Preparing Libraries for the 21st Century

Seminar Papers:

Fortieth All India Library Conference

Goa University Library, Goa
January 5-8, 1995

Editors
CV Subbarao
AP Gakhar
OP Sharma

Indian Library Association
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Editorial

SEMINAR PROCEDURE FOR RESEARCH

The report of the Bangalore Conference is already published. The critical evaluation has resulted in editing the Goa volume and extracting 'Statements', 'Foci' and 'Resolutions' as steps to be mounted to achieve scientific results, with the background of the published papers. The 'Contents pages' incorporate 'Abstract', so that the Reader would select under any area interested, the papers relevant and useful, before getting to the papers themselves. Giving 'Abstracts' on the 'top' of the paper, which is the normal practice, wastes the Readers' Time, for unfailingly the pair of eyes ramble through a page or two, or try to understand through paragraph headings, before giving up. A type of browsing is welcome, but not that is wasteful or detaining/delaying the very selection process. By scanning 'contents pages' the reading list is made. Afterwards when knowledge hunger is satisfied, others could be browsed, for something more.

Dr SR Ranganathan (SRR) used to make 'Propositions' from papers to a seminar, which contained many clauses and subclauses. The difficulty with such propositions is that they emerge from many papers, nobody owning the totality of thought, but one of the Authors asked to move, even those clauses with which differences or ignorance exist, and placed in the role of justifying and defending against opposition. Instead, if ideas are 'Statements' of Authors arranged in a 'sequence', so that out a set of 'Statements', foci could emerge, out of related 'Statements' each author only supporting the statement cited in the text and after, debate at a depth, a set of accepted foci could emerge, to take shape into 'Resolutions'. Subject to close examination, each statement differs in emphasis, direction, obviously emanating with the same base-idea.

The omnibus seminars held so far had the mortification of the following defects, for a paper needed :

1 Eloquence for 10-15 minutes.

2 To cover all aspects that integrates many foci of the paper.

3 Such detail to be grasped without prior knowledge or preparation and debated by the Audience.

The Result is :

(*a*) Best paper falling, through lack of eloquence

(*b*) Inability to manage the ideas in the short time.

(*c*) Unimportant ideas coming to the fore and core ideas receeding to the background

(*d*) Audience exposed to the idea without prior knowledge, shooting in different directions.

(*e*) Desultory discussion.

(*f*) Neither Director nor Repporteur General, nor Chairman nor Repporteur being knowledgeable on the contents of the papers.

(*g*) Shallow/indifferent papers coming to prominence by mere eloquence.

(*h*) Inspite of indigestion of understanding, over loading with the on- the-spot papers.

(*i*) Research papers getting no guidance or appreciation through Seminar discussions.

(*j*) A few among hundreds, monopolising the deliberations.

(*k*) Resulting incoherent reports.

(*l*) Times remaining unchanged.

So it reduced itself to a journey from 'nothing' to 'nothing' with confusion added in the process. Science is much sharper. There is experimentation, conditions of environment, process adopted, results obtained, applicability, and the generic over all definition itself. Each constituent element is to be separated, viewed independently and all the approved elements grouped, to see how far the generic idea stood altered, or a new idea has taken shape. To gulp down all the elements together, lead to the neglect of detail and careful scrutiny, unobserved in a gathering, and once such a procedure is on, to roll back, becomes impossible. Analysis to elements, regrouping after deep evaluation, and finding the change in the environment of the science in the sphere, its applications/alterations it necessitates, is research, is science. Let us apply the 'Analytico-synthetic' technique to seminar thought. Such a bulk of thought should not go waste, year after year, by sheer negligence.

Omnibus seminars, elated authors ego. Even the few who marched to the dais, some had no point to make but 'ego. Irrelevancy of thought is built in the procedure, itself ! 'Science' and 'precision' gave place to 'eloquence' and 'playing to the gallery', pandering for popularity. Neglect of scientific attitude has lead to library and information science drifting away from 'Science' and the regime of research. Low and shallow standards are the result, since Dr SRR's leadership ended in 1972.

Anarchic freedom is abuse of freedom, even in science or social affairs. Freedom of thought, under regime of logic, focussed on a spot at a time, will lead to growth of science. The purposeless ego and eloquence' are to give way, to simmering on spotlights of knowledge, needing intervention for minute two by the knowledgeable, in an open atmosphere of freedom, to add relevant knowledge. Is society/profession adopting a scientific path ? So the author may have to come for briefer periods to justify or differ, with delightful steps of logic, so that an idea is approved, amended or rejected, at the conclusion.

By having 'Areas', 'Foci', and statements; on one side printed, the audience could note opposite the 'Statement' and participate. Selective participation is possible for delegates, if limited time is at disposal, by selection of area/foci, relevant abstract/section of the text of the paper, and participate with effect. It also makes the task of Repporteurs and Repporteur General easy, for the discussion is pointed and sharp, on a written down foci and statement of an area.

Press Conferences and resolutions become very easy at any point of time, for the structure of thought is ready at hand, duly analysed and synthesised.

DRTC and IASLIC have already followed 'Seminar technique', each in its way since 1963 and 1965. The members who attend DRTC/IASLIC/ILA Seminar are drawn from the same pool of professionals. Hence ILA is starting coure on the familiar scientific road. Incidentally the scientific road in IASLIC/ILA is laid by the same person, a happy coincidence, and nearly a career achievement of 30 years !

Perfection is not claimed for the procedures, nor the analysis and the synthesis. Under the different areas same foci come up. But the limitation is in 'Extension'. For example 'Public Library'. Focus is in Areas I, Area II, and III. In Area I, General Aspects of Policy and Framing library Acts are gone into as a broad area of change; but in area II it is automation aspects only; and in area III it is minute detail of change for the Community Information System. The Seminar thought has already been faceted into areas and announced, and so the papers fall into the announced areas. Not that the structure could not be changed but the authors, organisers and a large section of ILA members have accepted the structure; and a last minutes dislocation and rearrangement, might become an obstacle to the new procedure. An author's session prior to the conference will be held, so that the changes are, well understood.

Finally it is the people who work a system, that cause success or failure,

governed by inner commitment. The best of the constitutions could be found wanting, while an unwritten constitution could work to perfection ! With good intentions, and professional concerns, even the scientific path to the seminar is laid. In a sense, with 'no procedure', ILA managed successfully, till 1994 ! Would Goa be a new beginning to the 21st century ?

The responsible criticism launched at Bhubneswar, repeated at Bangalore, both in speech and writing, is constructively fulfilled at Goa. A band of workers, distribution of work, is to be planned for the next seminar in 1996. ILA needs good bit firming up of the Secretariat, to carry out responsibilities, but ILA members should also share the responsibilities by keeping to time, observing double space in typescript, following uniform standard in Bilbliographic description, and giving a short representative abstract. Before mailing, authors should scan scripts, so that all errors are eliminated.

There is a wrong impression, that unless the papers are accepted, delegates can not attend the seminars. If that be conceeded, then only authors will attend seminars ! Knowledgeable and appreciative audience is also needed. Specially, the Director, Repporteur General and Repporteurs should not have papers, which will impinge on their impartiality, chained to an idea already, and have lions share of time, for the Executive and the Judge are merged into one. There is another reason too.

The authors can not tear themselves from their ideas in papers till the turn of the paper is over. That means a psychological block for absorption of any new idea, upto that time, whereas a studious person, who attends the seminar without paper, is the best beneficiary, for uncommitted to any idea, participation ensures without any psychological block. A freedom in the idea plane, is at the back of any such participation.

Participation in seminar is a scientific right of every expertise. A paper should not be a cause, for attending or not attending. What is the use of papers that are too general, nearly descriptive, not problem oriented, manufactured in the last minute for a seminar ? Should 'Unscientific' attitude of managements, lead to 'Unscientific' papers and shallow participation ? My advice is, to write papers when the problem hammers in the mind, real at the work-table and send the paper to a suitable periodical. If a seminar is to be held on the topic, then the paper could go there. But do not put cart before the horse and run backwards, prepare a paper post-haste to go to a seminar, send it late, compromise on the value system, copy down text of other papers and to an extent, unconsciously down grading sacred University Qualifications, besides going down in the esteem of professional peers, for indifferent papers written. Do not also become joint authors, by

exploiting a junior, because of positions of power. The real mother loves the child, the foster-mother cares two hoots. Please mind ethics of a seminar.

ABOUT THE VOLUME

The Editor is condemned to go through the assorted papers with dead lines, anxious authors and press, an incalculable varient in itself. Fortunately Mr. Sardana of Cambridge Press is very knowledgeable and takes pride in his work, including minor editing. So that, is added the good fortune. 50% of the volume having good papers and the other 50% are nearing good and average. Such work is joy to the Editors. Sharp focus, wonderfully cut out structure, language keeping up with the ideas, not letting down, and convincing arguments, is an asset that 'good' papers have. Here is evidence, that Indian Librarianship is marching with elan, competence and commitment, marching to 21st century. Dr. SRRs elderly guidance is lacking, and such eminence and reign over commanding snowy peaks of science, none of the generation have. Those even nurtured by him, has journeyed to foot-hills. The Authors honesty is their only guide. Editor can help a bit, and it is done with supreme satisfaction. ILA left the Editors free in decision making, is a good managerial component. If the authors and participants march in the path of science with understanding, the gates of a prosperous and rich profession, are ready to open to 21st century. Self-discipline, self-regulation, introspection, and scientific path are the watch words for the young and mature professionals. Dr. SRR is sure to bless such efforts, even from the nether worlds. Amen.

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Editor-in-Chief

ABSTRACT

K Vijayalakshmi—Emerging Trends and tasks before 21st century libraries 1

We are in the age of fast technological change coupled with information explosion. This has not only given rise to a number of specialised information centres in every country but also led to the awareness of the disirability of having some type of co-ordination and cooperation. All these factors have profound impact on the complexities of management and organization of libraries. There is a growing consensus that information as a vital input, which will play a pivotal role in determining the tasks before an organization, which holds a competitive advantage in meeting the intensive challenges of the future—21st century. The main task before libraries of 21st century is to explore the potential of new technology, and to give a leap to the profession to achieve the task of universal mission of the profession in the 21st century, instead of presenting the pale reflection of the requirements of libraries.

Dr Amit Kumar Chattopadhyay and NK KHATRI—Libraries in 2000—Technology Trends 7

The paper analyses change factors in broader social and environmental context and identifies technology as one of the most important change factor in growth of social organizations, specially libraries. Assesses impact of technology on various constituents of library and possible future impact. Describes a few innovative technologies that are going to be used in Indian libraries in near future.

SK SHARMA—Computer Networks—A Boon for Library Development 13

The application of computers in libraries has been steadily growing but they are going to be more meaningful in 21st century. With the help of networking, technology, production, processing and dissemination of information will be common, and change the lifestyle of the world's literate population. CALIBNET, DELNET and INFLIBNET and other major cities networks of India, have generated a lot of interest for librarians in India. The environment for libraries and information networks in India are picking up, but needs large sum of money in developing network.

MAHESH V MUDHOL—2001: Paperless Society/Electronic Library 25

S GOPALKRISHNAN—Multimedia Information System:
A Need for To-morrow's Library 29

Infusion of technologies into creative process leads to new technology which enters into creative spheres at varying speed over different routes. Development in computer technology and different applications of newer technology, provides methodologies for the integration of different perspectives of information management. It is quite clear that qualitative changes in the nature of information storage and retrieval has taken place. Multimedia information system have come in a big way for retrieval of the enormous output of information combining the concepts of time, space and precision.

SUKHDEV SINGH, DIBAKAR RAY and SURINDER KUMAR GABA—
Internet and its Resourses for the Health Information Scientist 35

SUKHDEV SINGH—Academic Libraries in the 21st Century:
Indian Scene 57

The libraries of 21st century will be the "Electronic Information Centres" and most of the information resources in these centres will be available 'on-line'. University and post-graduate college libraries will be fully computerised and will be participating in the local, national and international networks, whereas the small college and school libraries may not be in a position to do so, due to limited financial resources. Most of the publications, particularly the scientific books and journals would be in the electronic form. The full-text databases would become more popular. The secondary publications would be available in electronic form only, whereas some primary journals and books in the field of social sciences, humanities and literature would continue in the conventional paper form also. Classification of the library material in the electronic form would continue though to a lesser extent, whereas the library catalogues would grow conceptually, but not physically. They would contain pointers to vast array of publications that can be accessed through electronic networks.

