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INTRODUCTION

1.0 Introduction

The education and library have been inseparables since the dawn of civilization and their co-existence has been attributed to many landmarks in knowledge creation and scholarship. There are number of instances where libraries of educational institutions were the predominantly learning centres and are being quoted in the historical texts and therefore have been one of the integral parts of all education and learning, more so in the institutions of higher education. In India, Nalanda, Takshashila and Vikramashila universities and the Gurukula type of educational organizations highly depended on the libraries which were then known as “Grantha Bhandara”. Factually it is mentioned that the Nalanda University had a nine-storey library building. The libraries held in their possession exceptionally written books and there could be not more than one or two copies of them available and therefore they were attached to the religious institutions or to the palaces so that they would be secured and preserved. It is therefore evident that the learning centers were mostly under religious institutions and libraries were attached to them. The library of Mohammed Gawan of Bidar contextually is a best example of a palace library and it is how importance was given to the libraries in higher education and it was part of a palatial abode of the royalty. The situation of the Libraries in the west
was not different from the East and in equal terms they were also attached to the monasteries - the centers of learning. The history of library movement in U.K. in this context emphasizes the monastic libraries as the signposts of this mutual co-existence.

The birth of moveable type of printing in the 15th century A.D. brought the first conceptual change in the content of libraries. The change in type and shape of reading materials made tremendous difference and the universal growth and democratization of education is also attributed to this discovery. Since then the libraries started acquiring new media and also a new role to support academic programmes of all educational institutions. Libraries with changing media enhanced the needs and wants of the learners and the facilitators of learning – the teacher and the librarian. This implies, the changes seen in the education have definite impact on other facilities and they also brought transformation in every domain of libraries. The information resources of libraries have metamorphosed from time to time, the methods of handling them have also undergone significant changes with the ever-changing media the users also adapted to this process of continuous and perpetual alterations. Needless to say the new media in which information resources are emerging are equally accepted by the users of today and probably in the future too.

The library in an educational institution is now considered as actively participating intermediary between the learners and the vast storehouse of information resources, between classroom lectures and the vast sources of
information where the content of the lectures are drawn. The librarian has an extended role now from keeper of information resources to become a true friend and a perfect guide for the learners in an academic setting. Dissemination of knowledge in any academic institution is attained by means of (i) Teaching, (ii) Research, (iii) Publication, and (iv) Extension programmes. Library is a treasure house of ever-increasing universe of knowledge that supplements towards the better performance of all the four activities. Academic libraries pay an indispensable role in the dissemination of information or knowledge generated in the higher educational institutions, the universities and colleges. In fact, the publication wing of the universities in India is created to perform this function and the university library can assist that in publication marketing. The coming up of open access initiative has identified new role for the academic libraries with the institutional repositories taking shape within the ambit of college or university library. Academic library is therefore an integral part of the entire academic system; it promotes teaching, research, learning, and problem-solving and provides endless services to the real education; and ascertains that it is a veritable center of academic learning for self-achievement.

In summary it is implied that the mutuality between education and libraries has been thus perpetuating since man attained the sense of learning. Libraries of today have assumed a new role in modern society, by that they integrate educational technology, information and communication technology and with the trends of merging electronic media the profile of the libraries in general and academic libraries
in particular is changing at a very steady pace and in the next few decades the advent of hybrid libraries would be an orderly growth in the context of academic libraries.

The libraries since their existence have been continuously adapting to contemporary changes in consonance with the educational system, influence by the media changes and also adopting to current technological developments. For instance the main objective of the libraries were to lend books and other reading materials in the earlier days has changed gradually to adding reference services, user education programmes as the complexities in the educational system added gradually with passage of time. There was also a gradual shift in higher education management, not ignoring the fact that it is also happening in elementary and higher secondary education, the privatization of higher education catching up from the early part of the last century. Today there are academic institutions imparting undergraduate, graduate and professional courses under the Government management, aided institutions and under private management. Accordingly the infrastructure also varied in these categories however, all of them would come under the common regulatory authority, either the universities under the respective jurisdiction and or the University Grants Commission. This has also influenced and impacted upon the library management and administration. The impact of information and communication technology has created lasting changes in the overall organization, administration and in the service delivery in the Academic Libraries. The availability of cost-effective and user friendly technology, academic libraries have automatically adopted the ICT to
enhance their service impact and gain needed visibility. This has been accelerated with the essentiality of library automation and networking since the late 1990s and has been on the accelerated pace since the process of Assessment and Accreditation of academic institutions was taken up by an autonomous agency of the UGC the National Assessment and Accreditation Council (NAAC). The NAAC suggested some best practices to be adopted in the Academic libraries and also published a brochure and case studies on guidelines and best practices in College Libraries. Among the list of best practices suggested by NAAC the first is on computerization of libraries and in collection development to build adequate strength of e-information resources. Automating the libraries once was optional and considered as luxury as it was not cost-effective but now it is an essential routine course of library management. The libraries are now adopting management principles in their administrative work like quality assessment and quality management. The Association of College and Research Libraries of ALA has enlisted top ten assumptions on the future of academic libraries. The first of which is “Digitization and digital collections and preservation, data storage and retrieval (3). In the recent past the National Knowledge Commission set up by Government of India has also stressed on the importance of the academic libraries as sources for ‘access to knowledge’ (4).Thus they are adapting to the changing scenarios managerially, technologically and organizationally which has brought changes that has influenced them from outside as well as within.
The gist of the above deliberation is to highlight that libraries continue to adopt new media generated as outcome of contemporary technological innovations from time to time - from the time of palm leaf manuscripts to the electronic media. Similarly the media has influenced the learners and the learners of different dimensions. Today the distance education is growth-oriented and is becoming a popular form of universal education. It is also largely dependent on new media, and has successfully adopted the technological developments. The new education technology becoming part of every educational system has also become the part and parcel of distance education. So the institutions like libraries have become the influencing factors to both formal and non-formal type of education by adopting the contemporary changes.

