Chapter-1

Introduction

1.1 Preface:

A library plays a key role in ensuring the success of higher degree of research. The important functions of college libraries include the collection development, reference service, document delivery, user education, access to electronic resources etc. The college libraries are expected to give cost effective and reliable access to information using the state-of-the art information technology devices.

Information technology has revolutionized the information handling activities in the academic libraries during the past few years. The information society demands that all the relevant technologies, that are involved in information processing, concretisation, repackaging and retrieval be merged so as to generate an integrated system capable of giving diversified services. In this direction the automation of individual college library is the first step rather a pre-requisite for the development of such an integrated college library and information system. The promising trend in the development of information service with effective network these libraries will be instrumental in the optimum utilization of information resources.

1.2 Impact of Information Technology:

During the last twenty years, the fast developments in information and communication technologies have had a deep impact on higher education in India and abroad. The technologies have not only changed the way information are generated, organized, stored and distributed but more importantly they have become unavoidable tools for teaching, learning and research activities in the country. As a result, the method by which instruction is given and research is conducted is never going to be the same again. It is an established fact that today in most of the institutions of higher education in the western countries there is a sufficient use of intranet and internet to access the global information. (Ansari 1998)
With so much of information stored on networks and a desire to share that information, better access tools developed which took advantage of latest technology. Mosaic, 1993 was the first information browser released for use with the personal computer. The early developers described the connected network of information resources as the World Wide Web (WWW). Mosaic succeeded with new generation browsers now popularly known as Netscape navigator and Microsoft internet explorer. Libraries with internet connections provide access to these browsers, which are used to search the web for information on the net. (Haravu 1993)

The electronic resources, which are available in libraries today, are a result of the progress in both computer technologies, with powerful computers the information storage and delivery mechanisms, such as CD-ROMs and user-friendly interfaces. In most of the academic libraries in the western countries, online public access catalogues, offering enriched search capabilities for accessing the local collection and often expand coverage to include the holdings of other area or regional libraries. Many libraries also provide a web interface to their library and information system with a web interface often includes direct links to electronic journals, books and internet resources. (Ojha 2000)

The development in the information technology sector has reduced the distance and the time college libraries are fertile areas for the introduction of information technology for providing and making accessible the best possible from anywhere any time and from any sources for the users community. Network is going to be the essential partners in this exercise as it enable access to vast information services. Networks have potential to improve library service in many ways. The continuous improvement in the networking technology helps libraries to diminish the cost of information provision, thus creating new scopes for the libraries to play their role in information provision to its end users. Recently libraries worldwide have been affected by an uncertain economical environment in which resource buying has been limited, causing them to look at the ways of expanding their purchasing capabilities to make up for reduced budgets. The situation is like “united we stand divided we fall”

(Chandran 1999)
In general, the function of the college libraries is to provide effective access to scholarly and professional information resources for its members and other participating library members. Achieving this requires organized use of computing tools in all facets of library activities. Rapid proliferation of information, overgrowth of information resources and multifarious needs of users posed a critical challenge of delivering timely information to gratify the users. Traditional tools and techniques are unable to match this time aspect. Hence academic libraries do not really have any alternative, but to embrace, the available technologies judiciously to satisfy the expectations of their users. (Fong 1997)

The library and information centre are more and more being called upon to provide more relevant, up to date and timely information to a wide range of users. To satisfy the varied needs, they require availability and accessibility to a variety of information resources and formats. The libraries, like those in most developing countries, suffer from insufficient funding or stringent budget cuts. This has affected the level of services offered to users both in terms of quality of collections and the degree of staff support provided. In the present circumstances only a few libraries can afford to have a wide range of information resources within their budget. The situation calls for change in the approach and to be wiser or cost-effective to avoid duplication of information resources among the libraries in the country and leads to sharing of resources using co-operative purchase through consortia approach. (Gopinath 1995)

Science and engineering librarian should be well equipped with various explosion of information and extend its role from a stack of documents and journals to a centre of information handling. Many science and engineering college libraries can not come up with the increasing demand from professors and students due to lack of funds and facilities. Libraries are lagging behind in collection and dissemination of information. 

Kannappanavar and vijayakumar (2001) surveyed the use of IT facilities, in-house databases and access to network, library services and barriers to IT application in two agricultural college libraies in Karnataka. He found that none of the college libraries is having databases and full implementation of IT application.
1.3 Statement of Problem:

Science and Engineering colleges in Gujarat have fairly good libraries developed over the years. Due to the technological innovation, lot of changes occurred in day to day activities of human being. Libraries are not an exception. Radical cut in funding, devaluation of currency, user expectations, initiatives from government and other organizations are various reasons for libraries to embark on available information technology. These technological innovations lead to library automation, library cooperation, library networking, and resource sharing, utilisation of internet in the libraries electronic access to scholarly journals access to other library catalogues through union catalogues.

