related literature and gives a list of various studies to the investigation.

Chapter III is concerned with research design gives a detailed account of the objectives, hypothesis, sample, data collection and methods adopted for the study.

Chapter IV deals with the analysis and interpretation and gives the detail analysis of the data collected and statistical analysis made.

Chapter V concludes the findings, recommendations and future scope.

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