It is not that libraries have been developing from within and voluntarily, because constant attempts are being made by the Government and regulatory authorities to infuse changes and support them adequately. In this context, the Government of India has been taking stock of higher education and its development including the improvement of infrastructure like libraries and learning resources centres.

1.1 Phases of Academic Library Development

From the early 20th century several developmental initiatives are undertaken with involvement of Government directly or indirectly. The current state of academic
libraries largely is attributed to the progressive policies adopted in this respect. These developments can be put into phases as:

1. Education Commission Reports
2. Establishment of the UGC
3. Activities relating to the use of technological development
4. Establishment INFLIBNET and UGC-INFONET

The descriptive accounts given in the next few sections delineates the stages of the academic libraries gradually and easily enter into electronic environment and adapt to the changes brought about by the contemporary technologies.

The significant role played by the libraries in higher education has been well recognized by academicians, Governments, Education Commissions and Committees, Planning Commission and by all other concerned with the growth and development of higher education in the country particularly during the post-independence era. In this context, the contribution of some of the landmark reports that have been instrumental in the role changing, growth and development of libraries in particular. The recommendations of some of the Commission Reports are given in brief here. The role of Education Commissions appointed from time to time, since the time of British rule can also be brought forward on formulating education policies and their influence not only on development of curriculum but also on supporting services like the libraries. The education policies in India therefore are in perpetual
development, and this is particularly with higher education. In this brief summary the following Commission Reports are covered.

1. Calcutta University Commission (1917-1919) popularly known as Sadler Committee Report;

2. Dr. S. Radhakrishnan Commission on University Education (1948-1949);

3. Dr. Kothari Education Commission (1964-66);

4. The National Policy on Education (1986);

5. Dr. D.P. Chattopadhyaya Committee Report; and

6. Ranganthan Committee Report on University and College Libraries

Each one of these committees in its report has highlighted the importance of the libraries in the higher education and stressed the managements and the local government to provide all physical, financial and manpower infrastructure and knowledge resources in adequate measure and this has been carried forward to the technological environment, for instance since the early 1990s the UGC is facilitating libraries with computer systems.

At the first instance a summary of the education commission reports since the time of Calcutta University Commission has been presented highlighting the subject of libraries.
1.1.1 Education Commissions and other Reports

a) Calcutta University Commission (1917-1919)

This is popularly known as Sadler Committee Report, which is the first to deal with universities in India during the British rule. It is right and proper that the university should provide greater libraries and greater laboratories of research with greater scholars to direct them.

b) Radhakrishnan Commission on University Education (1948-49)

The Radhakrishnan Commission on higher education also pointed out that the state of development of college and university libraries in general in the country not quite satisfactory. In his report he says, “While at a few universities the libraries are fairly well stocked, grants for their upkeep are more or less reasonable, arrangement for lending books to teachers and students are efficient and the reading room space is reasonably adequate, it was distressing to find that in most colleges and universities the library facilities are very poor, indeed. Not only the provision of keeping the library up to the date very inadequate but at one place no attempt had been made to weed out old and obsolete or old editions and replace them with newer editions for the same book.”

The library is the heart of all the university’s work directly so as regards its research work, and indirectly so regards its educational work, which devises its life from research. Scientific research needs a library as well as its laboratories while for
humanities research the library is both library and the laboratory in one. Both for Humanities and Scientific studies, a first class library is essential in a university.

Though the colleges play a significant role in providing higher education in the country it was really a sad comment that the role of libraries could play in their colleges slow to get recognition. A good beginning had been made at several places but the number of such colleges was quite small. The main reasons for their slow development were as follows:

1. The teaching depends primarily on class lectures repeated by a teacher every year.

2. In the class lecture method students hardly require anything other than text books or class notes and therefore there was no need for other reference sources from libraries.

3. The defective examination system was one of the main reasons for the slow development of college libraries. It also depended largely upon memory and methods such as periodical tests, assignments, etc. so there the need for the library work is low.

c) Kothari Education Commission (1964-66)

The ideal academic function of the college library was aptly described as below in Dr. Kothari Commission Report: “The library should provide library facilities and services necessary for the success of all formal program of instruction, open the door to the wide world of books that lies beyond the boundaries of the one’s
own field of qualification and bring book, students and scholars together under conditions which encourage reading pleasure, self discovery, personal growth and the sharpening of intellectual curiosity. “The Report emphasizes on the importance of libraries as follows”. Nothing could be more damaging to a growing department than to neglect its library or give it a low priority. On the contrary, the library should be an important center of attraction on the college and the university campus. It also confirmed Ranganathan’s view that college instruction should be library-centred.


This policy states that the aim of Higher Education is to facilitate the process of nation development through its manifold tasks of generation, dissemination, utilization and expansion of knowledge. The aims or goals of higher education have also been changed due to the rapid change, and oriented to the changing trends of the modern society. The new educational policy of the Government of India has announced that the colleges and universities should offer only work-oriented or socially relevant courses, catering to carefully identified tasks, which usually have a multi-disciplinary character. It seems essential to juxtapose the scenario of the education system against the internal dynamics of a society, in which 64% of the population is illiterate. To escape from this problem, Government of India launched the programmes of non-formal or distant education system to increase the literacy percentage, which is the prerequisite of a democratic set up. The stress here is on synthesis rather than on mere analysis. The objective has been to develop system
thinking and to suggest the possible corrective measures to solve the existing operational problems in order to achieve the broader objectives of education.

It is observed that this policy has only made a passing remark on the programmes of development of libraries unlike the other earlier reports. Among them the Reports by Radhakrishnan and Kothari Commission are highly progressive. The establishment of the UGC is spelt in the Radhakrishnan committee report.

e) Dr. D.P. Chattopadhyay Committee Report


To implement the recommendations of the committee the Government appointed an Empowered Committee under the chairmanship of Prof. D.P. Chattopadhyaya, in October 1986. The committee submitted its report in March 1988. The recommendations of the committee are as follows:

a. Constitution of National Commission on libraries;

b. Creation of All India Library Services;

c. Active role of Central Government in Public Library Development in States;
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d. Public Library Development has also to be supported by agencies involved in social, educational, and rural development;

e. National Library of India, Calcutta should be strengthened; and

f. Development of system of national libraries.

The features that constitute the National Information Policy are given below:

i. To establish, maintain and strengthen the free public libraries. A network of libraries would result with a district library being the apex library in district, with public libraries at city, town and village levels. These would, then be part of the national network with each state having its own library legislation.

ii. Every school or college established should have a library and a qualified librarian. The policy states that science libraries are essential part of education. There must be a state level agency for proper development of school libraries of the state and a national agency for coordination at the national level. The policy gives University Grant Commission, the authority for college and university libraries and suggests that all these institutes form a network and share the resources by signing Memorandum of Understanding (MoU).

iii. Expansion of national, regional, sectoral, and local levels of NISSAT (National Information System for Science and Technology). The policy
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recommends that national, regional, sectoral, and local levels of NISSAT scheme should be further strengthened and expanded.

iv. Similar systems are organized in Social Sciences, Humanities and Languages.

v. Development of information system and data banks in different fields.

vi. Parent bodies should be committed to provide support and infrastructure for libraries.

vii. The policy recommends for a system of national libraries consisting of the National Library at Calcutta, National Depository Libraries, National Subject Libraries and National Documentation/Information Centres, National Databases of Manuscripts, etc. A National Library Board should be set up by the National Library of India for effective inter-relation among all these national libraries and also between libraries, archives and museums.

viii. Manpower, planning and development. The policy recommends specialized information personnel who could apply modern management techniques to Information Services.

ix. Library legislation and regulation of information flow. To meet effectively, with the changing information needs of society, the policy recommends a national library act to be enacted and supplemented by model library legislation at the state level.

x. Use of technology. Information revolution is indisputably caused by the unprecedented advances in technology. These advancements have made accessibility to world information and knowledge possible, almost from any
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part of the world. All these developments in information technology have far reaching implications for National Information Policy. It recommends the access and use of technology for enhancing the existing services and to exploit and utilize the available resources to its optimum.

After the first three reports, namely the Sadler, Radhakrishnan and Kothari, the Chattopadhyaya Committee Report dealt with libraries in general and academic libraries in particular. It was the first instance where the need for a National Information Policy was spelt and it prepared a draft policy document in this regard.

f) Ranganathan Committee Report

The most comprehensive and significant document on the university and college libraries is the report of the UGC library committee, chaired by Dr. Ranganathan. The Report was published by the University Grants Commission in 1959 entitled Report on University and College Libraries 1957.

It was perhaps the first attempt by any Library Committee in India to systematically survey the academic libraries on a national basis, and it was also the first time that the Government of India had decided to seek advice from a professional librarian regarding academic libraries.

Some of the recommendations of the committee included the provision that the UGC and state governments should help the college and university libraries in the collection and development of both books and periodicals. The formula suggested by
the committee was that funds be given 'at the rate of Rs. 15 per enrolled student and Rs. 200 per teacher and research fellow. There should also be special initial library grants in the case of a new university and of a new department in an existing university; a similar scale should be followed for the college libraries. In order to promote cooperation among libraries, a Union Catalogue of books and Periodicals to be prepared. The committee strongly recommended that an open access system be introduced in every academic library. The committee also stressed that "reference service is the essential human process of establishing contact between the right reader and the right book by personal service."

Other recommendations included building up of a microfilm collection, copying, facilities for microfilms and book material, appointment of a committee to look into the standards of teaching, examination and research in the library schools, and appointment of full time teaching faculty members rather than asking librarians to teach, examination and research in the library schools. The committee added that "the status and the salary of the library staff should be the same as that of the teaching and research staff", i.e. Professor, Associate Professor and Assistant Professor. The recommendations of the committee had a far reaching effect on the development of the university libraries later. They had not only provided a framework to the UGC to implement its grants-in-aid programmes but also given to the university authorities' important guidelines. Particular to mention, in this connection, may be made of the recommendations concerning the library finances which had helped libraries to secure enough finances by way of annual grants from
the universities themselves and of development grants from the UGC. The recommendations on the library personnel and staff strength have given to the library staff status and salaries equivalent to the academic staff and ensure provision for adequate staff for various library operations. The committee submitted its report to the UGC with the hope that it will provide a blue-print for the systematic development of university libraries in the country. Hence, in-spite of many hurdles like education being a staff subject in the Indian Constitution, considerable development in the university libraries has taken place and as such the condition of these libraries in 1953 was much better than in the 1940s and 1950s.

1.1.2 Establishment of University Grants Commission

In the above sections a brief account of various commissions’ reports that have highlighted the role of libraries in education, is presented. The Higher Education in India, during the last fifty years or so has been expanding primarily for social and political reasons rather than on economic and manpower considerations. The establishment of University Grants Commission (UGC) in 1953 brought out reforms in college education by relaxing several colleges from the rigid regimentation of traditional course structure. As a result of the schemes initiated for restructuring courses in its Sixth Plan Development proposals, there has been a great expansion of libraries in most colleges on the development of following collection during the last twenty years. The establishment of the UGC gave needed impetus for the development of college and university libraries. The first thing for the
development of academic libraries by UGC was initiated with the appointment of Library Committee under the Chairmanship of Dr. S.R. Ranganathan. The UGC provided generous funds for purchase of reference books and textbooks as well as grants for library buildings. In recent years the UGC came to further focus with the establishment of few specialized agencies for the improvement of libraries. They are the Information and Library Network (INFLIBNET), Ahmedabad and National Centre for Science Information (NCSI), at Indian Institute of Science, Bangalore. The UGC-Infonet another initiative of UGC which introduced the e-journals consortia, thus began the electronic information era in academic libraries of India. The UGC also sponsored the College of Humanities and Social Science Programme (COHSSIP) and College Science Improvement Programme (COSIP). As a result, the classroom teaching use latest teaching methods and techniques, which provides exhaustive knowledge of the subject to the students? The UGC has also provided assistance for introducing community service Scheme and Summer Institute for development of college libraries in India. A well established library with qualitative collection suitable for study and research is a sine-qua-non for modern higher education like that in university. There are many colleges, which provide education to the students up to graduation levels in order to achieve the objective of college education. College libraries should redesign their activities in such a way that they may prove to be significant partners in conservation of knowledge in the form of information.
1.1.3 Establishment of INFLIBNET and its activities

The establishment of INFLIBNET was the first major and concrete step taken by the Government with the initiation of UGC towards adoption of information technology in a systematic manner. All earlier work in this regard was not as assertive and based on a systematic planning and implementation. This has rendered the academic libraries to adapt to the technological and present electronic environment quite smoothly.

Information and Library Network (INFLIBNET) Centre is an autonomous Inter-University Centre of the University Grants Commission (UGC) of India. It is a major National Programme initiated by the UGC in 1991 with its Head Quarters at Gujarat University Campus, Ahmedabad. Initially started as a project under the IUCAA, it became an independent Inter-University Centre in 1996. INFLIBNET is involved in modernizing university libraries in India and connecting them as well as information centres in the country through a nation-wide high speed data network using the state-of-art technologies for the optimum utilization of information. It is very active and striving to achieve complete networking of college and university libraries in India. In this regard it is strengthening the college libraries with computer facilities and training college and university library staff on computerization work and handles IT and electronic sources effectively to benefit the users. This has enabled the users in academic libraries to use electronic and other media and the
related services most effectively in the universities and colleges. More on this is deliberated on UGC-INFONET.

**Major Objectives**

- To promote and establish communication facilities to improve capability in information transfer and access that provide support to scholarship learning, research and academic pursuit through cooperation and involvement of agencies concerned.

- To establish INFLIBNET: Information and Library Network a computer communication network for linking libraries and information centres in universities, deemed to be universities, colleges, UGC information centres, institutions of national importance and R & D institutions, etc. avoiding duplication of efforts.

- To facilitate academic communication amongst scientists, engineers, social scientists, academics, faculties, researchers and students through electronic mail, file transfer, computer/audio/video conferencing, etc.

- To undertake system design and studies in the field of communication, computer networking, information handling and data management;

- To establish appropriate control and monitoring system for the communication network and organize maintenance;
• To collaborate with institutions, libraries, information centres and other organizations in India and abroad in the field relevant to the objectives of the centre;

• To promote R&D and develop necessary facilities and create technical positions for realizing the objectives of the centre;

• To generate revenue by providing consultancies and information services; and

• To do all other such things as may be necessary, incidental or conducive to the attainment of all or any of the above objectives.

1.1.4 UGC INFONET Consortia

UGC has been a major player in promoting scholarly communication among academicians and researchers in universities in India. This resulted in the establishment of UGC-INFONET as an ambitious programme of UGC to interlink all the universities in the country with state-of-art technology. The UGC-INFONET E-Journals Consortium to provide online access to electronic journals and databases in all disciplines to the universities in India. The programme aims at increasing accessibility of electronic resources to the universities. It will go a long way in mitigating the severe shortage of periodicals faced by university libraries for many years. The E-Journals programme is a cornerstone of the UGC-INFONET effort, which aims at addressing the teaching, learning, research, connectivity and governance requirements of the universities.
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The network will overlay on ERNET backbone and provide Internet and Intranet services. It is providing internet connectivity to 150 universities in the first phase. Another 8 universities are added in 2008. INFLIBNET is responsible for executing and monitoring the entire project.

Indian universities constitute one of the largest higher education systems in the world. With 500 universities and 26,000 affiliated colleges it is a great challenge to ensure effective coordination and communication amongst 88 lakh students and 3.5 lakh teachers, it is a great challenge to ensure effective coordination and communication. Fast changing curricula and frequent introduction of new subjects impose a great demand on the system in general. Indian universities need to be given the required trust to enter the third millennium with a leading edge.

At present the information and communication technology is a driving force in contemporary education system. University Grants Commission has launched an ambitious programme to bring about a qualitative change in the academic infrastructure especially for higher education. Under this initiative UGC is modernizing the university campuses with state-of-the-art campus wide networks and setting up its own nationwide communication network named UGC-INFONET.

In India ERNET, a society under the Ministry of Communications and Information Technology is in partnership with the University Grants Commission in the setting up of UGC-INFONET. Under this programme it is proposed to use Information and Communication Technology (ICT) and the INTERNET to transform
learning environment from mono-dimensional to multi-dimensional. UGC-INFONET will be a boon to the higher education system in many ways:

- UGC-INFONET will be a tool to distribute education material and journals to remote areas.
- UGC-INFONET will be a resource for researchers and scholars for tapping.
- UGC-INFONET will become a vehicle for distance learning to facilitate spread of quality education all over the country.
- UGC-INFONET will form a medium for collaboration among the teachers and students not only within the country but all over the world.
- UGC-INFONET will be an Intranet for university automation.
- UGC-INFONET will encompass entire university system for most efficient utilization of precious network resources.
- UGC-INFONET will establish a channel for globalization of Education and facilitate the universities in marketing their services and development.

In the coming years UGC-INFONET is going to get connected to the colleges in the country and a separate programme National Science and Technology Information Network is proposed by the UGC-INFONET in collaboration with INFLINET. This will start in 2010.
1.1.5 UNILINK – University Library and Information Network

Another ambitious programme known as University Library and Information Network is established in Karnataka. This will facilitate, it is reported in The Hindu Online, that inter-library lending of book service will benefit the students and it will be more advantageous when the facility is extended to libraries of affiliated colleges in the second phase of its implementation. “The task force will meet at Gulbarga University on January 25, during which we will finalise the process to register the UNI-LINK under Societies Act and it should not take more than six months to implement the project by incorporating suggestions from all the universities.” It is however now reported that the UNI-LINK has been registered as a Society and Dr. Prabhu Dev, Vice Chancellor, Bangalore University, Bangalore is the Chairman and the University Librarian of Bangalore University is the Member Secretary. This will definitely enhance the use of information resources and it will be more so in the context of electronic resources, as it is easy to access and share them under the networked facility.

1.2 Electronic Environment in Academic Libraries

Prof. I.K. Ravichandra Rao of DRTC, Bangalore has stated that “the rapid development in IT and the emergence of INTERNET, a multitude of information sources are now available in electronic media. They include e-journals and other electronic publications – online databases, reference documents, newspapers,
magazines etc., which are collected, referred as electronic sources of information and libraries in no part of the world can afford to ignore these sources. He further states, ‘it is inevitable that in the next five to ten years, libraries may have to allocate considerable amount towards subscriptions to E-journals and other E-publications (Rao, 2000). The onset of electronic environment of academic libraries is a slow gradual process in the early 1990s became accelerated with several changes not only technology but by the several initiatives taken by Government and the UGC. For instance the accreditation sought a quality service in libraries through the application of computers and automating library operations and now going fully digital. The Library with substantial strength of electronic information resources is the one that can be designated as electronic environment. The traditional libraries had print collections in large measure and are now gradually and slowly being replaced with their electronic counterparts. In the beginning it was primarily bibliographic databases, reference works and some newspapers. Later they were replaced with or supplemented with multimedia products again mainly dealing with reference works. The digital era of mid the 1990s changed the references, only databases, to full-text and the growth of digital technology made a high degree of entry into the libraries starting with electronic journals and now electronic books growing in population.

The next eventful transformation was brought with the INTERNET and the World Wide Web which gave additional facility of easy and remote access and the impact so that every library irrespective of their size and dimension adapted to the new technological environment which is either termed as electronic or digital
environment. Below are some of the events that graduated to the electronic environment in academic libraries and in particular in college libraries highlighting the works and finally the need for the adoption of electronic resources in the library services.

In summary the electronic media for information storage and dissemination include;

1. **Online Electronic Sources of Information**
   a) E-Journals in various forms and modes of access – abstracting and indexing sources and the full text journals – both born digital and archives.
   b) E-Publications – references books, newspapers, magazines, e-Books
   c) Institutional Repositories.
   d) Educational course materials.

2. **CD-ROM Databases**
   a) Bibliographical and non-bibliographical databases
   b) Multimedia sources
   c) Non-textual sources – Audio, Visual and Display materials

3. **The Internet and the World Wide Web – for creation, search and access.**
   a) Websites
   b) Search Engines
   c) Digital Libraries
d) Networked Libraries –OPAC and WebOPAC  

e) Subject Gateways  

f) Other Internet Information Sources  

This list is not exhaustive, but a representative of electronic media used most in the educational and academic environment. To facilitate their use the academic libraries have to transform and adopt to change their mode of operation – library automation and networking emerged.