Most of the libraries have traditionally tried to get resources as much as possible because owning an item provides faster access to patrons than waiting to borrow or purchase on demand. However, the increased cost of maintaining a collection of primary sources and the increased demand for information have resulted in a shift of emphasis from that of ownership to access. In the present situation as the academic libraries in Gujarat have been largely affected by financial limitations in which resource acquisition has been restricted. Most college libraries are ill-equipped to satisfy user needs within their resources. With exponential rise in information, libraries are unable to continue subscription to many publications due to price escalation and high foreign exchange rates. At the same time there is a conscious duplication of costly library holding in the absence of convenient sharing mechanism. Scholars in remote areas feel mentally isolated. It is also impossible to fund all libraries to make them self-sufficient to meet the resources requirement. There are some of the challenges coming across the academic libraries.

Today it is virtually not possible for any library however big and rich to acquire all the publications. That is required for a comprehensive coverage of all subject fields or to keep up with the rapid rising flow of new publications. No library as such can claim to be self sufficient in meeting all the information needs of its clientele. Therefore, the concepts of library co-operation, resource sharing and networking of libraries have become the necessity of the day.
Over the years, science and engineering college libraries in Gujarat have been using the information technology and communication tools for giving effective information services at some extent. But now there is need to develop full-fledged network for resource sharing among all science and engineering colleges’ libraries. So the researcher selected the present study on “Development Cost Effective Network Model for Optimum Utilisation of Resources in Science and Engineering College Libraries in Gujarat”: A Plan

This is an attempt to identify the impact of information technology in college libraries by studying the status of information technology application in science and engineering college libraries at various levels. The study focuses on the requirement of cost effective network model and to provide one step solution as an action plan.

1.4 Terminology:

There are four important terms here the researcher has focused on

Cost Effective:

A decision or practice that reduce expenditure in relation to the amount of resources invested (time, money, materials, etc.) Monetary savings can be difficult to determine when cost is intangible, intermittent, or incurred over an extended period of time. (http://dictionary.reveso.net)

Network:

A system of physically separate computers with telecommunication links, allowing the resources of each participating machine to be shared by each of other.

A network is a set of devices (often referred to as nodes) connected by communication receiving data generated by others nodes on the network.

(Maulik 2005)

Networking:

A network usually consists of a formal an agreement/ arrangement whereby materials, inform and service provided by a variety of libraries and other
organizations are made available to all potential users. Libraries may be at different places but agree to serve one another on the same bases each serves its own climate

(Gopinath 1996)

Library Network:

Two or more libraries and other organizations engaged in a common pattern of information exchange, through communications, for some functional purpose. A network usually consists of a formal arrangement whereby materials, information and service provided by a variety of libraries may be in different jurisdiction but agree to serve one another on the same basis as each serve its own constituents. Computers and telecommunication may be among the tools used for facilitating communication among them.

A Formal organization among libraries for cooperation and sharing of recourses, in which the group as a whole is organized into subgroup with the exception that most of the needs of a library will be satisfied within the subgroup of which it is a member

Library network as a Concept that includes the development of cooperative systems of libraries on geographical, subject or other lines, each with some kind of centered that not only coordinates the internet activities of the system but also serve as the system’s outlet to, and Intel form, the centers of other system, the concept is also hierarchical.

(Iyer 1999)

Model:

A unit that can form part of course of study, especially at a college or university

1. A unit of a computer system or program that has a particular function.
2. The pattern or form to be used in duplicating or constructing something.
3. The idea that would be used as a guide for action or limitation.

(Depew 1991)
Resource:

The information sources available in a library like books, periodicals, Reference books Reports and electronic databases are resources for their users.

(Reitz 2005)

Science College:

An Institution of higher learning that grants the bachelor’s degree in liberal science

An undergraduate division or school of university offering courses and granting degrees in particular field.

(http://dictionary.reveso.net)

Engineering College:

Engineering is education of the activity of teaching knowledge and principles related to the professional practice of engineering. It includes the initial education for becoming an engineer and any advanced education and specialization that follows.

Engineering education is typically accompanied by additional examinations and supervised training as the requirements for a professional engineering license.

Science and Engineering College Library:

Establishment for science and engineering education, college are place where students go to study after they have left college.

(http://dictionary.reveso.net)

Science and engineering college libraries are important and integral part of the teaching programme, it occupies a prominent position, The Present day science and engineering college education has become student centered and it encourages students to pay a vital and creative role in their own education .The science and engineering college library are one of the means to achieve their needs. The aims of science and engineering college education and science and engineering college Libraries are inter–related .The College libraries provide ample opportunities for self-education to the students besides supplementing the class lectures.

(Dawra 2004)
Gujarat:

Gujarat is a State in northwestern India, on the border with Pakistan and Rajasthan in the north east, Madhya Pradesh in the east, and Maharashtra and the Union territories of Diu, Daman, Dadra and Nagar Haveli in the south. The Arabian Sea borders the state both to the west and the south west. Gujarat is situated on the west coast of India and boasts of a 1,600 km long coastline. The Arabian Sea sweeps off the western and south western frontiers of the state. It is situated between 20° 1’ and 24° 7’ north latitudes and 68° 4’ and 74° 4’ east longitudes.