The libraries of the 21st century will be de-institutionalized. The Librarian will act as Information Scientists and Information Consultants. They will perform the information analysis functions, and

will be working as equal members of the research teams in the academic institutions. Infact, they will be the information managers of their institutions.

DR LN VERMA and JMS RATHORE—National AGricultural Engineering Information Systems (NAEIS)—A Proposal 64

Agricultural Engineering has become an independent and vast subject. It has its direct bearing on agriculture which occupies a pivotal position in Indian social life. Enough attention should be paid to the development of Agricultural Engineering by forming an information system. In India there are a number of Agricultural Universities, ICAR and other Research Institutes, working in the field of Agricultural Engineering. A mass of literature on Agricultural Engineering is available in these organisations, but the main problem is how to collect, process and transfer the required information in an organised way to Research Scholars, Scientists, Planners, Teachers and Farmers, who are the ultimate utilisers of the results. This calls for having a National Agricultural Engineering Information System (NAEIS). The paper presents the Objectives, Services and Structure of the proposed NAEIS in India.

SUNIL KUMAR and S SRIDHARAN—Information Need and Processing for Small Scale Industries (SSI's): A Quest for Information Network in 21st Century 69

Traces the genesis of libraries and discusses their history ever since the ancient times in India. Gives an evolutionary account of libraries upto the British period and points out that even the modern libraries in the beginning were intended for the previleged classes of society. Discusses about the condition of school college, university and public libraries and asserts that they play a pivotal role for socio-economic development. Stresses the need for coordination between the public libraries and adult education departments for fulfilment of the task of eradicating illiteracy at a speedy pace. Narrates the need to introduce computers in University Libraries and enacting of uniform library legislation for the States on the lines of the ILAs Model Act drafted by Dr Velaga Venkatappaiah. Advocates that it is essential to allocate 6.25% of the Education budget for libraries and formulate procedure for Central assistance to libraries. Mentions about the necessity for enhanced help to libraries through UGC and RRRLF.

MS BS SWAROOP RANI and MRS S ALLY SORNAM—Network Scenario: Pharmanet 76

The paper discusses

(i) Present network scenario

(ii) Proposes pharmanet

(iii) Explains the organisational structure and functions

PRABHASH NARAYANA RATH, SRF, SUCHARITA SAHU and NIKHIL KUMAR JAS—Standards for Library and Information Services: A Proposal for the Twenty First Century 82

Defines standard and traces the history of standardisation. Enumerates the leading standards on library and information work and services. Identifies the new and emerging areas which require standardisation for the 21st century. Highlights the standards developed by the ISI pertaining to different areas of information work and service.

DEBAL C KAR—An Inexpensive Approach of Library Computerization: An Experience 88

Determining Hardware and Software available suitable to the subject group of library and the financial commitment is the first step. An extensive literature survey reveals institution problems, Applications, Functions, capabilities, conversions, Software Packages. Beginning from them operations, Information Retrieval, reasonably library activities could be computerised, learning and while doing and sharing experiences with Professionals.

NM MALWAD: PUTTABASAVAIAH—Role of Academic Libraries in Higher Education and Research: A Case Study of JRD Tata Memorial Library 100

The role of academic libraries in higher education and R&D activities of the country is significant in providing the much needed bibliographic information. The JRD Tata Memorial Library of the

Indian Institute of Science is one such library which has helped to boost the higher education and R&D activities in the last eight decades. The technological changes in the country have changed the environment of the libraries. The paper discusses the various services rendered by the JRD Tata Memorial Library particularly the services which are unique and computerization and modernization of the library in progress and in plan.

BK PRASAD—Computerisation of House Keeping Operations of Planning Commission Library 110

The paper is discussing in brief the development activities and services of Planning Commission Library and the challenge of managing information through Computer, with a glimpse of service that will be adopted in future.

SRI SATYABRATA SEN—Preparing Public Libraries for 21st Century 114

Draws the attention on the necessity of re-drafting of all the Public Library Acts of India, after a comparative study of "Purpose Statements" and "Definitions" of the Eight Acts, where no indication is found that Public Library Service is meant for `Life Long Self Education'.

In Chapter-II, the anamolous positions with respect respect to 'Integration of Public Library Service', 'Provision of resources and its sharing', 'Role of Govt and other Agencies; and the Role of the Library Professionals—their position and training', are discussed.

A supporting wing of Central Co-ordinating Forum by converting RRRLF into such a wing, is needed, to effect redrafting of the library Acts.

AMIT KUMAR BANDYOPADHYAY—Public Libraries of West Bengal—A Proposal for their Upliftment Towards the 21st Century 123

Development of public libraries in pre- and post-independence era, short comings of the WB Pub Lib Act and present condition of the

libraries are highlighted. Need for information service and network formation is discussed. Major recommendations are: implementation of NAPLIS; revision of the Act assuring free library service for all, 6% of Education budget for libraries, integrated network of the libraries, District libs under direct Govt control, more power to State Library Council, Immediate Gazette Notification of library names, providing computers to DLs and telephones to Rural libs and bringing them all under a State network connected through NICNET, converting libraries to community information centres, drawing resources from all official agencies concerned, increasing number of libraries, scientific staff pattern, 15% increase in book fund per year, regular payment of staff salary, publishing popular scientific books in local dialect and preparing AV materials at SCL etc.

Dr RK BARMAN—Public Library System in Assam: At the Door of 21st Century 136

Traces the history, growth & development, since Independence of public libraries. Statistically analyses the coverage of public library services. Regrets for poor budgetary provisions and suggests to link the budgets to prices of books and journals and increasing number of readers.

Urges improvement of the library services by enacting the Library Legislation and ensuring better service conditions for library workers. Suggests the library professionals that better readers' services could be rendered by applying modern Information Technology. Advocates to revive Assam Library Association to fight for development of the profession and spread of knowledge.

Dr KHOMDON SINGH (TH)—Public Libraries Act of Manipur: A Preparation for Twenty First Century Library System 149

Defines library legislation. Gives the reason why it is needd in India and enumerates the number of states with library legislation. Introduces Manipur and its library movement. Narrates about the Public Libraries Act of Manipur. Gives some suggestions for 21st Century library system. Concludes with a hope of earliest implimentation of the Manipur Public libraries Act.

ANNAPURNA DEVI—Information Technology and Children 154

With the rapid advancement of to-day's Science and Technology, the modern Library is expected to be the pivot around which the information system is surrounded. Library is expected to provide right information in minimum possible period of time.

The children of our country are still left far behind. They are in need of library of their own. They are expected to be library oriented. Children of present world are becoming day by day more inquisitive. They ar fond of new innovations, mainly the electronic world. Impact of Information Technology on the children will be a grand success. The advancement of information technology has made possible the accessibility to world information and knowledge.

The previous technological innovations in libraries are now found outdated. So advent of automation has been felt strongly. While the development of the nation is concerned, library service to the children is vital. It is now expected that the children of our country will get libraries equipped with science and technology which will ease the information system to our youg folks.

The Information Technology has a wide meaning and the present world is running depending on the information technology which includes different types of communication technologies. So it is sure that in the 21st century our children will be amidst this information world, through libraries of their own.

MARY GEORGE CHACKO—The School Library as a Major Educational Factor in the Twentyfirst Century 159

The choice of books for children and school students is emphasised as an important aspect of promoting use of libraries. School library education has been included as an important factor in the new curriculum and the age old concept of the role of the school librarian has been modified to suit the changing needs and demands of the environment of the 12st century.

As a base model, Loyola High School Library, Pune has been selected to study the possible methods of adaptation, improvements and modifications which could lead to maximum utilisation of the library resources. Various aspects such as proper and best utilisation of the existing space and present facilities, preparing programmes for promoting awareness of library use and deriving maximum benefit, especially to secondary school students, have been extensively investigated.

Since the growing individual's first encounter with the library is at school level, this vital aspect of student-library relationship at the social level needs to be explored and investigated for the needed appropriate changes and modifications.

This paper attempts to highlight some of these aspects of redesigning and equipping the present school libraries for the challenge of the 21st century, in 6 phases.

R SUMAN—Human Factors in Information Seeking Behaviour: The Emerging Research Paradigm in the 21st Century 174

For the past 2 Centuries Society has undergone a series of unpreditable changes from contemporary to the present information based society. An overview of these changes shows that the machines have dominated metaphor for viewing the world. But during this process the most important factor ie., "Human Factor" has been completely overlooked by the researchers and least importance attached to in research.

A new Paradigm has arisen, it promotes holistic thinking and recognition of multiple options for dealing with the world, and attempts to find ways and means constantly to provide the information suitable to the needs of the individuals.

Although the profession has incorporated the new issues and challanges of Computer and Information Technology in their Library Operations, Practice, the field is now thinking in new ways, and new methods to handle human factors.

A very strong area of research in library and information science and under-stands 'Why' and How' people use libraries and other do not and factors affecting the information use. More focus is concentrated on information seeking, processing and use to be seen as a construction process.

Mrs SANGITA GUPTA—Manpower Development for Handling Modern Libraries 182

LIS Faculties in India should orient syllabi and training to equip Libraries with Manpower famaliar with computerisation and networking. The LIS Faculties should have a Computer Laboratory, orientation courses for the Faculty, and Accreditation for the courses or

atleast teaching and learning through recorded searches on Audio-Video media, if needed in cooperation with private publishers and agencies willing to cooperate.

Mrs NAVJOT KAUR—University Library Information Services: Same or Different 187

Inspite of Computer Age, conventional systems will coexist. A Technological change needs human leadership to cultivate into changing culture with managerial skill. The computer age would demand more and better personalised service. To master the incoming changes needs preparation time for LIS Professionals.

NK KHATRI and Dr P PICHAPPAN—Cost Escalation and Reprint Acquisition in Future Libraries 193

Due to the high cost of serials, their acquisition in libraries poses a real challenge. To meet this challenge reprint acquisition helps largely. This brief survey analyses the reprint use among Agriculture, Biological Science, Chemistry and Marine Science Scientists. The role of libraries in reprint information dissemination is found to be low. This study concludes that libraries in future will have a major role in reprint service.

Dr V VENKATARAMANA and C PRADEEP—Bibliometric Study of Serial Publications Projections for Resource Sharing 197

The resource crunch crippled the economies of the institutional libraries of higher learning, leading to ever changing financial scenario needing structural changes in the management of Library and Information Services. The economic environment and the ever increasing prices compelled the librarians to prune their serials acquisition annually, which do not satisfy Library's real requirements. Presents the latest trends in price escalations of serials acquisition and draws attention of the information managers how to combat the changing financial environment. The differential pricing pattern in relation to bank rates and UGC/GOC conversion rates applicable for journal subscriptions are discussed with examples. Suggests to adopt a

more pragmatic view to circumvent the serious financial squeeze of the research libraries and their information requirements. Foresight of economies and funds saving methods by Resource Sharing and Grading of Periodicals to serve the user community more effectively are discussed.

LEENA SHAH and S KUMAR—Public Libraries of 21st Century 218

Deals with technological advancements in libraries and in daily use like coal, gas, steel etc. Finds out steps taken by government in developing networks in daily use like ENVIS, NIC, DISNIC, GISNIC, CRISP, etc. Imagines the technological advancement of tomorrow and its effect on libraries. Also imagines the libraries of 21st century. Discusses network and networking. Provides an account of present scene of public libraries of today and suggests for thir automation and modernization. Suggests for public library networks like PUBNET, SPLIN, SISPUB. Also suggests possible modification in public library acts.

Dr B RAMESH BABU—Automation of Public Library Services in India: Myth or Reality 229

Traces the development of Public Libraries in India. An overview of the present status of Public libraries is presented. Brings out the role of computers and its applications in library operations. Advantages of Information Technology (IT) to libraries are enumerated. In the Indian context, the constraints in the use of computers in the Public Libraries are identified: such as lack of planned growth of libraries, attitude of library staff, lack of trained staff, user's attitude, and economic constraints etc. The pessimestic and optimistic views of automation of Public Library Services in India are presented. Concludes objectively towards the change for automation by 21st century.

Dr BN MISHRA—Scope for Inflibnet in Bihar A Study 235

Bihar has many libraries and oflate the libraries are unable to acquire resources because of rising prices and fall in Budgets. Inflibnet proposals, if implemented Sectorally and Regionally, according to a model plan, would yield immediate results, in place of scattered development in modernisation.

SC JOSHI—Continuing Education in Library and Information Science 241

Explains the concept, meaning and aims of Continuing Education. Discusses the need of Continuing Education on the basis of Information Explosion and development of Information technology. Highlights the factors who play an important role in deciding matters that effect information service. Stresses the planned rotation of courses and development of evaluation methods. Suggests for an essentiality of Code of Conduct for the professionals of the profession. Concludes by stressing that Continuing Education is very much important for all professionals of service team.

Smt K SUGATRI DEVI—Networking of Library and Information Science Education through Distance mode in India 252

The conventional method of teaching is expensive and inflexible. The need for an alternative system of education has gien rise to the concept of Distance Education. In recent years, some Universities are offering Library and Information Science education through Distance mode. In India, there are nearly 10 Universities/Institutes, offering different courses in Library and Information Science Education through distance teaching.

There is no co-ordination between these Universities. A proper networking and co-operation among these universities can save a lot of money and manpower. In other developed countries like UK, USA and Australia, they have already developed a most effective networking of Open Universities through computer terminals. However, in our country which is still in developing stage, application of modern technologies is not yet possible, but the Open Universities in India can co-operate with each other in certain fields, like joint production of study materials, contact classes, student services, co-operation in training and personnel exchanges etc. Proper networking among the Distance teaching Universities can reduce costs, bring about qualitative improvement in DE programmes.

WOOMA SANKAR DEV NATH—Preparing Libraries for Distance Education 260

Refers to the general concept of Distance Education, its philosophy and history traced back to the eighteenth century. Traces out the target groups for whom the distance education is actually fit for. Discusses

the need of library services in distance education and probable role of public libraries to be played in future, catering to the needs of distance learners. Points out some of the inpediments for proper development ie less exposure to computer, rural background, inadequate library facilities in the study centres etc. Suggests enactment of library legislation on Govt concurrence at National and State level, rejuvenation of public library system by providing extra funds, personnel, equipment etc. Identification of college libraries with good resources, for facilitating distance learners in their respective areas is looked into.

G SURYA RAO and G E P ABBULU—VILIBNET: A Proposed LAN for Sharing Resources 268

The ideas of Information Networks and their need are expressed briefly. The common factors to be taken into consideration in planning networks are explained. The objectives of networks, their functions, structure, model and the resources are outlined. The proposed VILIBNET is described in its various facets. The information needs of academic, R&D institutions and industrial organisations existing in Visakhapatnam are surveyed. The proposed model, the functions, services etc of VILIBNET are indicated. Provision of library grants from UGC, Government of India and the parent institutions/ organisations are suggested for the development of VILIBNET.

MK MOHANDAS and Dr KC SHET—KREC Campus Networking Project: A Case Study 279

Karnataka Regional Engineering College (KREC) is one of the renowned institutions and is best among 17 RECs in the country with all infrastructure in tune with modern technology especially Information Technology. The college has proposed a network which is expected to meet the information dissemination, assimilation requirements of the various departments in the campus. The primary objective is to cater the needs of faculty, students of under graduate, post graduate and research scholars, nearing 2000 in the academic work. The secondary objective is to help the neighbouring Engineering Colleges, Industries, Government of India, and interact with NICNET, Universities, IITs etc. When the network is fully operational, it will be connected to national grid, world wide information could be supplied to the user from various databases.

BINA (MEDHI) LAHKAR—GULNET: A Study for Guwahati Library Network 288

Computerized library network at city level is found to be most appropriate for enhancing library service standard. Such a networking system is greatly felt in Guwahati, which is the only city of this region. The article discusses in depth about the establishment of a such programme namely GULNET for Guwahati to work for the betterment of library services in this area.

SC SRIVASTAVA—Resource Sharing of Information in Engineering & Technical Institutions-Uttar Pradesh 292

Views educational growth in UP, as a backdrop to Engineering and Technical Education and Institutions. Insufficiency of indivisual resources of a Technical Institute to satisfy information needs, lack of finance leave no way, except Resource Sharing through subject oriented Networks and services, to optimise utilization.

G THAMARAI SELVI—Preparing Libraries for Twenty First Century 297

Newer tools and techniques of information technology have to be invented and implemented to keep pace with information and to prepare libraries for 21st century. The computers have pointed the way to an automated information society through local, regional, national and international communication networks. For the future it is better to implement new technologies like, Electronic mail, Electronics Journal, Document Delivery, On-line search, FAX, Video-tex, Teletext etc and the storage medias like magnetic disc, CD-ROM discs, Optical laser discs etc which has phenomenal storage capacity. Standardisation is necessary in the field of computerisation of compatibility, exchange, economy in costs & efforts. Networking and Computerised Information Retrieval systems, will maximize the user's satisfaction. Proper education & training must be provided to the Library staff, to cope up with the 21st century. The Librarians of 21st century will be able to sit at a workstation, and call up library catalogue, bibliographic databases and other internal systems.

AMJAD ALI—Resource Sharing Among ETV Libraries 302

Defines the scope of the Educational Television in India, its growth and suitability as a medium of instruction and enrichment. Reference has been made to the attempts in automation of ETV libraries, and the development of software packages with the possibility of networking and resource sharing. By way of networking, not only the desired programmes may be made available for the purpose of preview but also the cost of ETV production will be minimized, through the mutual understanding and use of the stock footage of the participating agencies.

ON CHAUBEY and AP GAKHAR—Resource Sharing: A Historical Perspective and A Vision for the Future 307

Traces the history of cooperation and resource sharing. Need of resource sharing is established on the basis of diminishing monetary resources, explosion of knowledge and its quantitative and qualitative expansion. Paper also provides Ancient history of resource sharing and then discuses developments of 1970s & 1980s when this idea became very popular. Challenges being faced by the libraries on resource sharing front and technological front in 1990 have been analysed. It discusses in detail the future of resource sharing in 21st Century.

Dr (Mrs) D RAJYALAKSHMI—Resource Sharing through Networks: Current Scenario 315

Discusses the changing role of Libraries, need for resource sharing, objectives for planning resource sharing networks, the factors controlling the network development, Global Online Information Systems and Networks and their access; the current Scenario of the existing and proposed networks in India and their role in optimization of resource sharing.

V VIJAYASUDHA and BN RANGASWAMY—Resource Sharing and Networking 336

Presents an over view of networking in west and in India and also

stresses the need for resource sharing through networks for the effective and optimum utilisation of resources available within the limited finances. Includes brief descriptions of networks in the western countries and some of those being experimented in India. Suggests national and regional resource centres. In addition it is suggested that the concept should be taught in library schools as an integral part of the curriculum.

Dr AK BARADOL—The Information Services-changes in the 21st Century 349

The paper describes the inevitable change in the information services in 21st century due to the information technology. Explains how the CD-ROM can set a new trend in the information services. Briefly discusses the computeised databases in India. Stresses the need for standardization in the information services for the eventual linkage of information centres, through the networking. Mentions the changes made in commercially available current awareness services. Describes the role of government through public sector in information services. Examines the participation of private agencies in the information services.

GOLAM AMBIA—Resource-sharing and Computerised Library Networks in India 355

The importance of information as a vital resource to today's society. The costs of information products and services have made it mandatory for libraries to avoid duplication and automate their services and share the resource through networking. The planning Commission had set up a working group on modernisation of library and Information services for the Seventh Five year plan (1985-90) to suggest measures to network important libraries in the country, so that their resource could be shared for optimum utilisation.

K KALIYAPERUMAL, Dr B RAMESH BABU and K THANDAVAMOORTHY—Emergence of OPAC's in the Twenty First Century 363

The Online Public Access Catalog (OPAC) is of recent origin, making a trend towards library automation and networking activities.

This paper attempts to define the concept of traditional library catalog and also OPACs. The advantages of OPACs in relation to the traditional catalog are enumerated. Brings out the differences between OPAC and Card Catalog and Information Retrieval System (IRS). The research works carried on OPAC and its utility in the recent years along with the findings and implications of the studies are described. Ends with a few guidelines for the future designers of OPAC in a information centre.

RC GUPTA and RC SATIYA—Changing Media of Concept Recording and Handling 370

Communication is human nature. Communication media has always been changing its shape, in information recording and dissemination, for its storage and retrieval. From stone to paper, has crossed different stages of civilisation. Advancing technology is replacing recording media for better elegance, longer life, safer handling, faster recording, search and output, more storage capacity in shorter space.

In the next century, advanced `electronic media' will replace `hard copy' concept to `multi media based computer aided' concept recording on microforms, audio, vedeo tapes and cassetes, compact discs, and telecommunication based information transfer process.

The global information is becoming a common resource, to be shared by its seekers and servers, crossing the barriers of language, distance, time and so on, resu ting in a free flow of information to all without any discremination. The dream of great thinker; Dr SR Ranganathan: "Information is for use and information is for all "folowing the age old Indian slogan "Vasudhaiv Kutumbakam"—the whole world is a family, is going to be true by 'resource sharing' through 'integrated network system' at 'global', 'national' and 'local' levels in the 21st century.

Dr CK RAMAIAH—CD-ROM Networking: State of the Art 374

Although Compact Disc-Read Only Memory (CD-ROM) technology has solved the major problems like storing and retrieving of vast amounts of data, still those systems can be used by a single user at a time which is again a bottle-neck. This paper describes the ways of networking of CD-ROM drives such as peer-to-peer networking, client-

server networking and operating system-based networking. It also describes the advantages and disadvantages of various types of networking CD-ROMs, such as CD Net, LANtastic, EZ-Net, OPTI-Net, Multi-Platter and Novell Netware software. This paper also reviews all the CD-ROM sharing products like SCSI Express, Digital Solutions, CD Share, Corel SCSI, Microtest Discport, Map Assist, CD-ROM Jukebox, CD Net LAN Software, Virtual Microsystems, CD Works 1000, CD Server, Netscribe 1000 Server and CD Connection. The Optical disk libraries and their basic structure, jukebox systems and their need in Indian context was also discussed. The advantages and disadvantages of CD-ROM and online databases and their usage cost is also studied. Finally suggests options, risks and opportunities of these systems to libraies and information centres to the developing countries, especially for INDIA.

Dr C SASIKALA—The Role of Multimedia in India Libraries of the Future—Some Observations 394

The aim of the paper is to present a general introduction to different kinds of Audio-Visual and multi-media materials and their expected role in the libraries of the future in India. It also traces various technological developments that have taken place in India, especially in the telecommunication and computer application areas. Some suggestions are also offered for improving the existing situation in the country by the extended and integrated use of Audio-Visual materials, computer technology and telecommunication facilities.

Dr JAGTAR SINGH—Online Service for Library and Information Specialists: A Study of the Creations, Permeations and Limitations 401

Local Area Networks (LANs) and Wide Area Networks (WANs) have made grown into a virtual library in reality. The amount of online services on computer networks is growing rapidly. The growth and development of computer networks and the availability of networked information, is a big challenge as well as a chance for the LIS specialists and the end-users. Online services are becoming more valuable, in view of the increasing serial prices, monopoly by the commercial publishers and shrinking library resources. In the networked environment, scholars and librarians are becoming publishers, and electronic journals are coming up as an alternative to the printed journals.

The inadequate awareness, organization and availability of the networked information and poor access to it are the main problem today. In this context, there is a strong need to determine the new role of library and information specialists and train them in making the networked information available to the end-users. LIS faculties are required to teach about networks and use networks in teaching. Janet in the UK. Internet and Bitnet in the USA, and Ernet in India are the basic links' whereas, gophers, bulletin boards and mailing lists on these networks are the routes to the mines of online information. This paper gives an overview of the available networked services for LIS specialists and discusses pertinent problems and prospects of network-based information services with special reference to India.

RC GAUR—Emergence of Tele Society: A Vision of 2000 AD 417

The latest development in the field of computers, telecommunications, and multimedia technologies has changed the entire information communication scenario the world over. The emergence of Value Added Network Services (VANS) begins a new era. In information age the medium of communication of information is electronic media, majority of the workforce using electronic tools and techniques. On the basis of technological developments, word has moved from Agrarian Society to Knowledge Based Society or Information Society. Will the information scenarion of 2000 AD, a Tele Society where every information will be available through on-line services or tele services.

Dr SR IJARI and Dr BU KANNAPPANAVAR—Collection Development of Public Libraries in Karnataka 426

Role of financial resources and the cess collection under the Act Guidelines stored in the way, there helping collection develop.

SL SANGAM and PV KONNUR—Public Relations Activities in Karnataka State Public Libraries 435

Discussion the importance of public relations activities in furthering the effectiveness of the services rendered by public libraries.

Proposes a scheme of PR activites for Karnataka Public Library System involving advertising and publicity, multimedia, extension and educational activities. Stresses the need for proper training of public library staff regarding public relations activities to make them capable of communicating the essence of the library to their clientele.

Dr BU KANNAPPANVAR and CR BHAT—Integration of Rural Library Services with Adult Education & Illiteracy Eradiction 440

Advocates intearacion of different agencies in Panchayat and Municipal levels, alongwith Adult Education & Illiteracy eradication, in consonance with objectives of PLS.

J VIJAYAKUMARI, C SASICALA and K SOMASEKHAR RAO—Problems of Grey Literature for Future Libraries—Some Suggestions 443

Grey literature does not follow the rules applied for conventional literature. The bibliographic presentation of grey literature is generally very poor. Attempts to explain the importance of various categories of grey literature with a special emphasis on the problems of accessibility to the grey literature. Offers some solutions and suggestions to overcome these problems. The article discusses about various services in different countries, facilitating the access to special categories of grey literature.

KEYA BASU—21st Century Library: A Glimpse of the Future 457

It is an era of unprecendented growth of Information, a technological renaissance. The information systems of our country is not effective because of inadequate financial support from Government, inadequate attention to the systematic collection, control, dissemination and perservation of resources. To enter 21st century successfully, an effective National Information Policy is required. Upliftment of rural library service, providing library services to the handicapped and underprivileged persons, development of School, College and University library, proper user education are also required for achieving our goal. A nationwide NETWORK programme, proper utilisation of services of professional librarians are envisaged.

Dr ABBAS IBRAHIM—Role of Government and Non-Government Agencies on Preparing Libraries for the 21st Century 466

India has no National policy or National planning for Library and Information services, even after forty seven years of Independence. This paper initiates to formulate a National Information Policy (NIP). Indicates a general outline of National Planning for Library. Information, and Database Services. Proposes for a Comprehensive National Legislation for creating UGC type of National funding agency for public library system, and to promote electronic Online Age and Database Industry, for handling Library and Industrial Information, both in Private and Public Sectors. Suggests for the development of Multi-disciplinary Manpower, for handling Library and Industrial Information, involving: Information, Computer, Communication, and Management Sciences. Targeting to convert Information Management into Information Marketing Management both in Private and Public Sectors, conducive to the evolution of new economic Liberalisation policy, to ensure Information handling with accountability for Technology transfer and Export promotion.

MADHURI ARORA—Library Volunteer Force: An Answer to the Challenges of the Twenty First Century 471

The caring instinct in the library 'users' community is to be organised to become library volunteers to render service during free time, under the guidance of the library staff. Some works of the library need short term training, but some other works do not need any training. Roaster duties, Supervision, of work, are essentials in management, and as a policy to encourage such participation, incentives should be given. Growing libraries with increasing work loads, cut in budgets and lack of library staff, are compensated by drawing on library volunteers.

Dr JANAK RAJ—Promoting Reading Habit and Library Use 476

The paper discusses the concept of library not as a place but a process. Besides reading, adds seeing and listening, also as means of information transfer in view of the adoption of communication technology used in libraries. Throws light on uncontrollable and controllable detractors of library use and reading habit. Purpose and process of education are discussed at length. Measures suggested are

based on three premises. First premise is based on author's personal experience and for second and third, the author banks upon experiment at Hampshire College.

CP PHARANDE—In Search of Pilgrim City: AN Exploration into the Manuscripts Collections at the Holy Place 'Pandharpur' 488

Brief historical account of learning tradition has been taken in the beginning, followed by the importance of holy city Pandharpur by throwing light on its emergence both mythological, historical and logical. Some prominent Mathas, institutions have been described with their holdings. Review has been taken of the needs, of these Mathas, for preservation and conservation. Need of Government intervention has been identified at the end, in order to protect the treasure of knowledge from deterioration.

Dr HS CHOPRA—Future of an Indian Manuscript Library 494

Collection of manuscripts, acquisition, cataloguing and classification of the manuscripts, has been discussed. Care and preservation of the manuscriipts is an important aspect. Manuscripts can be preserved for posterity with the help of various insecticidal herbs and leaves of some medicinal plants. Microfilming of the manuscripts is the latest solution for the preservation. As manuscripts are the real heritage of our country, proper care in preservation is very essential.

Dr LOKESH SHARM and Mrs MADHU SHARMA—Work Environment, Organisational Role, Stress and Job Involvement Among Library Professionals in India: Reflections for Today and Tomorrow 503

Defines the concepts Work Environment, Organisational Role Stress and Job Involvement. Data collected for exploratory study conducted on 184 Male and Female Professionals of three library positions, ie, PA PJ and PS of college and universities in Delhi, on analysis and application of Mean, Standard Deviation, t-test,

coefficient of correlation and Stepwise Multiple Regression Analysis reveals that (1) JNU Library professionals are significantly less job involved than the DU and DUC Library Professionals. Significant differences are not evident between JNU and JMI Library Professionals. However, DUC Library Professionals have the highest job involvement among all, (2) there is no significant differences between male and Female Library Professionals, (3) Significant differences are not evident between any two Professionals Library Positions (ie, PA PJ and PS), (4) Role Expectation Conflict and Role Stagnation (ORS variables) have got the predictive value of Job Involvement in the Population. Significant differences are not seen on Work Environment between Professionals of two groups of Libraries, male and female and the three professional library positions. In the light of the findings of the empirical study, measures suggested to make library professional highly job involved in future.

R SAMYUKTHA and KS RAGHAVAN—Self-Image of Library and Information Professionals 515

Studying libraries in the social context also necessitates the study of the people who run and manage the libraries namely librarians, from a sociological point of view. The two major components of any such study are an assessment of how library and information professionals (LIPs) define and view the work they do (self-image) and the consumer's perception of what LIPs do or are supposed to do. This study is primarily concerned with the first compnent 'SELF-IMAGE' of LIPs and an attempt has been made to identify the relationship between self-image of the LIPs and certain demographic and job characteristics.

N PARAMESWARAN—College Library System: A Critical Evaluation of VP Joy Committee Report 532

The paper evaluates the recommendations of the Expert Committee on College Libries for; creating and maintaining wide reading habit and love of books among students, planned development of the college library and need for improvement of the qualification and status of the college libraries to enable him to have a clear understanding of academic objectives of the college.

ABDUL MAJID BABA—Evaluation of Library & Information Science Departments of the Universities of India 541

The universities presently are conducting LIS courses at the various levels, their Nominclature of the LIS Departments, Years of establishment of the Departments, Number of Faculty Members etc, are dealt with in a survey.

R RAMAN NAIR—Role and Status of College Librarians: Comparative Analysis of Ranganathan, Mehrotra and Joy Committee Reports 550

Analyses the academic roles played by teachers and librarians in a college to show how far disregarding of library services can affect the quality of teaching and learning. The qualifications required for the college librarians to fulfil their role and the status and service conditions essential for attracting and retaining competent persons and enabling their successful performance are reviewed on the basis of three committee reports, the recommendations of which require immediate implementation for quality improvement in higher education.

NM MALWAD—Cultivating Reading Habit 572

Perception of the twentyfirst century is guided by the latest technological developments. The familiar print material is being replaced with electronic non-material. The invasion of television, cable TV, video cassets, etc are threatening to shake the very foundation of reading. Therefore, it becomes more than ever before necessary, to study the topic of cultivating reading habit. The topic is concerned with preparation of the mind, making it more educative and more refined to form a habit of reading. A simple model of reading process has four aspects, namely, word perception, comprehension, reaction and assimilation. The reading process can be examined in terms of the model, reader finds-reads-uses.

The paper discusses various aspects of the reading process in the light of a reading model and identifies the role of libraries in cultivating the reading habit and in eradicating illiteracy.

Dr JN GAUTAM—Promoting Reading Tendency on Higher Level of Education: Practical Observations and Suggestions in Indian Context 580

Human intelligence needs training and guidance in the Educational System through classrooms and libraries. At all levels of Education in India, the drawback is a libray either absent, or not allowed to play its role, in contrast with the west. Education System in India should include, at all levels; library hours, self chosen assignments of students, Librarians Guidance, and Teacher-Librarian joint programmes. Libraries should be allowed to develop proper Subject and Reference collections and Services, so that students catch the path of self education.

AMRUTH SHERIKAR—Reading Habits by the Turn of the Twenty First Century 586

Highlights the reader, reading, its nature, different stages and aims and objectives of reading habits.

Growth in information technology, revolutionised the dimensions of library and reading approach. How the future library will be coping in the changed scenario, and the role played by the library and librarian in promoting reading a Reading Habit.

SANJAYA MISHRA—Library & Information Science Curriculum for the 21st Century 592

Result of a two-stage survey a LIS concepts and in the second round their gradation, supported by a Table. Points to paucity of literature on LIS curricula, except for UGC. High score subjects may go into syllabi as elective and the low/medium scored subjects be chosen for short term training/refresher courses.

2001: PAPERLESS SOCIETY/ELECTRONIC LIBRARY

MAHESH V MUDHOL*

1 ELECTRONIC SUBSTITUTE TO PAPER

Ever since the invention of printing from movable type in the middle of the fifteenth century and especially since the development of the scientific periodical some 200 years later, formal channels of professional communication have been very heavily based on printed documents. But can we assume that print-on-paper will always be the major vehicle for formal communication in science and other professional fields? Will paper be as important in the information systems of the year 2001 as it is today? No. The suggested alternative is an electronic substitute to paper based systems.

2 GROWTH OF SUBJECT LITERATURE

As science itself grows and the number of active scientists increases, so does the volume of literature generated by the scientific community. The growth of scientific literature itself has caused fairly widespread alarm and has been referred to in somewhat dramatic terms as the "literature explosion", the "information explosion", the "publication inflation" or the "publication pollution".

21 NECESSITY TO COMMUNICATE RESULTS

Formal communication is mostly communication by means of documents, usually documents in some printed form, whereas informal communication through conversations, face to face or by telephone. The conventional approaches to publication and distribution of science information will be unable to cope with a continued exponential growth of the subject. What then? Two major choices exist: (a) to deliberately restrict the amount of literature published and distributed, which would restrict the growth of science itself or (b) to find alternative methods of packaging and disseminating the results of scientific investigations and information.

211 Telecommunication Networks Help

Recent developments in the use of computers for the storage and retrieval of information, and in the use of telecommunication networks and

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packet switching services now offer exciting possibilities to improve information services.

3 COMPUTERS ON DESKS

Over the last 30 years, computers have become more compact, more powerful and cheaper to purchase and maintain. The first fully automatic computer, ENIAC (electronic numerical integrater and computer) which became operational in 1946, weighed 30 tons, contained 18,000 valves and diodes and occupied 1,500 square feet of floor space. Such monsters are of course now extinct as the dinosaur.

31 CHIP/HARD DISC MEMORY

Vary large quantities of information can be stored on magnetic disc and discrete items can be located and retrieved at high speed. Developments in micro-technology–especially the mass production of silicon chips containing integrated circuits, and hard-disc backing stores–enable relatively inexpensive microcomputers to be used for many library-related purposes. All the logic circuits and memory capacity of ENIAC could now be held on transistorised electronic circuit on a chip no bigger than one square inch. In-house data bases can be created either from local records or by down loading records from external databases to a microcomputer supplied with suitable software to configure the data into a local data base.

32 NETWORK OF COMPUTERS

Micro-computers, like their large cousins can now be linked together in networks, facilitating multiuser access. Even more bibliographic data are now accessible to any library which possesses a computer terminal or a computer with terminal emulation software.

33 ON LINE ACCESS TO DATABASES

One such data base, BIOSIS PREVIEWS.alone contains over 4 million records from 1969 to the present and adds around 30,000 new records each month. These records can be retrieved on line from vendors such as dialog retrieval services in California or the European Space Agency Information retrieval services (ESA/IRS) in Italy, both of which offer direct access to millions of records on dozens of data bases.

34 FULLTEXT DATABASES

Not only are bibliographic records available on line, but non-bibliographic databases are also proliferating, offering access directly to information rather than to bibliographic surrogates. Numerical data–in particular economic and demographic statistics are widely available on line. Given suitable software such numerical data is not only searchable but can be

manipulated on line to provide analysis, forecasts, modelling and so on. Full-text databases now provide on line access to a growing number of journals and reference works. DIALOG offers such files as the Academic Encyclopaedia and Everyman's Encyclopaedia.

35 ELECTRONIC JOURNALS

Electronic journals, such as learned information's Electronic Magazine, can now bypass print technology. Raw news items are assembled by contributors on word processors and then submitted on line to a parking file on the Direct Data System of ESA in Frascati, from where they can be down loaded to the journal's editing centre in Oxford, UK. Edited copy is then batch uploaded back to the ESA computer, from where it is available on line. Articles can be ready online, printed online.

36 VIDEO DISC STORAGE

Publication are also investigating electronic document delivery systems. Articles would be stored cheaply and compactly on video discs, retrospective searching could be made online, and retrieved articles then transmitted from a central video disc bank on line, to the requester's address.

361 VIDEO TEXT

Another form of online access to information is offered by video-tex systems, of which the British PRESTEL service was the forerunner. Information, often of a general rather, than a specialised kind, can be found by using a modified television set and telephone.

4 ON-LINE CONSULTATION FROM HOME

Within the library, users may now access a catalogue of holdings online rather than via card or microform catalogue. Such as Online Public Access Catalogue (OPAC) informs the reader not only whether a book is in the library's stock, but also whether it is currently on loan. The OPAC terminals need not be confined to the library. In the case of a university, for example, they can be located in the various teaching departments, thus permitting access to the library catalogue, without necessitating physical presence in the library building.

41 DEVELOPMENT OF INFORMATION MARKET

The United States took an early lead in the development and implementation of information technology (paperless information systems), followed by Western Europe. The largest vendors of online information, for example, are in the US, although Europe now has a challenge in the European Space Agency information retrieval service. In India, some

organisations like National Aeronautical Laboratory (NAL), Bhabha Atomic Research Centre (BARC) are using such services.

42 SOCIAL MORES TO CHANGE

The paperless communication environment has profound implications or many individuals and institutions including writers, publishers, libraries, information centres and consumers of information. The paperless society is almsot at our doorstep. Now is the time for responsible organisations to study the implications of the rapid technological changes that are occuring for the operations of publishers, for the operations of libraries and information centres, and for the individual scientist as producer and user of information.

ACADEMIC LIBRARIES IN THE 21ST CENTURY: INDIAN SCENE

SUKHDEV SINGH*

0 INTRODUCTION

Academic libraries include School, College and University libraries. In India, the School libraries could not attain their importance upto the mark. Leaving aside a few good public schools, most of the schools have not cared to establish libraries, especially the government schools upto the high school level. The recently introduced 10+2 System of schooling has felt the need of libraries to some extent. The libraries have been established and posts of librarians have been sanctioned in the Senior Secondary Schools and also some grants have been provided by the state governments to promote the library culture in these schools. As the scope of the paper is to deal with the librarians of the 21st century, the school libraries are not being given weightage here, because very few schools will be having computerised libraries linked to various databases and information centres in the 21st century.

01 HIGHER EDUCATION

Having a glance at higher education in India, we find that there are now over 210 universities and 7600 colleges with students intake of nearly 5 million; as compared to 19 universities, 650 colleges and 2.5 lakh students in 1947.[1] This shows the expansion of higher education at a phenomenal rate. Some colleges and universities have very good libraries attached to them. some outstanding Post Graduate colleges being given the status of autonomous colleges, will be having libraries of the university standards in the near future, as they will be having ample share of the state and central government grants to spend on their libraries. This paper concentrates on these two types of libraries ie. College and University libraries.

1 IMPACT OF TECHNOLOGY

The technology has affected each and every aspect of life. Computer technology, in particular, has changed the man's views about the society which is effecting changes at a fast rate. Computers have occupied important positions in all the important fields. Today, `on-line' computer terminals are

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available in Air lines, Railways, Banking, private enterprises, industries and the super markets. Electronic-Mail (e-mail) is becoming popular day by day. Computer-teleconferencing is no more a wild dream of the past but has already become a reality. Television sets are also being used as on-line-terminals for this purpose. A number of networks at the local, national and international level have come up to provide the up-to-date information from more than 6000 electronic databases available today which include a large number of bibliographic and scientific hard databases.[2]

11 INTERNATIONAL FIELD

Academic and research networks at the international level such as 'INTERNET'-the network of networks, BITNET (Because it is network), USENET, JANET, EURONET, SCANET, etc have brought the researchers of the world closer to each other.[3] They can seek the required information immediately while sitting at their own terminals. In India, general networks like ERNET, SIRNET, INDONET, NICNET, the library network INFLIBNET and the local networks like DELNET, CALIBNET, MALIBNET, etc have emerged in the last few years.[4]

2 LIBRARIES AND COMPUTERS

Computers have been and are being used successfully to do the routine house-jobs of the libraries such as acquisition of library material, the cataloguing of the acquired material, serial control, circulation, etc. The computerised libraries can provide better Current Awareness Service (CAS) and Selective Dissemination of Information (SDI) services. More and more library networks are coming up both at the global and the national level. On-level searching of databases–both bibliographic and non-bibliographic–is on the increase. One can interact with the databases available anywhere in the world from his own terminal. Of course, he has to pay for this type of information. At present, the charges of availing such information through on-line or off-line are quite exorbitant and beyond the reach of an average Indian user. These charges are now coming down to some extent, and may still be lower in the 21st century. The CD-ROM technology is helping to a great extent to cut down these costs. A large number of international databases are available on CD-ROM. The databases are updated from time to time by the manufacturers of these CD-ROM's.

21 VISIBLE TREND

In our country, small college libraries which have not adequate funds even to maintain their normal services, will not be able to computerise themselves. Only the university and research libraries and some of the autonomous post-graduate colleges, having sufficient financial support from the

central or state governments are being computerised and are able to be linked to the national and international networks. The tendency now is, more towards the science subjects than the social sciences, humanities and other subjects, and it would continue in the next century also.

3 PUBLISHING TRADE AND COMPUTERS

Computers are now being used for publishing books, journals and other reading material. The electronic publications are also available in the form of print on paper. In future, there is every possibility of production of some of the "Electronic Publications" exclusively. We are now in a transition phase of this evolutionary process. Machine readable databases exist, side by side with their paper equivalents. The former have not yet begun to replace the latter, eg., CAS, BIOSIS, MEDLARS, COMPENDEX, INSPEC and many other databases are now available in both the forms. Some new databases will come up in the electronic form only in the 21st century. These may be regarded as the "Reference Books" of the age of the electronics.[5]

31 MARKETING INFORMATION-IRRELEVANCY

At present, the developing countries like India, Pakistan, Sri Lanka, Bangladesh and many other are depending upon the information available with the developed countries. According to Prof PN Kaula, "In future, more and more databases and electronic journals will be forthcoming. Marketing of information from the developed countries to the developing ones is now being carried out, but it is limited to outdated and also irrelevant information in the larger databases. Only such relevant information should be marketed which is required for a specific purpose..."[6]

32 TWILIGHT AREAS

Electronic books and journals will be definitely easy to scan with the help of computers. So, there will be naturally human bent of mind towards Electronic form of publications in the coming 21st century. But, all the literature on different subjects or topics would not be available in the electronic form, particularly the whole research work in social sciences and all the literary works may not be converted into the computerised form. They may continue in the conventional form. No doubt, there may be gradual transformation of some of these works in the electronic form.

33 SECONDARY PUBLICATIONS

In case of secondary publications ie. indexing and abstracting services, which are now available in both the forms, there is likelihood that these services disappear in the paper form first, for these are easy to scan on the computers. The primary publications, particularly journals will follow,

slowly and steadily, and that too, not all of them. Some publishers of such journals may feel reluctant to switch over to electronic form, especially in the developing countries like India, as per the well-known saying. "Money makes the mare go" and this saying will hold good in the 21st century also. On the other hand, it is also said, that the electronic journals will be cheaper to produce than that of the paper form, as the cost of fine quality acid-free paper would also go much higher in future. FW Lancaster's forecast in the late seventies. "For economic reasons alone, the future seems to lie with electronic rather than the print on paper. Costs of data processing, of electronic storage and of telecommunications are falling rapidly while the cost of conventional publication are rising rapidly...."[7] will be true in the 21st century also.

4 FATE OF CLASSIFICATION AND CATALOGUING

41 CLASSIFICATION

There are two schools of thought regarding the classification of the library material of the future libraries. The advocates of the first school think tht heavily indexed text of the databases need not be classified. They say there could as many as one billions terminals in North America only by 2000 AD including home computers and domestic television receivers.[8] By 2001, the use of secondary publications as a means of accessing primary publications, will be completely by-passed for "current awareness" purposes, as notification of new articles, matching the interest profiles of the researchers, will be received in a few days after these articles are accepted, into the electronic journals. Thus, there will be no need to classify such material. The other view that the conventional form would continue, though to a lesser extent, supports the use of technique of classification in future also. Moreover, the use of like terms for different purposes would also continue. Such terms will have to be differentiated even in thesaurus also. So, there will be the need of classified thesauri and thesauro-facets.

42 CATALOGUING

As regards the catalogues of the 21st century libraries, they would contain entries for information resources that are accessible in electronic form as well as for those stored locally in the paper form. The library catalogues will grow rapidly conceptually but not physically. They would contain pointers to vast array of publications that can be accessed through electronic networks.[9]

Thus, the use of classification and cataloguing would continue in the 21st century academic libraries in one form or the other.

5 LIBRARY PROFESSION

With the change of the nature of material in the libraries, naturally there

will be change in the working and attitude of the library professionals. As most of the information sources will be available on-line, the literature searching function of the libraries could be performed even outside the library. When the major reference tools such as bibliographies, yearbooks, handbooks, directories, dictionaries, encyclopedias, etc are accessible on-line, the queries can also be answered likewise. Thus, according to Lancaster. "The librarians of the electronic age do not need to work within a library. They could perform their major professional functions in support of research from an office or, indeed from the home."[10] It is his belief tht "in the age of electronics the library as a collection of physical artifacts will decline substantially in importance. The Librarian, on the other hand, could gain substantially in importance in status and in recognition. The electronic librarian will be a valued and indeed indispensable information consultant and guide to information resources in electronic form."[11]

51 DE-INSTITUTIONALIZATION AND RE-INSTITUTIONALIZATION OF LIBRARIES

There will be de-institualization of the libraries. The libraries would not serve for a particular institution where these will be situated or installed. Lancaster has regarded "Re-institutionalization[12] as the more accurate and appropriate term as its substitute. As more and more information will be availbale on-line, the characteristics of the librarianship will also change accordingly. The remote databases regularly used by the researchers of a particular institution, will also be a part of the collection of that institutional library. The electronically accessible sources will become more important ultimately, than those stored locally on paper in a library. Thus, there will be completely de-institutionalization of libraries and their catalogues in the electronic age. Infact, it will be re-institutionalization, as Lancaster says.

6 ROLES AND FUNCTIONS OF THE 21ST CENTURY LIBRARIAN

61 ROLES

In the recent years, some de-institutionalization has occurred to some extent. Examples may be cited of the librarians of the private and industrial sector who offer a sort of information broker functions. They also participate as an integral part of health care teams. The magnitude and diversity of electronic resources available throughout the world place the skilled librarians as the information specialists in great demand.

62 FUNCTIONS

The skilled librarian will have to perform the following functions in the electronic age of 21st century.

621 S/he will function as an information scientist and information

consultant guiding the researcher in the direction of sources available on particular problems.

622 S/he will search sources which are not familiar to the users and against the users to these sources.

623 S/he himself well-trained, of course, will train the people to use the electronic information sources available in India and also throughout the World.

624 S/he will perform the information analysis functions. S/he will synthesis the results of searches in several sources and present the evaluated selective results to the researchers.

625 S/he will assist in the organisation of personal electronic information files of the researchers.

626 S/he will assist in the construction of effective users interest profiles for use with on-line SDI facilities and the CAS.

627 S/he will keep up-to-date in new information sources as and when these become available.

628 S/he will be working as equal member of the research teams in academic institutions as well as industries and other enterprises.

629 S/he will be acting as an information manager ie., to provide assistance in the location of required information will be the main function of the future librarian.

630 S/he will be the linked between the electronic resources and the researchers in the academic and special libraries.

7 CONCLUSIONS

The libraries of 21st centuary will be the "Electronic Information Centres" and most of the information resources in these centre will be available on-line. University and post-graduate college libraries will be fully computerised and will be participating in the local, national and international netwoks, whereas the small college and school libraries may not be in a position to do so, due to limited financial resources. Most of the publications, particularly the scientific books and journals would be in the electronic form. The full-text databases would become more popular. The secondary publications would be available in electronic form only, whereas some primary journals and books in the field of social sciences, humanities and literature, would continue in the conventional paper form also. Classification of the library material in the electronic form would continue, though to a lesser extent, whereas the library catalogues would grow conceptually, but

not physically. They would contain pointers to vast array of publications that can be accessed through electronic networks. The libraries of the 21st century will be deinstitutionalized. The librarians will act as information scientists and information consultants. They will perform the information analysis functions, and will be working as equal members of the research teams in the academic institutions. Infact, they will be the information managers of their institutions.

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AN INEXPENSIVE APPROACH OF LIBRARY COMPUTERIZATION: AN EXPERIENCE

DEBAL C KAR*

0 OBJECTIVE

With Information Technology (IT) revolution sweeping the world, it is highly unlikely that any sphere on earth is left untouched by it. Space, manufacturing, banking etc are some of the prominent illustrations, where IT has revolutionized the way of working. In all these areas, cost incurred on computerization though enormous, is borne out completely by these organizations, and benefits achieved are obviously very beneficial. Somehow most of the libraries found in these organizations are computerized. But in the small to medium organization, where computers are being used in finance, inventory and production departments's and if they maintain a library also, not adequate attention is being paid for its computerization, because of its functioning as merely a support group. The reasons for lack of computerization being, custom software development entails substantial investment, on the other side, off the shelf software packages are either too costly or do not meet all the requirements. Here the author will be presenting an inexpensive approach, a mix of software and hardware to computerize libraries, with a special emphasis on a specialized library, through serving wide audience, but with main emphasis on a particular subject.

1 HISTORICAL PERSPECTIVE: AN EXPERIENCE

The TERI Delhi library was setup towards the last quarter of 1984. A large number of documents-books, pamphlets, reprints, back volumes of journals were received from Bombay and Pondicherry centers of TERI, when the documentation and information centre and field unit respectively were shifted to the Delhi office. Collection that time, consisted of approximately 6000 technical books, reports and scientific proceedings in the field of energy (particularly the renewable aspects), and environment; about 250 journal titles and 2000 back volume of journals, government documents and annual reports of ministries, companies and research organizations. Presently TERI library holding consists of more than 10,000 books, monographs, reports, about 600 journal titles and 4000 back volumes of journals a energy (renewable and conventional aspects), energy economics, environment,

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global warming, forestry, agriculture and biotechnology. These documents have been classified according to the Universal Decimal Classification scheme. Initially dBase II, a database management system package developed by Ashton Tate (now acquired by Borland Corporation) was used to prepare the database for library records on Zenith Professional. But with limited capability of the software and a slow hardware, not much headway was made. It was only in December 1985, when CDS/ISIS[62] a bibliographic database package was acquired from UNESCO that a fillip in computerization activity was noticed. With the falling prices of micro-computer in 1987 in India, set the ball rolling for computerization for many small to medium sized organisations. The database from dBase format was ported to CDS/ISIS format, so that it can work with CDS/ISIS package. To start with cataloguing card computerization was taken up and subsequently rest of the activities were taken up.

11 CDS/ISIS: CAPABILITIES

It is completely menu driven generalized Information Storage and Retrieval system and allows one to build and manage structured non-numerical databases, ie database whose major constituent is text. In most general terms CDS/ISIS[53] database is a file of related data that are collected to satisfy the information requirements of a given user community. The unique characteristic of CDS/ISIS is that it is specifically designed to handle fields (and consequently records) of varying length, thus allowing on the one hand an optimal utilization of your disk storage and on the other hand, a complete freedom in defining the maximum length of each field.

12 MAJOR FUNCTION

The major functions operable in CDS/ISIS are:

* Define database containing the required data elements
* Enter new records into a given databases
* Modify, correct or delete existing records.
* Automatically build and maintain fast access files for each database in order to maximize retrieval speed.
* Retrieve records by their contents, through a sophisticated search language.
* Display the records or portions thereof according to your requirements.
* Sort the records in any sequence desired.
* Print partial or full catalogues and/or indexes.

* Develop specialized application using the CDS/ISIS integrated programming facility.

13 EXISTING DATABASES & NEW DATABASES

These facilities are provided through a set of 8 major services, classified in two broad categories; user services, operating on existing databases, and system services, designed for the database administrator to create new databases and perform various system tasks. User services only require a basic operational knowledge of CDS/ISIS, whereas system services assume an in-depth technical knowledge of all system components, up to familiarity with computer programming.

14 FACILITIES

Integrated programming facility of CDS/ISIS has a Pascal library containing a collection of predefined procedures and functions which can be classified in two broad categories; general procedures and CDS/ISIS procedures. These procedures and functions provide a powerful development environment, which the author have exploited to formulate this approach. Though its capabilities are somewhat limited compared to those offered by any well established compiler. CDS/ISIS can also run in a window of Microsoft windows.[44]

15 HARDWARE REQUIREMENTS

The minimum hardware requirements for running CDS/ISIS consists of an IBM PC/XT/AT or compatible computer with 512 KB RAM (640 KB or higher recommended for better performance), a 5¼" floppy drive, a hard disk (CDS/ISIS requires only 10 MB), a monochrome or colour monitor running on MS-DOS operating system and a printer to take hard copy printout. In the case of India, with reduction of custom duty on Computer Systems, a 33 MHz 80386 microprocessor based PC/AT equipped with 1 MB RAM, a 5¼" floppy drive, a 40 MB hard disk and a monochrome VGA monitor can be purchased in Rs. 32,000.00 (approx). Also a good quality printer (letter quality) costs only Rs 20,000.00 (approx) only.

16 CDS/ISIS PACKAGE AVAILABILITY

CDS/ISIS software package can be obtained free of cost from UNESCO office or an organization designated by UNESCO for this purpose. In India it is NISSAT.

2 APPROVAL TO LIBRARY AUTOMATION

Library automation helps in providing efficient and quick library services, it is economical because it saves human labour, eliminates duplication

of jobs, and processes many data involved in the operations of the library. Automation is more helpful in the routine jobs of the library.

21 PROCESSES

The different processes in the library can be classified into two main groups as:

* House-keeping operations and
* Information retrieval services.

22 LIBRARY AUTOMATION

The term library automation generally refers to the application of computers in housekeeping operation such as:

* acquisition
* cataloguing
* circulation control
* serial control
* interlibrary loan etc.

and in information retrieval services like

* catalogue search by author, subject, keywords, title etc
* indexing
* current awareness service
* selective dissemination of information
* retrospective search services
* bibliographies

3 COMPUTERIZATION OF TERI LIBRARY

At TERI library, all most all the house-keeping operations and information retrieval services are computerized, except book ordering work. After receiving a book (purchase/gratis), it is entered in the library holding database.

31 MODULES

Computerization in TERI library has five main modules:

1 TERI (Integrated bibliographical system)

2 Circulation system

3 Serial Control system

4 TERI News Clipping Services

5 Bibliographical databases

311 TERI's Integrated bibliographical database system

TERI's bibliographical databases are for two types of records namely monograph and analytical. The analytical database will be discussed later. The monograph database is meant for library catalogue, an extensive collection of monograph, reports, conference proceedings, dissertations, government and statistical reports housed in the TERI library covering the several fields of energy, environment, forestry, biotechnology, global warming etc. We generate catalogue cards and Recent Additoins, a bimonthly current awareness service brought out from the database, brings the user up to date with the latest acquisitions in the library. Other services from this database are selective dissemination of information, online public access of catalogue (OPAC).

3111 SEARCH

Search and retrieval is possible through online computer with the help of user-friendly menus thus permitting rapid bibliographic searches of the collection. Generation of the accession register is also done in regular interval from the database.

312 Circulation Control

Circulation control system is designed in such a way, that it is able to search for a record with a particular borrower or document to display the record. If need arises, it can determine quickly and easily what titles are in the library and where they are located, it is able to issue and return documents rapidly and accurately. It also checks whether the borrower is eligible for service, prepares overdue and recall notice. Circulation works is performing well with some limitations at TERI library.

313 Serial control

Serial control involves three areas:

(a) Acquisition control (selecting, ordering, paying, receiving and claiing)

(b) Bibliographic control (creating bibliographic records that contain data elements of the serials)

(c) Inventory control (creating records that contain data regarding the extent and location of library's holdings)

Acquisition work of serials is maintained through the 'serial' database.

314 TERI News Clipping Services

TERI library also maintains a database of newspaper clippings from 40

national newspapers to keep up to date about the latest development in India on energy, environment and economy. The database is available at the library computer for online interactive search and TERI is bringing out a fortnightly publication TERINIS (TERI News and Information Services) which is a byproduct of the database. TERINIS is also available through e-mail. A SDI service is being providing, which is broughtout through computer.

315 Bibliographical databases

TERI library maintains several bibliographical databases, and regularly updates them. Some of them are TIDE (TERI Information Digest on Energy), EEM (Energy Environment Monitor), TISGLOW (TERI Information Services on Global Warming), ASSET (Abstracts of Selected Solar Energy Technology), and Mycorrhiza.

3151 Byproduct publications

A highly qualified group of TERI professionals regularly scan the journals to keep these databases up to date. By product of these databases are also important publications which are in huge demand in India and abroad. The databases are also accessible through computer terminal at TERI Library.

4 MAJOR APPLICATIONS OF CDS/ISIS

41 INSTALLATION TRIAINING

In order to find out the application of CDS/ISIS is library automation, a preliminary literature search was conducted. A number of publications provide features and overview of CDS/ISIS[1,2,3,20,21,41,42,43]. Lang[35] describes installation problem of CDS/ISIS. A training manual has been created with examples of database structure for monographs, serials and various types of addresses.[26]. ILO-ARTEP[22] also brought out a training guide on CDS/ISIS for creation of database structure for library automation work. There are also two reports[40,47] on training course on CDS/ISIS. These explain how one has to proceed for the creation and design of library databases. Ximin[70] and Goyal & Kumar[17] describe the conversion fo dBase file into CDS/ISIS. Besmer and Neiuwenhuysen[4] have developed a conversion program called Fangorn which allows the conversion of the format of records which have been downloaded from a database by an online access databank or on a CD-ROM disk. Sivaprasad, Gaddagimath and Shanmuganathan[58] describe conversion procedure of downloading data from CD-ROM and online databases viz. Dialong etc to CDS/ISIS developed by Hugo Besmer and Paul Nieuwenhuysen. Nieuwenhuysen[44] has developed/assembled a system for the creation, import, storage, retrieval and otuput of bibliographical records

on TBM PC. Nowak and Trawinski[46] compare the application properties of dBase III Plus and CDS/ISIS package, whereas Chaudhury[9] describes interfacing of CDS/ISIS with Wordstar.

42 APPLICATION OF SOFTWARE

There are number of papers discuss the application of CDS/ISIS in different areas. Gupta[16] discusses automated indexing using CDS/ISIS, whereas Choudhury[7,8] explores hyphenated and numeric words' indexing using CDS/ISIS. Kanjilal[27] explains a tutorial of permutted keyword index. Mohankumar and Narayanankutty[38] discuss indexing system module using CDS/ISIS in VSSC library. Damodaran and Manilal[12] explain permuted keyword index to OSDOC Bulletin, whereas Shanmuganathan, Gaddagimath and Sivaprasad[57] explain procedure for generating a machine readable thesaurus by ISIS Pascal program. Torocsik and Fekete[60] discuss CDS/ISIS application in the Sci-tech library of the Bigal Pharmaceutical Works. Kasper[34] discusses the registration of library users. Jacso, Szucs and Varga[24] describe creation of catalogue database of monographs and broadcasting programmes. Jacso and Szucs[23] describe catalogue of monographs; Sailendra, Neogi and Gogia[56] describe creating India's database of serials. Pflug[48] describes a database concerning computer programmes in the Central Library for Technology in Dresden. There are also several databases including the catalogue of special library[25], Fidel Castro's speeches[50], biomedical bibliographical references[19] and Chamchuklin [5] describes development of medical literature database and its structure and retrieval features. Janke[25] describes CDS/ISIS as an information Management tool in libraries. Puntodewo[49] describes the creation of map catalogue. Ravi, Hariharan and Rao[51] designed the printed list of union catalogue of seminar and conference proceedings. Mittal[37] describes the creation of subject index to NUCSST (National Union Catalogue of Scientistic Serials in India) database. Novak[45] discusses the attempt to use CDS/ISIS database as an OPAC. Yin[71] describes the development of CDS/ISIS to accommodate Chinese characters in data processing. Dhamankar[15] describes use of Indian scripts viz. Devnagari, Gujarati, Kannada etc with the CDS/ISIS. Sugumaran[59] describes the use of CDS/ISIS for Russian drawing management in LPSC/ISRO. ISTIC[69] has developed a large information retrieval system of CDS/ISIS. The system is completely compatible with English and Chinese and run also under the MVS operation System on IBM. The retrieval function and commands of the system are similar to the DIALOGUE system. Kar[29] describes the duplicate records checking, an advance program and Gaba[16] describes about manuscript database.

43 DESIGNING DATABASES

There are also number of papers referring to designing of the database in

different subject fields using CDS/ISIS. Kar[28] designed a non-bibliographical database which is a directory of Asian mycorrhizalogists. Kar and Siddiqui[30] discuss about design of the Tata Energy Research Institute's database 'RIZA' on mycorrhizae literature. Roy[52] describes the creation of national index translation database. Ray Chaudhary and Shukla[52] discuss design of INDEL database of TERI, whereas Deshmukh, Hiremath and Srinivasan[14] discuss about bibliographic database for cement and building materials and design of additional help menus for each command to make the system more user-friendly. CINTI[68] (Central Institute for Scientific and Technical Information) of Sofia has developed a database containing English language bibliographic and reference information on Bulgarian Scientific medical literature. Treloar[61] describes a database containing plant information using CDS/ISIS.

44 USER INTERFACES

There are three papers describing the user interfaces. European Organization[54] for Nuclear Research (CERN) has developed a High Energy Physics (HEP) Preprint Bibliographic Database (PREP) which is indispensable source of current information for HEP. PREP is based on CDS/ISIS. INSERM[65] offers a Questel Plus CDS/ISIS interface for the use of SDI MEDLINE diskettes under the CDS/ISIS software package. ACCESS[67] is an user friendly interface compatible with CDS/ISIS 2.3, developed by Asian Institute of Technology, Bangkok.

45 DATABASE DESIGN PACKAGES

There are also number of works on computerized library management program. DESIDOC[13] software team has developed a library automation package for library management, called SANJAY, using CDS/ISIS, version 2.3. The package is used for information retrieval operations, cataloguing, CAS, as well as for house keeping operations eg. acquisition and circulation control. The package has been designed to work in a library with medium size collection and users.

Kashyap[31,32,33] describes integrated database design for library system using CDS/ISIS. He has designed bibliographical information systems, as well as for library management, such as acquisition of monographs and serials, circulation control, serial control, cataloguing, maintenance of staff and users records, office works etc. This has been used at Ratan Tata Library, University of Delhi. Narayankutty and Mohankumar[39] describe acquisition management in VSSC library. Manjunath[36] describes integrated book acquisition and circulation system, an experience of Institute of Rural Management, Anand. Cassidy[5] uses CDS/ISIS for library management eg., acquisition, catalouging, circulation, serial control as well as several bibliographic and

non-bibliographic databases. Santiago[54,55] describes about circulation control system. Chowdhury and Chowdhury[10,11] describe the development of library management system and prototype circulation control system using CDS/ ISIS.

5 CONCLUSION

From the above analysis and literature searches, it can be said that there are many libraries using CDS/ISIS for library management or for other works. If somebody is realy interested in computerization of library, it is not impossible even if they do not have enough fund. But they should take initiative and be willing to put a little hardwork. Computerization is of utmost importance at the present juncture. Any library can invest some small money for hardware or share the computer with other department. As far as software is concerned if someone is interested, they can find library automation program with the help of above literatures, or create a database in the light of these literatures, using CDS/ISIS. There are many shrink wrapped library management packages or programes developed using CDS/ISIS redily available in Indian market eg. Trishna, Sanjay etc, as well as using other higher languages eg. LIBSYS, LIBRA, MAITRAYEE, LIBRARIAN etc which are commercial available.

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COMPUTER NETWORKS— A BOON FOR LIBRARY DEVELOPMENT

SK SHARMA*

0 INTRODUCTION

Development in computer industry and also the parallel developments in telecommunications have thrown open new vistas for provision of better library services. The application of telecommunication technology to the computer field, gave rise to computer communications. The same technology is now being widely used in the field of Library Science. Resource sharing using the modern technology of computers and communications have given rise to Libray Networks, in which libraries of the same type is either academic, public, or special, form a network wherein, the services and also processes in a library may be shared. The document that used to be delivered by mail, on interlibrary loan is now being transferred through 'Electronic Mail'. Indian libraries have adopted many of these technologies, but it is not widely used, which may be attributed to the constraints in budget, and in trained manpower, due to which the percentage of automated libraries in India, especially automated Public and Academic Libraries, are very few. Many of the Special Industrial Libraries in India are automated, and the Government is also encouraging the use of computerized libraries in India so as to provide better services to the clientele.

1 WHAT IS NETWORK

Two or more libraries and/or other organisations engaged in a common pattern of information exchanges through communications for some functional purpose is a network. A network usually consists of formal institutional arrangements, whereby materials, information and services provided by variety of libraries and other organisations are available to all potential users (Fig 1).

11 SCOPE OF THE NETWORK

The network facilitates:

–Monitoring of vital socio-economic projects

–Online retrieval and updation of information

–Optimum utilisation of costly computer resources

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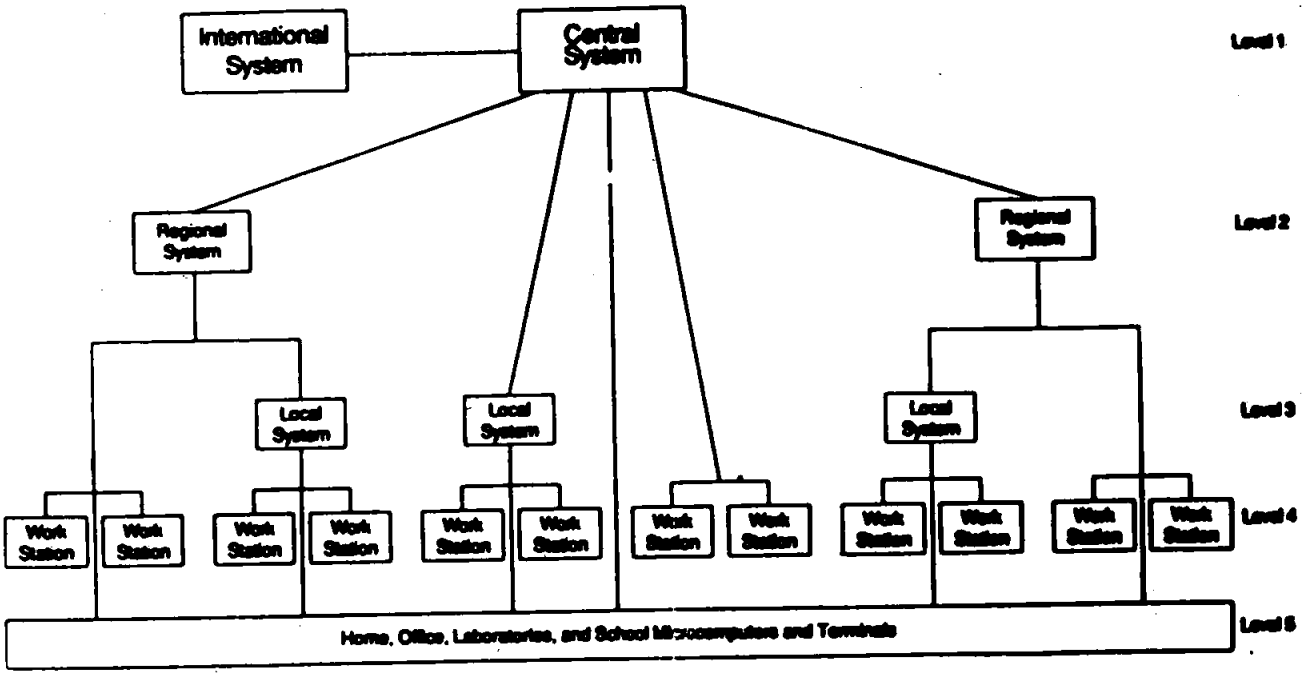


Fig 1. General system design for a computerized network

–Sharing latest software tools

–Dissemination of information

–Exchange of messages

–Emergency communication system

12 NETWORK TOPOLOGY

The design of hardware component is called `nodes'. These nodes when linked form pattern's that are classified as starlike topology (Fig 2).

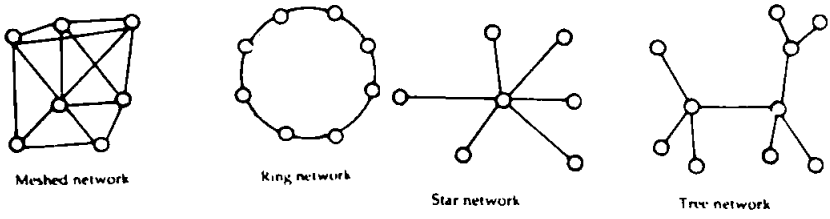


Fig 2

13 TYPES OF NETWORK

(*a*) Library networks

(*b*) Information Retrieval Networks

14 LIBRAY NETWORKS

Characteristics of Library Networks

(*a*) *Data:* Bibliographic records

(*b*) *Retreival:* Author/title/number (Subject)

(*c*) *Access:* Telecommunication network/private network/hard wired network

(*d*) *Users:* Librarians/Public/Researchers.

The above classification shows the library networks have the following features.