1.2.1 Library Automation

The changing facets observed earlier were primarily on the internal structure and contents of libraries. The advent of computers in the libraries was the first significant move towards library automation. It was quite difficult to automate libraries then with the non-availability of suitable and low cost library automation software. A new wave of influence marked by advent of computers in libraries has created a long lasting transformation not only in structure and content but also in the concept of services. The users who are accustomed to study by reading and referring to books are now to browse and navigate on the screens of the computer. This will open up for a new framework that is to be adopted by the libraries.

The technology becoming more and more cost-effective, the library’s use of computers has accelerated since mid-1990s. The automation of academic libraries becoming more feasible and promote efficiency and quality in services, the college
libraries have easily adopted computerization. If the role of the college library can be fully appreciated and its visibility surfaces to the academic administration, the library automation is best of the solutions that modern IT has facilitated. For the better teaching-learning environment, library computer systems are forming part of all higher education institutions.

1.2.2 Library Networking

The convergence of computer and communication technologies has made the libraries to work in new environment - the library networks. They are growing in number in every part of the world and are providing access to information sources from remote places. The influence of communication media in this context need not be reemphasized and the library networks play a great role eventually. In India there are now several data networks, which facilitate building computer networks and thereby the library network. For instance, three networks belong to Government of India and they are ERNET, NICNET and I-NET. The INFLIBNET for instance uses the I-NET to access its various services, databases and it also extends to other networks in the country like ERNET.

The primary objective of any information system is to provide its users with timely access to the information they need, so that, it may be exploited by the users to the maximum benefit. In recent years, due to advances in computer and communication technology, access to primary literature has vastly improved. A large number of information services ranging from broad disciplines to highly specialized
subject fields have emerged. These inform and alert the users as to what is happening in their areas of interest. In other words, it has become easier for anyone to be aware of published information in one’s narrow field of activity and interest as well as to be alerted about what is likely to be published. This has resulted in the increased demand for original documents.

The networks have also facilitated on-line access to libraries. From the document delivery point of view, the on-line system to a database system would be a welcome. A user can order document from his terminal and the document can be sent to him electronically. On-line access to library book holdings will become commonplace. The automatic circulation data will provide this quite regularly. Some studies on the effect of on-line networks significantly increased inter-library loan activity. In on-line circulation systems the status of each item’s availability is current at all time. The systems also eliminate paper work. The computerized text storage can also provide translated version of foreign languages through machine translations. This will reduce the time lag in overcoming language barrier. Thus, translated documents can be provided in a short span of time. However, the machine aided translation of language may need editorial touch ups and it is already continuously improved for automated on-line editing.

As already mentioned above the establishment of INFLIBNET and the recent UGC-INFONET have added to the accelerated move towards the electronic environment in academic libraries.
1.2.3 Academic Libraries in the age of Transformation

Looking at academic libraries, a glaring contrast in ideas and practice can be noticed. The most unfortunate aspect of the problem is the persistence of the state of affairs for almost a century now. One of the greatest weaknesses of the existing system is the extra-ordinarily un-important part in it, which is played by the library. It is found that it is impossible to resist the conviction that in some colleges the library is regarded not as an essential part of teaching equipment but mainly as more or less useless conventional annexure. One thing that strikes out from this comment is that the neglect of the academic library is not entirely due to financial inadequacy rather it refers to the attitude and habits, which govern academic community. The persistence in the state of affairs is borne out from the observations for University Education Commission. It was distressing to find that in most colleges and universities the library facilities were very poor indeed.

Library is the center of any academic setting. While classroom teaching provides a glimpse of knowledge, the libraries disseminate a wide range of knowledge, which is required to attain intellectual heights. Libraries supplement the instructional work of classrooms and carry forward the ideals of education. Real education can only be achieved through the libraries. Thus, the libraries are the providers of informal education, guiding the learners to search vast range of material available. The libraries are gradually being recognized for their academic services,
and they are occupying prominent position in educational programmes, throughout the world.

The importance of library's role in imparting and disseminating knowledge has, of late, been enhanced by developments in continuing education, distance education, and the open system. The library in any educational institution is no longer considered as the storehouse of knowledge; the libraries disseminate a wide range of knowledge. It is actively participating as the medium between the learners and the vast knowledge. It is actively participating as the medium between the learners and vast knowledge resources, between classroom lecture and the source of lecture. The librarian is no longer considered as a mere keeper of library collection. He has to make his unique contribution to new methods of information dissemination. He should try to become a true friend and a perfect guide for the learners in the academic setting.

In the earlier sections an overview of the college libraries and several influencing factors such as the impact of ICT has been highlighted. It shows that the academic libraries, in particular the college libraries, are going to enter into a new phase of technological environment and the electronic media is going to bring large magnitude of transformation in their organizational, managerial and administrative designs and it calls for a study of development of college libraries in the new media environment and also requires to evaluate and take measures in capacity building and bring about quality awareness among the performers – the library professionals.
Hence research study in this direction is proposed and undertaken and the problem of study is stated as follows. Historically libraries have depended on what materials were available to build collections. The evolution of libraries in antiquity involved the search for a material durable enough to survive as a permanent record and relatively easy to use.

1.3 Colleges in Karnataka State and their Libraries under study

The following table - 1 reveals the status of number and types of colleges in the Karnataka. The state is divided into 6 regions viz. Bangalore, Mysore Shimoga, Mangalore, Dharwad and Gulbarga. Among 6 regions, Dharwad region has highest i.e. 81 Government colleges and Mangalore region has lowest with 31 Govt. colleges. It is surprised to mention here that Bangalore region has 342 private unaided colleges, whereas, Mysore and Shimoga region have 47 private unaided colleges to their credit.

Table - 1: Status of Colleges in Karnataka

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Region</th>
<th>No. of Govt. Colleges</th>
<th>No. of Pvt. Aided Colleges</th>
<th>No. of Pvt. Unaided Colleges</th>
<th>Total No. of Colleges</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bangalore</td>
<td>69</td>
<td>61</td>
<td>342</td>
<td>472</td>
</tr>
<tr>
<td>2.</td>
<td>Mysore</td>
<td>67</td>
<td>30</td>
<td>47</td>
<td>144</td>
</tr>
<tr>
<td>3.</td>
<td>Shimoga</td>
<td>48</td>
<td>27</td>
<td>47</td>
<td>122</td>
</tr>
<tr>
<td>4.</td>
<td>Mangalore</td>
<td>31</td>
<td>35</td>
<td>48</td>
<td>114</td>
</tr>
<tr>
<td>5.</td>
<td>Dharwad</td>
<td>81</td>
<td>102</td>
<td>120</td>
<td>303</td>
</tr>
<tr>
<td>6.</td>
<td>Gulbarga</td>
<td>60</td>
<td>41</td>
<td>137</td>
<td>238</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>356</strong></td>
<td><strong>296</strong></td>
<td><strong>741</strong></td>
<td></td>
<td><strong>1393</strong></td>
</tr>
</tbody>
</table>

Note: Statistics given is from the Department of Collegiate Education (Source: www.dce.kar.nic.in)
1.4 Need for the study

The growth of electronic resources has inherently sought to acquire new knowledge skills by the library professionals especially in academic libraries, as they have to direct the users to use these resources effectively. The need for user training and information literacy programmes have to organized for the benefit of the users to enable them to use the resource effectively. It assumes qualitative improvement in the services and empowers both readers and the library staff in this context. The electronic environment therefore has posed challenges; hence there is a need for identifying these aspects through a study of college libraries and the context and situation of college libraries in the new media environment.

It also requires building additional infrastructure in the library and the Librarian needs to put his proposals to the management. If he has sufficient data at his disposal he can negotiate for the additional facilities with the management and fulfill user needs and requirements. Hence, there is absolute need for the study of college libraries about how they would be performing in the new electronic environment and it is possible through a well thought of survey mechanism. Another challenge is increase in the number of documents published in various specialized and interdisciplinary fields, growth in number of users, would create a greater demand of information with multidisciplinary approach. The path breaking developments in the field of Information Communication Technology (ICT) has provided the much-needed relief to overcome many problems in the libraries.
Initially non-book materials, then microforms added new dimensions to libraries, in handling the new media. First exercises were made for nearly two decades to organize them and these gradually gave way for new communication media - strongly emphasized as electronic media. The magnetic media still rule the information handling in the form of databases and as a store-home for networked libraries.

The time was not far-off when magnetic tapes had made a similar influence, today the compact disk, and the digital papyrus that has opened a new era in publishing field that took the libraries and information centers by storm. It has become the preferred medium for abstracting and indexing periodicals as well as many reference works like encyclopedias, directories, dictionaries, yearbooks, almanacs, statistical sources of information, geographical, biographical and bibliographical, current reference sources. Now, primary journals in full text are available in this medium. Considerable abilities are developed to provide electronic access to materials including graphics, which was earlier limited to printing materials.

Identifying these fundamental demands a rethinking of the purpose and functions of the library within the framework of the electronic environment concept is essential. Successful implementation of electronic services require a dynamic management that systematically analyzes, structures, and evaluates by perpetuating
change and progress. All these factors have demanded for a comprehensive study and investigation in the problems of infrastructure framework for academic libraries.

1.5 Purpose and Objectives

The purpose of this research study is to bring together all the relevant data about the college libraries in the electronic environment and to find out the preparedness of the libraries to meet the changing situation as to the new media, their acquisition, organization and put them to effective use. In order to identify them the following objectives of the present study have been enlisted:

i. To compile the data about the libraries under the scope of the study in order profile the facilities and other infrastructure in order to set the growth aspect;

ii. To collect and assess Information communication technology facilities available in the college libraries;

iii. To assess the extent of provision and use of ICT facilities provided by the college libraries under study;

iv. To examine the application of ICT in activities like library automation and networking in order to link with other library networks and to share the electronic resources;

v. To examine the extent of availability of electronic information resources in order to observe the electronic environment of the libraries and their impact on collection management and services in the Libraries;
Chapter 1: Introduction

vi. To take stock of the quality awareness among the academic libraries on the basis of parameters set by assessment and accreditation authorities;

vii. To examine the use of e-resources by the users in their multifarious academic work;

viii. To give outline of the available information network facilities and assess the efforts in making use of them in providing quality library and information services in the college libraries;

ix. To study the implications of quality indicators as proposed by the National Assessment and Accreditation Council (NAAC); and

x. To study the quality and standards of aptitude of the library staff and to identify the need and means of competency building in order to serve the users.