Gujarat covers an area of 1, 96,024 sq km and shares its border with states of Rajasthan, Madhya Pradesh and Maharashtra. The state has a literacy rate of 79.8 percent. Gujarat is the 7th largest state in India in terms of area. The 196,024 sq kms of area in the state is divided into 26 districts at present.

(http://www.gujaratindia.com)

1.5 Objectives:

College library must satisfy the present and future information needs of the students, teacher and research scholars. The networking is the only way to satisfy the information needs of the users.

The objectives of the present study are as follow:

1. To know the present position of science and engineering college libraries in Gujarat state and to study the problem faced by them.
2. To examine the progress of library networking activities undertaken by the college libraries in Gujarat.
3. To study the possibilities of resources sharing and networking among the science and engineering colleges in Gujarat state.
4. To prepare a plan for “Development of Cost Effective Network Model for Optimum Utilisation of Resources in Science and Engineering College Libraries in Gujarat” state.
1.6 Scope and Limitation:

In all (160) Grant-Aid, Government and Self finance science and engineering college library in Gujarat state, but the study has covered (90) Grant-Aid and Government science and engineering colleges’ libraries only. For the study 90 questionnaires were distributed but response given by only 66 sciences and engineering college libraries, so researcher has analyzed only 66 science and engineering college libraries. The study is also limited to cost effective network model for optimum utilization of resources in science and engineering college libraries.

All the important aspect of these 66 sciences and engineering college libraries have studied critically. It includes users, collection, staff, use of computer, library automation, library networking configuration, networking component, hardware, software, library networking services, access to INFLIBNET databases, Internet base services etc.

1.7 Hypotheses:

1. Library automation and computerization have been implemented in most of science and engineering college libraries in Gujarat.

2. Till the advent of information technology most libraries remained like islands except for some minimum configuration in inter library loan.

3. All the science and engineering college libraries are facing financial problems within four walls of libraries.

1.8 Methodology:

The methodology followed for achieving the above stated objectives are as follow:

1. The researcher carried out the literature survey to study
   (a) The developments of information technology
   (b) Information Technology Application in library
2. The researcher discussed with computer and networking expert, librarians and users.

3. To collect primary data researcher prepared the questionnaire and circulated to all the science and engineering college libraries covered in the study.

4. The researcher collected Secondary data from the college budgets, reports etc, for the last five years.

5. The researcher used narrative method with a description of systems, annotation and interpretation.

6. The researcher visited at the science and engineering college libraries.

7. The researcher interviewed librarian, subject experts and computer professionals

8. For the statistical analysis researcher used SPSS.

9. APA manual 6th edition used to cite References and bibliography

(Kothari 2003)

1.9 Arrangement of chapter:

The whole study is divided in to seven chapters. The brief coverage of each chapter is given bellow:

1. **Introduction:** It provides background information of the topic. It covers impact of information technology, statement of problem, terminology, objectives, scope and limitations, hypotheses and methodology.

2. **Review of Literature:** It provides basic concept and objective of review of literature. It reviewed various kinds of sources, research relevant previous studies, difference type of current studies etc.

3. **Research Methodology:** It provides basic concepts, population of study. It also covers data collection and data analysis.

4. **Library Networking:** It includes introduction, concepts and definition, need of library networking, brief history of networking, networking architecture and process/method, networking organisation, type of networks, network component, advantage of the library network, Problems to establish library network.
5. **Profiles of Science and Engineering College Libraries:** It includes introduction, importance of science and engineering education, scenario of science and engineering education and science and engineering education in India. It also covered science and engineering college libraries in the study.

6. **Analysis and Interpretation of Collected Data:** It provides analysis and interpretation of collected data in tabular and graphical format.

7. **Findings and Suggestion:** It provides finding as well as suggestions and proposed LAN, MAN and WAN cost effective network model for science and engineering college libraries.

Appendix 1. Bibliography of periodicals articles, thesis, reports, books, websites etc.

Appendix 2. Questionnaire.

Appendix 3. List of Science and Engineering College Librariers.

Appendix 4. MAP

1.10 **Conclusion:**

Today information has been recognized as a powerful key resource by all sectors in knowledge based society. Development in information communication and technology has change the whole nature of publication, storage and retrieval, transmission, delivery and use of information. Science and Engineering information has also got influenced by this trend what was available once only in print form is being made available in different formats. The present e-resources environment can be studied by seeing the different formats such as CD-ROM Database, online databases, Electronic journals and World Wide Web.  

(Kaula 1997)

There is no alternative for the institutes those are engaged in research and training as well as generating information on science and engineering development have to come together under a formalized network in order to develop strategies for effective resource sharing and information dissemination.
References:


