USE PATTERN OF ELECTRONIC INFORMATION RESOURCES IN THE COLLEGE LIBRARIES IN KERALA: AN ANALYTICAL STUDY

Thesis submitted to the University of Calicut for the award of the Degree of

DOCTER OF PHILOSOPHY
IN
LIBRARY AND INFORMATION SCIENCE
(As part of M.Phil/Ph.D integrated Programme)

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CHAPTER 1

INTRODUCTION

- Electronic Information resources-Background Informations
- Need and Significance of the study
- Statement of the Problem
- Definition of the Key Concepts
- Objectives
- Hypothesis
- Scope and limitations of the study
- Organisation of the thesis
1.1 Introduction

Electronic information otherwise called as digital information, in the new era is changing the duties and services in all fields from traditional to digital form. The information is a dynamic and unending resource that affects all disciplines and all walks of life. It supports education, research and development.

Electronic Sources are the clutch of technologies, which cover electronic information delivery includes CD ROM, On-line database, Video text/teletext, DVD Rom database, E-Mail, video recording (Read-to-reel tape, Cartridges, Shots, Cassettes and discs) motion pictures (loops, kinescope, stock, shots, trailers, etc) Microforms (Microfilms, Microfiches, Micro-opaque and aperture cards). Transparencies, locally loaded tapes, Internet, E-publishing (E-Journal, E-books) Radio, Television etc.

The rate of growth of information and knowledge is faster than before and still accelerating. The world famous futurist, Alvin Toffler calls 21st century as space age, computer age, and information era or electronic era. These developments are the impact of phenomenon known as “Information Explosion”. It is said that scientific knowledge doubles itself every ten year.

Information is data that has been processed into a meaningful form. The essence of it is that a meaning has been attached to the raw facts. The conceptual distinction between information and knowledge is therefore rather
unclear, although the two terms tend to be used in somewhat different contexts. Increasingly information is applying in the broad professional and technical context represented in such phrases as “information technology” or “information retrieval” or “information management”. It is thus used in a general sense to encompass all the different ways of representing facts, events and concepts in both digital and analogue systems and in all media and formats.

The term “information” has been derived from two Latin words “Formato” and “forma”. Both the terms convey the same meaning of giving shape to something and forming a pattern.

It is the age of information. It have been also recognized the power, wealth and value added phenomenon to an individual, ones, society and nation. Therefore, information, in the electronic form have been admitted an important resource for updating to an individual with what happens in the field of individuals interest in intellectual world.

According to ‘The New Lexicon Webster’s Dictionary the term ‘Source’ stands for ‘the spring’ or starting point’ of a stream of river, the place or a thing from which or a person because of whom, some thing begins or arises, the sources of troubles; a person, book, document consulted for information or providing initial inspiration’

When the term ‘re’, its word meaning ‘again’ is prefixed with the term ‘source’ this dictionary explains the word ‘Resource’ as a ‘source of supply’ or ‘support’ quick wittedness in mastering a difficult situation’, something to which one resorts for comfort or help at an emergency or exigency’.

On the basis of explanations of terms ‘source’ and resource by the above-mentioned dictionary resource may be observed as below:
A material or thing or person or entity becomes resource if it is resorted or reserved to neutralize or solve a problems or a number of problems of an individual one, one’s society or a nation on an exigency or emergency in future stimulating the potentiality of basic sources infighting with or applying electronic technology for the purpose.

1.2 Electronic Information Resources-Background Informations

1.2.1 Information Technology

Information is a dynamic and unending resource that affects all disciplines and all walks of life. It supports education, research and developments. Technology in it broad sense is the main factor determining the development of information. Information technologies facilitate transfer of electronic data or information from one place to another, one person to another and from one library to another library. Information technology is the electronic mean of capturing, processing, storing and communication information. It covers any product that will store, retrieve, manipulate, transmit or receive information electronically in digital form. Information technology infrastructure is considered as the most dominant paradigm of development in the recent years. Information technologies have become dramatically and strategically important in modern civilization. These technologies are inexorably integrated, creating new intellectual capabilities by assisting the human brain and this changing most aspect of daily life. During the past decade, more several developing countries and regions of the world have been adopting and applying components of IT, in always that facilitate information access and exchange to assist R&D decision making, problem solving management, and so on, in the public and private sectors in such in science and technology education, industry, trade, social and cultural development etc.
Information technology has immense possibilities in library services, operations and resources. The main functions of a library are to acquire information from various sources and arrange process, disseminate them at the right time. The libraries have found it very difficult to acquire, arrange process and disseminate information on traditional ways, so librarians are compelled to plan, organize and communicate the huge information according to the needs of users with the help of information technologies. The application of IT facilitates innovation, free flow of information, creative expression and effective management. The use of IT in libraries has tremendously increased because it provides enhance user satisfaction, cost effectiveness, faster and simpler programmes, rapid response and easier operational procedures.

Following are the impact of IT in Library and Information services

- Computerization of library services
- Fax, e-mail, Internet service
- Use of multimedia VCD, ACDS for higher study and research.
- Creation of databases of books, serials, PhD theses and regional local databases etc.
- Networking of library through computer network Via Fax, e-mail, Inter library loan (ILL). Document delivery services, Bulletin board services etc.
- Bibliographic information services
- Automation of acquisition, cataloguing, circulation, serial control, Administration of library etc.
- Online access to union database developed at INFLIBNET websites.
New technological developments have already profoundly affected libraries. Almost every function carried out in a library has been altered to some extent by advances in electronics, computerization and telecommunications. The technological revolution in libraries has been called a “quite revolution” the fast pace of IT has brought the global information at user finger tips use of modern technology has great relevance in the context of fourth law of library science “save the time of reader/staff.”

1.2.2 College Libraries

Every college must have a good library and it occupies a prominent position in college campus. It is the pulsing heart of the college. Therefore the functions of the college library are important.

These are

- Serve the college community
- Serve the alumni
- Influence the society for the expansion of knowledge and help men and women to quench their quest for truth.

In India, the UGC has provided generous funds to purchase reference books and textbooks as well as construction of library building. As a result of it, the classroom teaching is now supplemented by library usage. Books on latest teaching methods provide exhaustive knowledge of the subjective to the students.

1.2.3 Objective of College Library

The following are the objectives of the college library
1. To promote the records of human knowledge and keep them upto date in accordance with the growing needs and requirements of today and tomorrow.

2. To remind faculty members of the various opportunities for using library resources in teaching.

3. To facilitate an individual and a group of readers in the use of library resources with practical demonstration on how to seek the information.

4. To provide necessary resources for staffs and students.

5. To assist teaching staff in organizing the synthetic methods of teachings.

6. To bring the documents to the notice of students and the academic together under environments which stimulate reading for pleasure, self realization, personal growth and development, and the cultivation of intellectual excellence for entertainment.

### 1.2.4 IT and Academic Libraries

Libraries are the lighthouse for information in the field of education and research. The information is increasing in volume everyday at various levels and the various subjects. Hence IT is very much needed in academic libraries especially for the following reasons.

- To provide efficient and accurate services
- To control the rapid growth of information
- To facilitate co-operation
- To manage increased work load
Information technology has provided new media, new modes of storing and communication of information. The applications of IT for operations and services in academic libraries have been increasing steadily. Information technology now used in academic libraries for house keeping operations, collection development, information processing, storage and retrieval of information, creation of data base, developing search patterns to retrieve information etc. Information technology brought in many services to libraries to speed up their activities. These include telecommunication technology, CD-ROM technology, online retrieval services, library networks and Internet etc (Veeranjaneyulu 2004).

1.2.5 Use of IT in College Libraries

In Kerala, libraries are shifting towards automation and IT application. This is more prominent in the case of college libraries. Generally college libraries are positive towards automation and the application of IT in library operation and services. Application of IT helps to provide more advanced effective and efficient services in college libraries. College libraries are using advanced information technology for accessing and retrieving information.

College libraries are getting bibliographic and full text databases through on line. The introduction of CD-ROM technology has made immense possibility in the storage, retrieval and dissemination of information in college libraries. The introductions of barcode technology, Digital library services, etc are help to improve the college library services. The explosive growth of Internet and wide spread acceptance of networking has made possible to access any type of information anywhere in the world. There are different tools/services/ utilities in Internet to get information. E-mail, www, FTP, Telnet, News groups etc are some of them. The introduction of online journals and Library and information networks had revolutionized information handling capabilities of college libraries.
In this way the resources of college libraries will be used in an effective way. It will also be helpful in resource sharing and network project like INFLIBNET. In this manner, college libraries may be in apposition information support to colleges in future (QUreshi, Hasnain 2000)

1.2.6 Skill and Expertise of Library professionals in the electronic environment

Information technology has virtually unlimited potential for variety of applications in libraries. Library professionals have undergone a drastic change, which had not been seen ever before. The challenge posed by IT in the storing and transferring of information has profoundly altered the roles and services of library and library professionals. Libraries ushered into an era in which professionals of all levels from top to bottom shared the common responsibility of providing access to information “Just in time”. The use of IT in libraries has changes the services into an attractive and user friendly and at the same making a feeling of status to the information professionals. The library professional responsible for the implementation of IT in libraries should combine IT and library or information science qualifications, skills, competencies and experience. During this period of library automation and IT application it was widely felt that library personal lack requisite level of working knowledge and skills of IT. Such working knowledge and skills were essentials to prepare library staff both mentally and technically for modernization of library services in the new electronic environment.

There are different levels of skills required by new library professionals in the electronic environment. Firstly library professionals should have skills required for handling IT products, particularly, operating system, software, physical handling of budgets, telecommunication products, DBMS, data and file management, DTP, word processing, generating of reports etc. The next level of skills includes skills required to apply IT for service management in
general and information processing, search and retrieval in particular. This involves collection and organization of data in electronic form, indexing techniques, selection and evaluation of sources, searching techniques, updation technique etc, information retrieval skills include online searching as well as searching CD-ROM databases. This level should incorporate skills required for query formulations as well query interpretation.

The library professionals should also have Internet and skills required for accessing networked resources as well as marketing of electronic information. A lot more can be said about skills expected for electronic publishing, electronic commerce and electronic marketing. Yet another are in which skills are likely to be expected is document management and management of data archives. Preservation and archiving of data in electronic medium not only require administrative skills but also knowledge of data fields, which a system analyst knows better. The other advanced skill that are less likely to be needed by library professionals unless they become part of IT are programming skills, system administration, hardware maintenance and own trouble shooting networking system migration etc. (Bavakutty 2006)

1.2.7 Information Communication Technology

The information is a dynamic and unending resource that affects all disciplines and all walks of life. It supports education, research and development. Technology in its broad sense is the main factor determining the development of information. Information and Communication Technology (ICT) is the biggest achievement in the evolution of mankind. ICT is any system design to gather, process or distribute information or it is the science and skill of transferring of electronic data or information from one place to another and one person to another (Bhartia 2001).
In whatever situation we find ourselves, the elemental process is communication. An informative communication alters the state of knowledge of the recipient. In this information age, we find ourselves under the information gamut and everything looks to be important. Earlier we always had the conception that, we did not have access to government information, grey literature, trade reports and technical reports. But now, the technology has given us a marvelous tool to have access to all information sources published, unpublished, yet to be published and which is not suppose to be published that is the electronic journals (Padma K.C). This tool also enables us to communicate between anyone, anywhere in the world without any discrimination of status.

1.2.8 The Internet

Internet in simple words is a network of networks. Encyclopedia of Library and Information Science (1997) defines the term Internet as “a system of linked computer networks, world wide in scope, that facilitate data communication services such as remote login, file transfer, electronic mail and newsgroups”. Internet is a way of connecting existing computer networks that greatly extends the research of each participate system.

Thousands of private, commercial, governmental and educational organizations are connected to Internet but there is no one owner or organism that is responsible for the Internet. People use Internet to communicate with each other to exchange information for education, research, business and entertainment purposes. It is popularly known as information super high way, which has millions of information articles (Kamala Vijayan1998).
1.2.9 Historical Perspective

The concept of electronic publishing (EP) is just about 20 years old. The first electronic book was published in Germany in 1985. Since then, there has been a steady growth in the number of electronic publications. Slowly, serials were published by the electronic networks called as electronic journals. The third edition of Michael Stranglane directory of electronic serial’ list was published later on (Amudavally, 1997).

Electronic publishing of typeset quality of documents contains texts, graphic, pictures, tables and equations etc. in general; it is used to maximize the capacity to contain more information reducing the source in electronic form. E.P associates with electronic technology, computer technology, communication technology and publishing.

Similarly, in case of information sources which nowadays have been recognized as electronic information resources using and infighting with electronic technology in their products. Because the use of this technology stimulates the potentiality of information communication along with their accessing, manipulating, retrieving, storing and transmitting among users. Introduction of computer and networking programmes have sprung the radii of information globe at its centre.

 Likewise the use of electronics in the field of information technology (IT) has evolved a number of tools. They have expanded and reduced their intension and size. The information restored in these tools or host documents decoded by the use of this technology, now may be acquired and communicated within the few moments abolishing the term of remote distance from the dictionary of library and information science, Finally the use of computer linking with satellite facilities a number of users in accessing the same information at different place at the same time.
1.2.10 Electronic Libraries

The invention of computers digital telecommunication technology, CD-ROMs, Multimedia, Computer Networks, Internet, have paved the way to the development of Electronic publishing and have changed the traditional libraries to Electronic/Digital libraries. Electronic libraries are global networked virtual Libraries in which all of its holdings are in machine-readable form. To provide instant information service by retrieving the required information from the mist of fast emerging and ever-growing information explosion, it is very essential to digitize the libraries.

Electronic libraries, which is often called ‘Digital Library’ denotes a library in which all or virtually all of its holdings are in machine readable form. Electronic library is a global virtual library of thousand of networked electronic libraries. They are the dynamic store houses of digitized information.

1.2.11 Need for Electronic Libraries

One version of using electronic library technology is to manage large amount of digital content such as thousand of images or hundreds of audio clips. Another need is to perform quick searchers that are difficult manually. The vast amount of information being created and stored each day makes it more difficult to find specific information later.

Documents and other materials housed in collections are deteriorating at rapid rate. While much work is done to conserve and preserve collections in their original form, digitizing their contents enables it to preserve in an additional way. This is difficult with traditional printed materials in many cases due to physical limitations of library facilities and the fragility of the materials in the collection.
Availability of precise and timely information is important for the benefit and progress of an individual or organization. But information is growing at an exponential rate and the amount of new information is bewildering the users. Obviously the challenge was to make this vast and latest information available to the researchers, academic communities and other kind of users. To achieve this it is essential to digitize the libraries.

The components of an electronic library are

- Local library systems with adequate PCs having LAN facility
- Local databases in machine readable form, CD-ROMs, Multimedia facilities
- E-mail service
- Access to services and remote databases
- Networks including Internet facility
- Well trained manpower
- Variety of system functions to co-ordinate and manage the entry and retrieve data

1.2.12 Functions of Electronic library

The key functions of electronic library are

- To manage large amount of digital/Electronic contents such as thousands of images or hundreds of audio clips
- To enable one to perform searches that are not practical manually
- To manage contents from multiple locations
- To preserve unique collections through digitization
To enable greater access to information
To provide means to enrich the teaching and learning environment
To protect content owners to information
Reduces distribution and storage overhead
Increases user effectiveness and productivity and
Standards are necessary for the exchange/interchange of information.

1.2.13 Characteristics of electronic libraries

Electronic library has the following characteristics:-

- Networked accessibility
- User friendly interface
- Advanced search and retrieval
- Supporting multimedia content
- Accessibility from anywhere, home, school, libraries, during travel etc
- Providing access to more information
- Supporting both formal and informal learning
- Providing access to very large collections of primary and secondary information.
- Greater opportunity for publishing
- Availability for long time
- User interface for information retrieval systems
- Entering a new civilization in digital libraries and its social impact.
1.2.14 Various Digital Information Services Provided Through Electronic Libraries

Following are some of the electronic/Digital information services, which can be provided by Electronic libraries:

1. On-line public Access catalogue (OPAC)
2. CD-ROM Network Service
3. On-line Circulation Transaction
4. E-mail Service
5. Bulletin-Board Service
6. CAS (Current Awareness Service)
7. SDI (Selective Dissemination of Information)
8. Indexing and abstracting service
9. Content page service
10. Intranet and Internet service
11. Other bibliographical service and demand

1.2.15 Users of Electronic/Digital library

As a matter of fact, users of electronic information in India can be broadly divided into following four groups.

- Those who have started using the latest technology and digitized information.
- Those who have been using these technologies and electronic information
Those who have the fear of using new technologies for information retrieval

Those who are intermixed between the above three groups, but have no training to use the technology of accessing global information

1.2.16 **Advantage of Electronic Libraries**

1. Electronic libraries have tremendous capacity to store huge data
2. Save a lot of space in the library
3. Can be updated every minute
4. Bibliographic data is fed only once
5. Afford very large and multi approach searching capabilities
6. Use of Boolean Operators is possible
7. Can easily be integrated with document acquisition and circulation systems
8. Information is always available and not limited by physical location
9. Electronic document can be shared by many at a time
10. Quick, accurate and easy to locate information
11. Provide access to current information
12. Electronic clipping and reference services can be provided
13. Very easy to copying and printing materials in library

1.2.17 **Issues and challenges in developing electronic libraries**

In the context of digital image, libraries face greater challenges in capturing, storing, formatting, retrieval and reproduction of non-textual information. Because it is a new area of developing source of information and experiences are few. As the arrival of electronic libraries are imminent,
libraries are forced to re-educate themselves to meet the new challenge. The principal categories of information sources are text, video and voice. The visual representation of objects, colors and shapes has always been an integral part of human culture. Hence the representation of visual phenomena through photography; motion film and video have become part of our daily lives, for information to be communicated broadly, it needs to be stored outside the human memory.

**Most Relevant Function of Electronic Information Resource Flow Chart**

![Flow Chart](image)

Digital Libraries appears to have thrown open an exiting new area for interaction between information technologists and library ‘demise of book’ libraries without walls and knowledge centers are being floated to describe the concept of the library of the feature. Digital or electronic libraries are organized collection of digital or electronic information. They combine the structure and gathering of information. The fig no:1 describes that the information resources and the electronic library
archives are preserved in a digital forms and all these are loaded or transferred through leased line whether it is through an earth station or gateway access to the internet. The users use data capturing for the electronic conversion and cataloguing through HTTP (Hypertext Transfer Protocol, Telnet (Networking over telephone), Z.39.5 Software, SMTP (Simple Mail Transfer Protocol), FTP (File Transfer Protocol) and MARC. All these are loaded to computer is transferred through VSAT (Very Small Aperture Terminal) to the internet. Conversion of paper into digital or electronic forms is expensive and time consuming. Some type of objects, such as photographs, bibliographic sounds and videos are readily digital but books, Journals and maps are not. The fact that special hardware and software are essential to view digit objects compounds the problems. This is especially true in developing countries, where by the time the necessary hardware and software are acquired and installed a new version is released in the market.

1.2.18 Type of Electronic Information Resources

At the time of classifying the resources of Electronic information can be categorized as under.

18.1 Primary Resources

Primary resources are letters, manuscripts, diaries, journals, newspaper, speeches, interviews, memories, documents produced by government agencies, photographs, auto recording, moving pictures or video recordings, research data and objects in electronic forms.

18.2 Secondary Resources
The secondary resources are the documents which say about the primary resources of information, Bibliography, reviews, treatise are the example of this kind (Ref: Ibid).

In addition to these it may includes abstracts like Chemical Abstracts, Psychological Abstract, Dissertation Abstracts, Medical and Aromatic Plants Abstracts (MAPA), Library and Information Science Abstracts (LISA), Sociological Abstracts and Bibliographical Abstracts. Second sub-division of secondary resources includes indexes, like British Humanities Index, Biological and Agriculture Index plus, Indian Science Index, Applied Science and Technology index, Bibliographic Index, Business Periodical Index, Current Index to Journals in Education (CIJE), the Education Index, Humanities Index, The New York Times Index and Social Science Index. Third sub-category of secondary resources of information covers, Dictionaries, Encyclopedias, Biographical sources, Geographical sources, Bibliographies, Year books, Almanacs and statistical sources.

18.3 Tertiary Electronic Information Resources

This category of information resources accommodates distillation and collection of primary and secondary resources in electronic form. Encyclopedia, indexes, text books and other reference resources which present summaries or introductions to the current state of research on a topic summarize or condense information from primary and secondary sources or provide a list of primary and secondary sources of more extensive information. George S. Bonn-Text book, directors, literature guide and Denis Grogan’s, year book, bibliographies of bibliographies, guide to literature, list of research in progress, guide to organizations, guide to libraries are the important resources which are available in digital form on computer.

1.2.19 E-Resources Flow Chart or Flow Cycle
A complete management system is needed for one to gain control over the selection, acquisition and usage of the existing electronic resources of an institute or firm. For this a resource manager is needed. Resource manager has become the knowledgebase for their electronic resources; the place where all information needed to keep things up and running is stored (Rosmary Arneson). As and when the libraries budget increasing their electronic holdings, the management of e-resources becomes complex and a resource manager offers a full set of features to control complex subscription management issues, from tracking license terms of use to managing renewal dates. A resource manager facilitates improved communication with staff and vendors using contract management, customizable alerts and resource notes. Resource manager is completely integrated with serial solutions knowledgebase and library’s specific knowledgebase to enable accurate analysis and better decision making. Resource manager should store key data about subscriptions, licenses and holdings to simplify and streamline the management of e-resources. He should facilitates improved communication with staff and vendors using contact management, customizable alert and resource notes. E-resource workflow often require collaboration on a complex series of task, both before and after acquisition. E-resource work flow notifying appropriate personal for trial and renewal dates. The electronic resource manager (ERM) finding the electronic resources than evaluating through trial then acquire and customizing it then allows it for the access to total collection

Figure
E-Resources Circle

No. 2: Flow
1.2.20 Users Preference of online books

We are in a traditional period where more and more people are learning about, using and demanding access to online books. As we are large academic research library, print books are still vital to our collection and community of users. However, many students are now telling, they prefer books in an electronic format for certain activities such as searching within the text and quick reference information. Above all, students like e-books due to the convenience of being able to use the books where and when needed. Libraries need to embrace e-books to keep up with changing needs of our users. With many high-use materials such as books in a reserve collection, we see that print and electronic books are being well used by our students and that sometimes both print and electronic versions of a book are needed.

Libraries need to embrace e-books to keep up with changing needs of our users, but academic libraries also needed to develops flexible collection management strategies meeting their users needs. In general, researchers are very happy with online books, considering the fact that online books overcome problems peculiar to print collections. Moreover, searching in online books can be far more comprehensive and extends to full text, unlike searching in an OPAC where only book titles are searchable.
Advantages

Information being the power, wealth and potentiality adding source for socioeconomic, cultural and intellectual development of an individual, society and nation it becomes necessary to communicate it at local, regional, national and international levels. In order to rapid growth of information in the fields of social science, pure sciences and humanities emerging a number of subjects day to day makes out dated the existing tradition of information accessing, manipulating, retrieving, storing and disseminating the right information to the right user at right time at the remote distance. In this regard electronic information resources are playing an importance role in-

1. Accessing, manipulating, storing and distributing the information what when and where they required.

2. Providing need based and retrospective service to the users.

3. Networking facilities at local, regional, national and international levels keeping connectivity to the users all the times.

4. Enabling to get information through its means in electronic form or which form an individual requires.

5. Resources sharing at desired level to library or information center.

6. Coping with open mouth problem of space in libraries and information centers.

7. Automating system of library functioning enables one to locate required item easily and quickly.

8. Enabling to introduce friendly users’ services at any time.

9. Huge collection of information may be stored in a small place.
10. Reproduction of engraved information in documentary forms and their longevity are secured.

11. Information access can be made without wasting any time.

12. Desired information can be acquired within few moments at learning desk. Sharma (2005).

Disadvantages

With a number of advantages to adopt electronic information resource system in a library there are also a number of issues and problems in semantic and technical, Collection development, Users handling, Library economics, Staff and Skills.

1.2.21 Development in Telecommunication Technology

The transmission of data from one point and reception at a remote point, using wire, fiber optics, radio waves, microwaves or another medium of transmission. In association with computing, it forms the defining technology of the information age. Although traditionally associated with the transmission of voice data, telecommunication systems are now universally used for transmitting digitized data of all kinds.

1.2.22 Electronic Data Interchange (EDI)

EDI is the method for conducting business transactions across networks, with the exchange of invoices, orders and other documentation carried out in a standardized manner between the computers of trading companies. A major objective is, by standardizing and simplifying, to shorten the time between ordering and delivery. There are thousands of companies using EDI throughout the world. The European Union supported its expansion in the mid 1990s through a number of cross border pilot projects, designed to
show that it can benefit both small and large business. EDI is a critical tool for E-COMMERCE, not least in the book trade and hence in the process of library supply.

1.2.23 FAX (Facsimile Transmission)

Fax stands for “facsimile” which means “a copy” more especially it stands for “facsimile” transmission. It was invented Alexander Bain in the year 1842. A fax machine scans an image and sends a copy of it in the form of electronic signals over transmission lines to a receiving fax machine. The receiving machine re-creates the image on paper.

A facsimile machine is a telephone copy machine. When we insert the original document into the machine the copy comes out another facsimile machines elsewhere in the world at the cost of a phone call.

The two types of machines are 1) Dedicated fax 2) Fax modems.

1.2.24 Video Text

It is the generic name for the group of electronic communication system, which makes use of television screens to display computer-based information. It transmits text or graphics stored in computer database via the telephone network for display on a television screen. They make the database stored on powerful computer system assessable through the television set and a telephone.

In order to function, videotext system needs a telephone line, to which a television is connected via electronic interface.

Information is displayed as frames and each frame is identified by a unique code. Frames can be traced via their unique code or by searching, using menus or key words, depending on the system.
1.2.25 Tele text

Tele text is a text based information system in which the information is transmitted by the television authorities using spare lines in the television signal. The broadcast signal is received and decoded by a suitable adapted television set. The information in Tele text system is structured as a series of pages on the broadcasting organization computer. These pages are broadcast on the spare lines in the TV signal as a continuous loop of pages. The signals can be received by anyone with a television set which has been fitted with the appropriate Tele text adapter.

1.2.26 Video Conferencing

Video conferencing is the use of television as, video and sound technology as well as computer technology to enable people in different locations to see, hear and talk with one another. Video conferencing can still consist of people meeting in separate conference rooms (or) booths with specially equipped television cameras. However, modern vide conferencing equipment, such as Intel’s pro share hardware and software, can be set upon people’s desks, with a camera and microphone to capture the person speaking and a monitor and speakers for the person being spoken to it. It requires modems, sound and video capture cards.

A relatively new development is an initiative to deliver video mail, video message that are sent, stored and retrieved like e-mail. One version would use the pro share windows based video conferencing product and oracle’s media server, a computer storage system developed for movies on demand technologies.

1.2.27 Hypertext
A text document that contains linked to other documents and thus can be read in a non-linear fashion. Ted Neloon coined the term HYPERTEXT in 1965. A traditional text in the form of a book is typically defined as sequential or linear because there is an order in which the text must be read page two follows page one and so on. There are many advantages to this method of presenting information. It provides a logical sense of order. It can however, be an in efficient way to access large bodies of information.

A variety of mechanism can speak a user’s search for information within documents. For example, a book such as this one uses an index, table of contents and section headings to speed access to various bits of information. The index provides a mapping from an idea to a particular page in the document containing these related pieces of information. Non-sequential ways to access information such as footnotes, references and indexes are useful way to deal with navigating and organizing large bodies of related information. With the amount of information available for consumption, exploring an alternative to sequential access seems appropriate. This is where the idea of hypertext comes in. A hypertext document is an electronic document that contains link to related pieces of information. It could be characterized as providing generalized footnotes. It is a non-liner way to have an access to information.

1.2.28 Hypermedia

A generic term now widely used for multimedia applications of the HYPERTEXT principle. This permits the user to follow associative links between units of information by clinking on a HOT SPOT with a mouse. Web-delivered documents are the most familiar form of hypermedia.

1.2.29 Network
A network is a system of interconnected computers, telephones or other communication devices that can communicate with each other and share application and data. It provides tremendous benefits.

- Simultaneous access to critical programs & data.
- Sharing of peripheral devices, such as a printer & scanner.
- Streamlined personal communications.
- Easier backup of data.

Computer linked by a TELECOMMUNICATIONS system Networks offers two resources. First, they offer access to the people who use computer on the network, by means of ELECTRONIC MAIL, conferencing or chat facilities. Second, networks permit the use of files (text, graphics, sound and video) software, databases and peripherals (like printer or fax machines) stored on, or attached to, computers on the network.

1.2.30 Electronic Information Environment

An electronic environment allows changes and updating of original information, provides different views/reading of the same document, integrates multimedia sources of information, permits interchange of data and offers software support online. All these facilities while being useful for some types of publication are not appropriate for every kind of book; different kinds of reading requirement make electronic translation more or less useful for the reader.

**Features**

Provide access to very large information collections including access to primary and complete information, not merely surrogates or indexes.

⇒ Support multimedia content
⇒ Network accessibility
⇒ User friendly interfaces
⇒ Unique referencing of digital objects
⇒ Multi use refer various area in same time
⇒ Current information science
⇒ Advanced search and retrieval
⇒ Supporting both formal and informal learning
⇒ Remote access
⇒ Online discussion & commands
⇒ Accessibility from anyone, anywhere, anytime, during travel, hotel etc. are supporting, opportunity to publishing, annotation and integration of new information.

1.2.31 Electronic Information Resources

Any information resource that is accessible through computers or network can be termed as electronic resources. It is also available through the Internet or through online databases. Electronic Information Resources (EIRs) originally published information in electronic form or in print form made available electronically.

Electronic media has proved its advantages over the print media. Any information resource that is accessible through computer or network can be termed as electronic resources like e-journals, e-books and e-data bases have increased considerably. Computer storage devices such as optical disk, CD ROM/DVD-ROM Databases accessible through Internet and other networks can be used or stored for further use.
Growth

Electronic information resources (EIR) have their origin in experimental computer systems developed for the storage and retrieval of bibliographic data during the 1960s. By the end of that decade some of the major bibliographic databases such as Chemical Abstracts and Index Medicus were available in magnetic tape versions that were searchable in offline batch mode. During the 1970s and 1980s, the increasing availability of this machine-readable data together with the emergence of both real-time interactive computing and computer networks enabled the online information industry to emerge. Initially the major scientific bibliography databases became available in machine-readable form.

During the 1980s, Academic libraries began to transfer from card catalogues to online public-access catalogues (OPAC) OPACs became widely available; the CD-ROM emerged as an information delivery vehicle. The emergence of the World Wide Web has enabled a revolution in electronic information resources. This environment differs from the earlier situation is that:

- The available information is not restricted to text but includes large numbers of images, audio and multimedia items so that it is more appropriate to think of them as information objects rather than documents.

- The information available is an amorphous mass to which anyone can add if they have even a limited knowledge of Hyper Text Markup Language and thus the available information is no longer subject to quality-control mechanisms prior to publication.
The information is not structured to facilitate retrieval, but through the hypertext links it is structured to facilitate browsing and easy moving between information objects.

The web browser environment has continued the trend towards user-friendly interfaces that was initiated by the development of CD-Rom and windows.

Alongside considerable change in the type and scale of available EIR, there has been an even more remarkable change in the users of these resources. Use of EIR has moved from being an esoteric activity undertaken by information professionals, and a slowly increasing band of other professional people, to an action-undertaken everyday by countless millions around the world.

The INTERNET sense simply as an access mechanism to the quality-controlled information products made available by information aggregations such as Dialog, or publishers such as ISI and the major (academic publishing such as Elsevier)

A range of tools has been developed to enable retrieval of material from the web. These include a large number of search Engines, directories, gateways and portals.

The search engines automatically create huge databases of items on the web. The indexing and updating of these databases is done automatically by software. It is often forgotten that even the largest of these search engines, such as Google and Alta Vista, provide access to but a small proportion of the resources available on the web.

The electronic surveillance and digitization of information and its flow on broad band electronic highways facilitate the connection of home, offices, including libraries and information centers to the National Information
Infrastructure (NII) for transaction of information. The need for speedy processing and retrieval of information resulted in a variety of storage media such as microfiche, floppy diskette, compact disc etc,

Information is stored in various ways in electronic form such as CD-ROM, Microfilm, microfiche, floppy, Diskette and other electronic structure. Today electronic information highways that link global business, institutions, and individuals can not even perceive it by the naked eye, but are operated by the so-called tele-informatique specialists and sophisticated business knowledge people through wired networks and computers.
The University Grants Commission (UGC) has initiated a programme to provide electronic access over the Internet to scholarly literature in all areas of learning to the university sector in India. The programme is wholly funded by the UGC. All universities, which come under UGC’s purview, are the members of the programme. Director, Information and Library Network (INFLIBNET) centre, Ahamedabad, are executing the programme, which is an autonomous institution under the UGC. Access to various e-journals has started from January 1, 2004. The consortium covers all the universities in India, which come under the purview of the UGC, and will gradually be extended to the college as well.

1.2.33 UGC E-Journal consortiums

The E-Journal programme is a cornerstone the UGC Infonet effort, which aims at addressing the teaching, learning, research, connectivity and
governance requirements of the universities. The E-journals programme demonstrates how communication networks and computers can be used to stretch and leverage available funds in furthering these aims. The programme has been made possible due to the close and understanding cooperation between the University Grants Commission, Education and Research Network (ERNET), the Inter-University Centers IUCAA, INFLIBNET and CEC, and the national and international publishers. A bouquet of E-journals was presented to the national by His Excellency the President of India on 28th December 2003 during the concluding day of University Grants Commission’s Golden Jubilee celebrations.

33.1 Main features of UGC Infonet

Main features of UGC Infonet include:

1. Scalable architecture to growth from universities to affiliated colleges.
2. Nation-wide terrestrial backbone using fiber optic links.
3. Integrated satellite WAN supporting broadband and SCPC VSAT technology.
4. Comprehensive Network Management Systems for overall monitoring of the network, down to each and every device.
5. Linkage with other academic and research networks all over the world.
6. Data security and virus protection using firewalls and intrusion detection systems.
7. Dedicated data centre for web hosting, e-journals and mailboxes.
8. Mirror sites spread all over the country for content hosting.
33.2 UGC Infonet in higher education

Under UGC Infonet programme it is proposed to use Information and Communication Technology (ICT) and Internet to transform learning environments from a mono-dimensional one to a multi-dimensional one. UGC Infonet is a boon to the higher education systems in several ways.

- It acts as vehicle for distance learning to facilitate spread of quality education all over the country
- It is a tool to distribute education material and journals to the remotest of areas.
- It is a resource for researchers and scholars for tapping the most up-to-date information.
- It is a medium for collaboration among teachers and students not only within the country but also all over the world.
- It acts as an Internet for university automation.
- It encompasses entire university systems for most efficient utilization of precious network resources.
- It establishes a channel for globalization of education and facilities the universities in marketing their services and developments.

33.3 UGC Infonet and the Indian University System

Under the UGC Infonet E-journals program 50 universities gets electronic access to resources and many other universities will join subsequently. The resources are accessed based on the Internet Protocol (IP) ranges supplied to the publishers. University also signs Memorandum of Understanding (MoU) with University Grant Commission and INFLIBNET to use the resources for academic cause. The members of this consortium get
access not only to current year but also 7-8 years back access in many cases. There are few publication viz. The American chemical society, Institute of Physics etc. the access is available from volume no.1 and issue no.1. This facility enables the subject experts and academicians to browse, downloads and prints the relevant articles for their research and academic development. The databases and journals licensed to a consortium are available to all simultaneously at the same time, which is not possible in case of print access. INFLIBNET centre, Ahmedabad also maintains one print copy of the journals subscribed in many cases as a national archive, which can be referred by the research and academic community across the country. This initiative helps the universities to supplement their existing collections with these journals and databases. The consortium encourages the university to maintain their print subscriptions as University Grant Commission funds the entire programme. Under this initiative there is no need to pay for subscription to electronic journals.

1.2.34 A New Horizon in the Field of Education and Research Colleges to be given Infonet Access

The University Grants Commission (UGC) will soon extend to select colleges its e-resources access, which, so far, has remained a privilege of the country’s top universities. It will not be long for the colleges to become part of the UGC’s digital library networks. The UGC has decided to extend its Infonet (information network) services to 200 colleges, initially as part of improving higher education by reaching out to remote areas with quality material.

Infonet is a programme under the UGC Inflibnet (Information Library Network), which makes available to networked libraries more than 4,500 core and peer-reviewed journals and bibliographic databases from two-dozen publishers and aggregators in various disciplines.
Science its launch in 2004, 120 of the 171 universities that come under the preview of the UGC have been provide differential access to subscribed e-resources covering almost all disciplines, including those in arts, humanities, social sciences, physical sciences, chemical sciences and life sciences and computer sciences, mathematics and statistics.

The UGC will initially link the 100 colleges currently enjoying the CPE (College with Potential for Excellence) status with Infonet. Thus, the eight CPE colleges in Kerala State will get Infonet access in the coming months. Inflibnet authorities say various factors such as the location, student strength, age of the institution, awareness levels and accreditation by the National Assessment and Accreditation Council (NAAC) will be considered for giving access. In the first phase, only colleges funded by the UGC will be considered. In the second phase, says Mr. Hosamani, the UGC will consider giving associate membership to deemed and private universities and other institutions or research. At present, there are 330 universities, including the private and deemed ones, in the country.

The UGC set up its Infonet Digital Library Consortium at a time when the universities began to stop subscription to scholarly journals because of their prohibitive costs. In UGC terminology, the crisis that spring out of the cost of journals rising much faster than the rate of Inflation, increase in the number of journals and the paucity of funds available to the libraries was known as a “serials crisis”.

The Infonet programme, being implemented in a phased manner, provides access to current issues of the journals as well as their archives. Inflibnet is an autonomous inter-university center of the UGC that creates infrastructure for sharing of library and Information resources among academic and research institutions. It works collaboratively with Indian university libraries to shape the future of the academic libraries in the
evolving information environment. So far, 142 universities have been funded by the UGC under this programme for automation and networking. Only four of the seven universities in Kerala- the University of Calicut, the University of Kerala, the Cochin University of Science and Technology, and Mahatma Gandhi University-currently have Infonet access. Sanskrit and Kannur universities will be connected in about two months, says K. Ravindra Asari, co ordiantor of SOUL (Software for University Libraries) for Tamil Nadu and Kerala.

1.2.35 Electronic resources subscribed under UGC Infonet

UGC Infonet e-journal consortium subscribes electronic resources of the following databases and publishers.

- American Chemical Society
- American Institute of Physics
- American Physical Society
- Cambridge University Press
- Project Muse
- Encyclopedia Britannica
- Nature
- Kluwer online
- Ingenta
- Springer
- Emerald Full text
- Science Direct
Information and Library Network (INFLIBNET) was started as a project under the Inter University Centre for Astronomy and Astrophysics (IUCAA) in 1991 with its head quarters at Ahmedabad. It became an
independent Inter University Centre (IUC) of UGC in 1996. INFLIBNET was designed to be a major player in promoting scholarly communication between academic and researchers in India.

During the past ten years, INFLIBNET has played a significant role in the automation of university libraries in India. To bring the information technology culture in the universities and automate the university libraries funds were provided for five years depending on the size of the universities to establish computer system facility in the university libraries with a non-recruiting grant for establishing computer and network infrastructure and recurring grants for five years for maintenance. This helped the libraries substantially to procure the hardware and software for library automation activities.

The INFLIBNET conducted intensive training courses workshops for the professionals, developed a library management software(SOUL), built up union databases of materials of universities and provided access through its website http://www.inflibnet.ac.in. INFLIBNET has been instrumental in creating an Information Technological conscious environment in the university libraries in India.

1.2.37 Edusat

Edusat is the first exclusive satellite for serving the educational sector. It is especially configured to meet the growing demand for an interactive satellite-based distance education system for the country through audio visual medium, employing Direct to Home (DTH) quality broadcast (http://www.isro.org).
Edusat was launched by Indian Space Research Organization (ISRO) on 20th September 2004. The successful launch of Edusat weighing 1960 kilogrammes into a geostationary orbit, from Satish Dhawan Space Centre, Sriharikota, marks an important mile stone in ISRO’s effort to use space technology for providing high quality education across the country. Edusat can establish the connectivity between urban educational institutions with adequate infrastructure imparting quality education and the large number of rural and semi-urban educational institutions that lack the necessary infrastructure.

**Aims of Edusat**

1. To popularize the qualitative education.
2. To link all educational institutions together.
3. To bring out new educational methods and researches to the common people.
4. To provide guidance in the education field.
5. To provide interaction facilities with the experts of presented topics.
6. To give more importance to technology-based curriculum.

**1.2.38 Edusat and Kerala**

On July 28th 2005 His Excellency Dr.APJ Abdul Kalam, President of India inaugurated Edusat service in Kerala. To disseminate Edusat service, Kerala adopted VICTERS (Virtual Class Room Technology on Edusat for Rural Schools) and 16 Satellite Interactive Terminals (SIT) were formed in each of the district of Kerala. Being a vast location and high range at the Idukki district got two SIT centers. The main studio situates at Gorkhi
Bhavan, Trivandrum. The classes are conducted at Trivandrum studio, and all the centers are receiving the classes through Edusat at the same time. It is an Internet facility. Each centre is getting the chance to interact with the experts.

1.2.39 Electronic Journals and Scholarly Communication: Key Players in the following Fields

39.1 Scholars

With the relative ease of distributing documents on the Internet scholars can, if they wish, completely bypass the publisher [Hayes]. Every scholar can archive his or her own work publicly on the web, first as preprints and later on as published referred papers. Scholarly communication would then shift onto the web, enabling libraries to cancel subscriptions, and so bringing down the 'paper card house' [Harnd]. A prime example of this is the Los Alamos National Laboratory Preprints Archive <http://arxiv.org/>. Begun in 1991 by Paul Ginsparg, the archive makes available the papers of scientists in different specialized areas of physics.

39.2 Universities and Libraries

As suggested by Bernet, the university press can play an important role in reengineering scholarly communication [Bernet.]. As the fundamental aim of university presses is to disseminate scholarly information, they could help scholars regain control over their research by publishing their specialized works. This way the universities could reduce the amounts of money spent buying back their scholarship. The library could be given the responsibility for managing the scholarly research written by the members of its parent institution. This would place the library in the role of the publisher and archivist of scholarly research [Quinn.].
Some of the universities have started publishing the work of their academia on the pretext that they already pay them high salaries and if their work is given away to the commercial publishers, the universities have to purchase it back for their own libraries at exorbitant costs. University libraries too have joined this venture. Four notable initiatives with key participation by university libraries that have attempted to support small publishing efforts are:

- High Wire Press (Stanford University) http://highwire.stanford.edu/
- Project Muse (John Hopkins University) http://musejhu.edu/
- J1S (Journal of Insect Science) (University of Arizona) http://insectscience.org/about
- SPARC (Association of Research Libraries) http://www.arl.org/sparc

### 39.3 Commercial Publishers

The Internet, no doubt, provides scholars/institutions the potential for becoming the primary publishers in scholarly communication. It does not mean the end of commercial publishing. Commercial publishers will continue to play a role in scholarly communication through functions such as filtering of authors and works, compiling and correcting texts, adding features to facilitate use, incorporating complementary materials, adhering to timetables, distributing the finished product through established channels. However, they will have to be innovative in adapting to a new medium, the electronic environment provides publishers with the chance to improve the functionality of the journals by adding new multimedia features and harness Internet as a distribution vehicle. With hypertext, the journals could regain their communication role while continuing to legitimize and filter scholarly communication. Consequently in future, the electronic journal may play a more important role in scholarly communication.
CONFLICT ENVIRONMENT

Publishers
- Main Objective profit making restrict dissemination to those who can pay
- Shift from paper based publishing to electronic publishing
- Building print and digital formats bunding digital journals together

Academics
- Must publish to survive
- Want dissemination to be wide spread

Libraries
- Face pressure from end users to acquire digital journal but providing access to both print and digital proves expensive
- Spiraling costs
- Shrinking budgets
- Represent the principal market

Resolution

Alternative Publishing Models
Models emerging through cooperative efforts and consortia approaches

At the International Level
- SPARC
- High Wire Press
- OCLC Model Press
- OCLC Model etc.

At the Indian level
- INDEST consortium
- UGC Infonet e-journal consortium
- CSIR consortium
- FORSA consortium etc.
From the above situation two points emerge;

1. Scholars will continue to need the means for disseminating their ideas to their colleagues; and

2. There will be increasing reliance on digital means to make this possible,

Digital publication provides the promise of cheap publication. It is considered to be significantly cheaper than print publication [Odlyzko.]. Print journal is seen as an "antiquated legitimizing tool" confined to an expensive medium and controlled too much by the commercial sector. This dichotomy between the digital publication and print publication creates a conflict environment among the stakeholders is explained in the fig no3.

The main objective of the commercial publishers is profit making. They possess the commercial and business expertise and the entrepreneurship to undertake the publication of new journals. They are ready to exploit any situation that promises to yield profit. Whichever price model the publishers offer i.e. whether it is publisher's price plus model or less than the publisher's price, it is so maneuvered that it results in the overall profit to the publishers. The publishers hang on to the pricing mechanism of the printed model. To avoid any fluctuation in the price level, they have resorted to 'bundling print and digital formats; the price of the bundle being related to the print price' [Anon.]. They also commonly bundle digital journals together and offer libraries access to an entire list as a single product.

The academics must publish to survive. To gain recognition and to progress in their careers, they are motivated to publish in journals with a high impact factor [Garifield.] and having international circulation.
Their conflict with publishers becomes deep rooted. The publishers restrict their publications to those who can pay while the authors would like the dissemination of knowledge to be a universal phenomenon. Also, they would like it to be low priced. Out of this conflict emerges the urge on the part of the academics to seek alternative publishing models.

Libraries which represent the principal market for both the print and the digital publications face the pressure from the end users to acquire digital journals. Providing both kinds of journals proves too expensive for them. So like the academics, they too look for new publishing models,

1.2.40 Background Information

Kerala is located on the southwestern coast of Republic of India, between north latitude 8 degree 18’ and 12 degree 48’ and east longitudes 74 degree 52’ and 72 degree 22’. It is bounded on the north and northeast by Karnataka state, on the east and south by Tamilnadu and on the west by the Arabian Sea. The state covers an area of 39,863 square kilometers, which makes it the seventeenth in area among the states of India.

The present political entity, know as Kerala was formed in 1956 by the State Reorganization Act of 1956. Kerala has 31,838,619 people according to the 2001 census, which is nearly 3.44 per cent of the country’s population. The sex-ratio recorded in this census is 1058 females per 1000 males. The nature of the terrain and its physical features, divides an east west cross section of the state into three district regions- hill and valleys, midlands plains and costal region. The majority of the population lives in coastal region.

The state has a unique place in the literacy map of India, with a literacy rate of 90.92 percent. Keralites have migrated in large numbers in search of employment to several foreign countries like United States, Malaysia and Singapore in South East Asia as well as to several countries of Africa and
West Asia. The professionals of Kerala are among the most wanted experts in the fields of Medicine and Information Technology (www.govt.of kerala.org.in).

The education system in Kerala is based on 10+2+3+2 structure, which provides ten years of primary and secondary education followed by two years of higher secondary education, three years of graduate education and two years postgraduate education. M.Phil., a preparatory programme for doctoral level studies is normally of one year duration. PhD programmes require research study for minimum two years.

Primary education is the first level of formal education school education in Kerala. There are 6712 lower primary schools in Kerala in government, private aided and unaided sectors. Primary education starts at five years of age. Secondary education constitute a consolidation and transition between primary and higher secondary education. There are 2951 upper primary and 2608 high schools in Kerala. At the end of secondary education, the students sit for examination for the Secondary School Leaving Certificate of Board of Examinations, Kerala. In higher secondary level, there are 2608 higher secondary schools in Kerala. Besides this, there are 375 Vocational Higher Secondary Schools in the state.

University education is the apex of Kerala’s formal education and training. Apart from undertaking research and development, the universities are preparing high-level manpower for national development. Other than universities, education and training are also provided by institutions such as Polytechnics, Teacher training colleges, Food craft institutes and specialized institutions run by government and ministries. There are 121 polytechnics, which offer diplomas and certificates in various fields of technical trades.

The State of Kerala has at present seven universities namely;
1. University of Kerala
2. University of Calicut
3. Cochin University of Science and Technology
4. Mahatma Gandhi University
5. Kannur University
6. Kerala Agriculture University
7. Sri Sankaracharaya University of Sanskrit

There are 356 Arts and Science Colleges affiliated to four Universities namely, Kerala, Calicut, Mahatma Gandhi and Kannur. Out of these, 39 are government colleges, 150 are private aided colleges and 167 are private unaided colleges.

There are several government departments providing non-formal education for adults through extension services and literacy programme aimed at enhancing the participation of the whole communities irrespective of age, sex, religion for socio economic improvement and overall development of the state.

1.3 Need and Significance of the Study

The investigator wish to conduct a study about the use pattern of Electronic Information Resources in the College Libraries in Kerala, because the present study focuses on the seamless usability of the electronic information resources and its growth, development and maximum use of these most modern electronic information are taken for a clear cut study and assessment. Today’s students may be more sophisticated than their predecessors in using some of the basic functions of many systems, however many are clearly unaware of the limitations and use of many electronic sources of information. Student entering higher education appear to have
raised expectations about the capabilities of electronic resources. So this type of study is significant and important in the new IT Era.

‘Use’ is the key purpose and ‘user’ is the key and dynamic component of any institutions especially the colleges. The ultimate aim of any user study is to help, design, alter, evaluate and improve efficiency and effectiveness of the library and information system and their products and services in meeting their pre-determined goals.

1.4 Statement of the Problem

The study is entitled as “Use pattern of electronic information resources in the college libraries in Kerala: an analytical study”.

1.5 Definition of the Key Concepts

**Use Pattern:** The Champers dictionary\(^1\) defines use as “The state of fact of being used, an advantageous purpose for which a thing can be used”.

Webster’s encyclopedia\(^2\) unabridged dictionary of the English language (1994) defines use as “a way of being employed or used, a purpose for which something is used”.

The dictionary definitions hold good in the present study.

**Pattern:** According to Oxford Dictionary & Thesaurus\(^3\) the pattern is a model, design or instructions from which things is to be made.

**Electronic Information Resources:** According to Reitz (2005) “Information resources that are accessible through computers or network are termed as electronic information resources”

**College Libraries in Kerala:** According to Reitz (2005)\(^4\) a “College library” is a type of academic library maintained by an independent four-year college,
or by one of several colleges with a large university, for the use of students and faculty.

**Kerala:** The state of Kerala was formed on 1\textsuperscript{st} November 1956 with the integration of the Travancore-Cochin state and Malabar. Its area is 38,863 sqkm and has 31 million populations. Neighboring state are Tamilnadu, Karnataka, Mahe, Lakshadeep Islands.

**Analytical:** According Champers dictionary analytical refers to “having ability to analyze or division into elements or principle’

**Study:** means acquire knowledge by memorization or research or an experiment.

**1.6 Objectives of the Study**

The major objectives assumed for the present study are as follows:

1. To assess the current use of electronic information resources in the arts and science college libraries in Kerala.
2. To measure the use of electronic information resources for the academic activities of the colleges students
3. To find out the most favorable electronic information resources in the college libraries.
4. To suggest measures for improvement of existing electronic information resources and services.
5. To highlight the impact of electronic information resources on college libraries and its results.
6. To explain the concept, need of various type of electronic information resources available in college libraries.
To identify the impediments and challenges, in general, faced by the users of college library in regard to e-resources.

1.7 Hypotheses

The study is based upon the following assumptions:

1. Users are not fully satisfied with the electronic information resources available in college libraries in Kerala.

2. There is a significant difference between male and female students regarding the use of electronic information resources in college libraries in Kerala.

3. There exists a significant difference between UG and PG students in the use of electronic information resources.

4. The use of electronic information resources is very high for the academic activities of the college students.

5. The UGC NAAC accreditation improves the present quality and environment of the colleges.

6. Electronic journals are the most favored electronic information resources available in the colleges.

7. Most of the users are not properly using the electronic information resources available in the college library.

1.8 Scope and Limitations of the Study

The studies were proposed to assesses and establish the various use pattern of electronic information resources in the college libraries in Kerala. The purpose and motive for retrieving information from electronic resources, the most used electronic sources, the regularly used electronic sources, the
regularly used search engine, the extent of user-friendliness, opinion about the accessibility of electronic resources, extent of support of the library and information centers in academic activity etc.

Since the study would conduct as a part of the fulfillment of course, and the investigator wishes to complete it within the limited time span the study is confines to the arts and science college libraries in Kerala. The investigator decided to take a stratified sampling of the population for this study.

1.9 Organization of the thesis

The report is presented in five chapters. The First Chapter comprises introduction, problem of the study, definition of key terms, objectives and hypotheses, need and significance of the study, scope and limitations of the study and organization of the report.

The Second Chapter reviews related literature of the problem under the study.

The Third chapter describes the methodology of the study. It consists of the variable of the study, sample used for the study, sources of data, tools used for the study, data collection procedure and data analysis techniques.

The Chapter Four confined to analysis and interpretation of data.

The Chapter Five is devoted to summery of findings and suggestions. This chapter covers summary of findings of analysis, tenability of hypothesis, suggestions for the improvement and further research.
REFERENCES