1.6 Hypotheses

1. The college libraries need to take note of the fast changing environment and they have to get prepared to serve in the new environment;

2. The Academic libraries in particular college libraries in Karnataka are the threshold of change due to the fast emerging electronic environment;

3. The impact of ICT brings in substantial quality awareness among the college libraries;
4. The electronic sources are essential components of any academic library to supplement the pedagogical work;

5. The electronic resources are bringing various conceptual changes as new forms are emerging and they call for better organization and management of resources;

6. The concepts of electronic resources are changing in form and magnitude, hence the organizational framework of academic library also needs change;

7. The college libraries possess’ electronic collection in the traditional sense;

8. The academic libraries are continuously facing challenges of handling varieties of media from paper based to electronic;

9. The college libraries have to adhere to the guidelines and best practices formulated by the appropriate agencies; and

10. The emergence of e-resources also brings in the need for capacity building to process and put them into use and also assist the user to use them in their academic work successfully.

1.7 Statement of the problem

In the above sections an attempt has been made to bring a relation between the academic libraries and the impact of ICT which would bring in large magnitude of electronic environment. This has been broadly deliberated to know about certain
factors that the academic libraries lack in adoption of the new electronic environment. It is also important to examine whether the academic libraries have the suitability, in terms of their structure and framework to adopt the contemporary changes and challenges. It is also necessary to investigate as to how library professionals getting prepared to these fast-changing events of technology and several measures on competence building to provide quality services to the stakeholders have to be undertaken. Hence, a research under the topic entitled “Growth and Development of College Libraries in the Electronic Environment: A Study of Impact of Quality Awareness and Competence Building Measures” has been undertaken to study the problems under the purview of academic libraries.

The research study undertakes an intensive view of academic libraries in this context and will attempt to access all the details about growth and development of college libraries in the e-environment. It also tries to examine the media convergence and also to direct the policy makers and planners to take appropriate action wherever warranted for effecting changes in the academic library structure and framework.

1.8 Scope and Limitations of the Study

The scope of this study is limited to college libraries of Karnataka State under the department of colligate education (both aided and government colleges). Further the study concentrates on the electronic resources as intended in the introductory part of the thesis. As the situation with regards to electronic collection and use is very
meager in all college libraries, and there are hardly very few studies in this respect, the study focuses on the Impact of Quality Awareness and Competence Building measures to highlight their importance in higher education.

1.9 Methodology

The study adopts a combined methodology of theory and fieldwork in order to examine the trends of developments compatible with the prevailing conditions of academic libraries. In this context a survey of methodology is adopted in this study supplemented by some fieldwork in the manner of personally interviewing some college librarians.

A structured questionnaire is designed to collect the basic facts required for the gathering of data collection and the possible polices and programmes in the college Libraries of Karnataka state. Repeated visits are made to the selected libraries to make on the spot observation. Also, series of discussions were held with professionals, experts and fellow researchers to get a clear picture of the concept. Therefore this research work has used multi methods to collect analyze and consolidate the data. The questionnaire in three parts is administered to collect the required data.
1.10 Outcome of the Study

The expected outcome of the study would be to know, the extent of electronic environment scenario of college libraries in the state, in particular, the types of colleges under study. The study would also visualize the extent of ICT facilities and services in the college libraries like library automation, networking and internet facilities available to help use of electronic resources held by these libraries. Thirdly the study would formulate a scheme of building quality awareness and competencies among the library staff to make them compatible to work in the changed environment of electronic resources which would be acquired in increasing numbers. It will also find out the need for quality assessment of college libraries as a road map for their development.

1.11 Chapterization

The study is organized in chapters. A brief account of each chapter is given below:

Chapter 1 Introduction: provides introduction of the research, development of Academic Libraries, Commission Reports, and INFLIBNET, Need, Purpose and Objectives of study, Hypotheses, Statement of the problem, Methodology, Scope and Limitation of the study.
Chapter 2 Presents exhaustive review of literature, which covers published literature on research topics and related facets of the study.

Chapter 3 Narrates quality awareness and competency system in academic libraries which is related to Study of Quality maintenance and competency building measures taken by the Organizational system for the development of academic library in the state. Quality guidelines and other related factors issued by them and also some gaps in the context.

Chapter 4 Describes Collection development with reference to electronic resources: Policies and procedures.

Chapter 5 Presents Data Collection, Presentation and Analysis of the research work.

Chapter 6 Highlights Major Findings of the study, Recommendations and Conclusion.

1.12 Summary

Libraries, these days, are involved in a wide range of media, and the librarian is compelled to be aware of the emerging media. In fact, the library of the recent past was not like the library of today, and obviously the library of the future will be quite different from what it is today. In the information society, information has been considered as one of the key factors of production. A library is the main source of information. The purpose of this study is to highlight the need for multimedia
information approach and to think seriously about this information media and its optimum use for the promotion of education and learning.

Academic libraries are in transition due to changes in socio-economic, cultural and technological fields. Recent trends have profoundly reshaped the library service landscape. As a dynamic institution, academic library must continue to evolve with reference to the changing scenario. For the past three–four decades the development of information technology has been responsible in changing every aspect of library services. Today library professionals must be proactive to new changes by maintaining the flexibility, creativity and making easy access to information to meet the increasing demands of the users at different level.

The age of electronic libraries has arrived. The primary role of helping the users to find the needed information remains the same in the information age. Also the importance of education and information literacy is widely recognized across the institutions of higher learning in the world. Library in general and academic libraries in particular are facing budgetary constraints too.
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