–One type of data

–Committed user base

–High professional needs

–Low end-users needs

2 INFORMATION RETRIEVAL NETWORK

Characteristics of Information networks

(*i*) *Data:* Bibliographic records (text mumeric)

(*ii*) *Retrieval:* Subject based (Boolean/key)

(*iii*) *Access:* Telecommunication networks, private networks/hardwired network)

(*iv*) *Users:* Intermediaries (End-users)

Information retrieval networks contain more bibliographic records, but databases consisting of textual and/or numeric information are rapidly increasing. Retrieval is based largely on boolean searching, besides the other approaches. Thus, IR have

–Varing type of data

–Unstable user base

–Mix of professional/non-professional needs

21 LEVELS OF NETWORKS

(*i*) National network

(*ii*) Regional Network

(*iii*) Local Network

22 NATIONAL NETWORK

11 INFLIBNET Network

12 NICNET Network

13 INDONET Network

14 ERNET Network

15 INFOTEL Network

221 Inflibnet

Information and library network (INFLIBNET) a programme of the University Grants Commission was launched in May 1991. The main aim of INFLIBNET is to establish a national computer-communication network to link libraries and information centres in universities, colleges, deemed universities, UGC information centres, institutions of national importance, and R&D institutions. It will facilitate pooling, sharing and optimisation of scarce library resources. As a major programme it will help modernise libraries and information centres in the country through application of information technology.

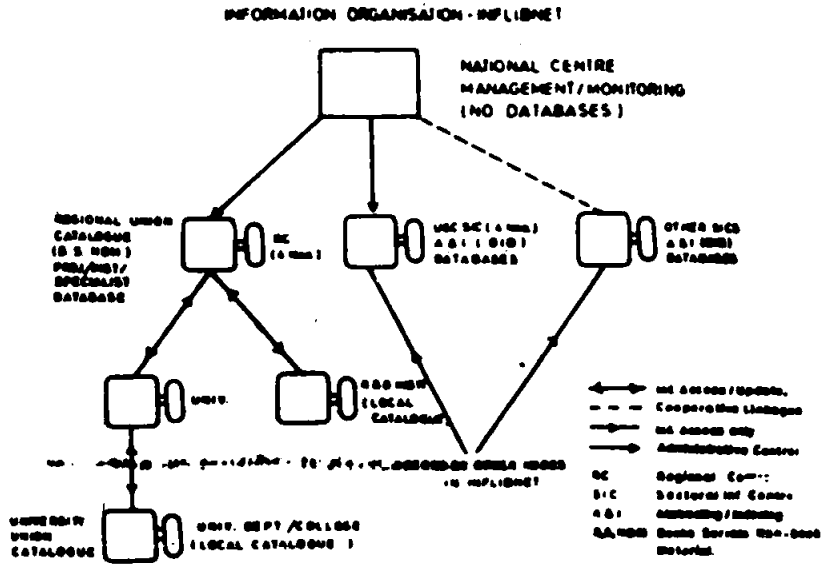


Fig 3

2211 Objectives

1 Catalogue-based service

–Shared cataloguing of monographs, serial and non-book materials

–Online catalogue access for shared cataloguing and location identification

2 Data based services

–Bibliographic databases services

–Restrospective search, SDI, Current awareness services

3 Document supply services

–Inter-library loan request processing

–Document delivery (Fax/non-fax)

4 Collection development

–Acquisition and assistance in selection and procurement

5 Communication-based services

–Electronic mail

–Transfer/receiver messages

–Bulletin board-view/updata bulletin board

23 CLASSIFICATION OF LIBRARIES FOR NETWORKS

	Malibnet Collection	Calibnet Collection	Delnet Collection	Inflibnet Collection
Very small	Below 25,000	Less Than 50,000	Less Than 50,000	
Small	.25 to 50,000	0.50 to 1.10 lakh	0.50 to 1 lakh	Below 25,000
Medium	50,000 to 1 lakh	1.1 to 3 lakh	1 to 3 lakh	
Big	Over 2 lakh	Over 3 lakh	over 3 lakh	

On the basis of above, we can calculate the number of librarians in each group in DELNET, CALIBNET, but not in INFLIBNET. Number of Librarians in each group in CALIBNET, DELNET and INFLIBNET.

	Big	Medium	Small	Very small
MALIBNET	6	1	6	7
CALIBNET	2	2	5	28
DELINET	5	12	1	11
INFLIBNET	X	X	X	X

222 NICNET

It is a National Information retrieval network. National Information Centre (NIC) established NICNET in 1977 and was commissioned in November 1987 with the following objectives.

1 To design, develop and implement 'advance computer based methodology'.

2 To promote adoption of computer-based management techniques.

3 To generate specialised manpower in the field of information.

4 To build intra-city and inter-city computer network for interconnecting various Ministries/Departments of the central Government and autonomous organisations for a distributed Governmental information system.

2221 Spread

In NICNET more than 250 micro earth stations are operating today in all parts of the country. The network has also been tested using special software, developed by NIC, to transit facsimile. NICNET provides a reliable

and dependable data communication to the government agencies at the place of work. It has introduced new methods of reliable exchange of information, that are quite new in this country, at a low cost, for low-duty cycle applications. It links four regional nodes at Delhi, Pune, Bhubaneshwar and Hyderabad and established 32 nodes at state and union territory level and 439 nodes at district headquarters. Several information systems have been established under NICNET such as Accounts, Budget etc.

2222 Components

NICNET consists of two components (*a*) a master earth station of 13 m antenna with a network control centre, which incorporates host computer interfaces to connect NECS-1000, Cyber and other host systems and (*b*) a number of micro earth stations and controller which transmit to the satellite.

2223 Services

Several types of services are provided through this network. One of the main service is 'Electronic Mail'. It enables all users to transmit and receive mail. It also provides broadcasting and bulletin services. In the bulletin service, it will provide personnel, employment and transport information especially by NIC officers to plan their visits to the headquarters. The transport bulletin service will contain reservation availability for all the trains from Delhi.

22231 Bibliographic

A major bibliographic application that is available on this network is the bibliographic biomedical information. NIC established ICMR-NIC centre in 1986 for biomedial information, with a broad objectives of evolving a method for information acquisition, storage, retrieval and dissemination from international databases. The ICMR-NIC centre is providing services to users in India from MEDLINE, POPLINE, CHEMBANK and CANCER databases.

223 INDONET

It is an integrated information management and distributed data processing facility. It is a commercial network with nodes at Calcutta, Bombay, and Madras on IBM 436. It is connected to other cities like Ahmedabad, Bangalore, Delhi and Pune through MUXS/.cluster controller. It is planned as a 'geographically dispersed computer network', linking scattered organisations in the country. It will:

1 Help in the expert software.
2 Process large amount of scientific and industrial data centrally and efficiently.

3 Provide access to remote user terminals.
4 Maintain centrally common interest Data bases, like Stock Exchange and Foreign Currency Conversion Rates.
5 Have a distributed data processing system. Local queries will be answered after scanning locally available databases.
6 Help promote key computer-related technologies, like data base management programming technique, computer graphics.
7 Hopefully be connected through international gateway of computer network of USA, like GTE-Telenet and TYMNET.

224 EARNET

EARNET is a mail service. Established by Department of Electronics during seventh plan (1986-91) to provide academic and research institutions with electronic mail facility. It is currently used by DSIR labs, Research centres and Academic institutions.

225 INFOTEL Network

Like INDONET, INFOTEL network was established by "Informatics India Ltd" in 1989. It is an 'online' service centre, with access to 1,500 International databases, tapped through DIALOG or EASYNET.

3 REGIONAL NETWORK

21 CALIBNET Network
22 DELNET Network
23 MALIBNET Network

31 CALIBNET

The first Calcutta Library Network 'CALIBNET' was conceived in 1986. It is largely Govt funded, and a sum of about 150 lakh has already been invested by NISSAT, under Dept of Scientific & Industrial Research.

311 Objectives

CALIBNET stands for significantly improving resource utilisation and service levels to patrons at individual libraries, providing automation facilities in:

1 Acquisition and fund accounting
2 Serials control
3 Cataloguing
4 Circulation
5 User services

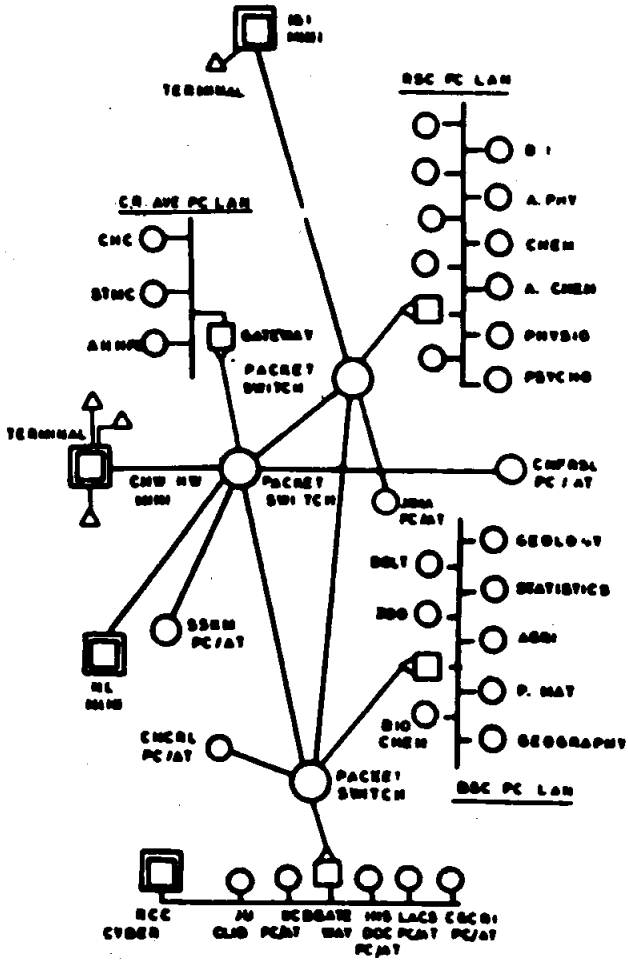


Fig 4. CALIBNET Topology

32 DELNET

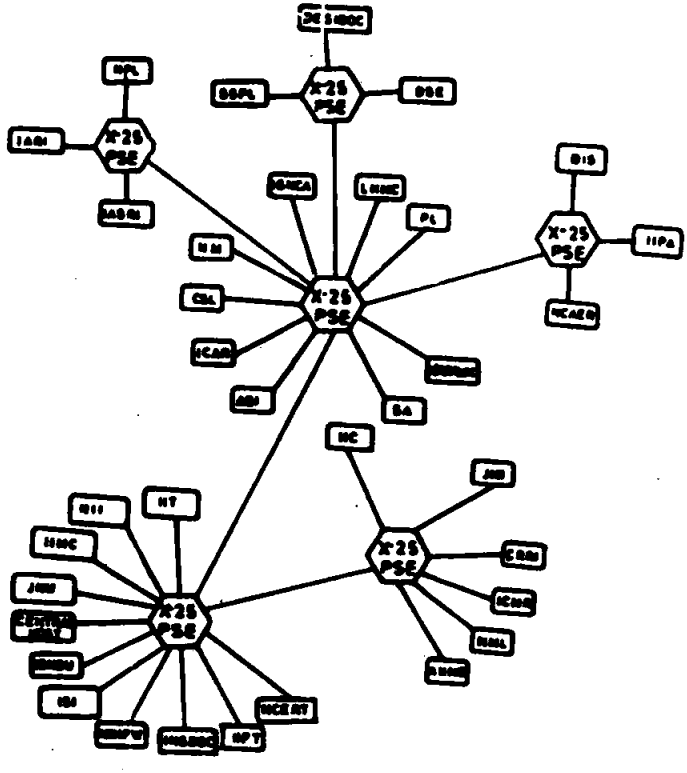
It was registered as a society in 1992. Since then established a Electronic Mail Service among a few libraries for exchanging messages regarding current subscription, inter-library lending through the development of a union catalogue, etc etc.

321 Objectives

DELNET provide automation facilties in:

1 Acquisition and fund accounting

2 Serial control
3 Books and journals maintenance
4 Circulation
5 User service
6 Creation and maintenance of a bibliographic database
7 Interlibrary user services
8 Document copy and transfer facilities
9 Access to national and international databases
10 Union catalogue
11 Current awareness and SDI
12 Authority data
13 Subject profile
14 Abstracts



Legend: X 25 PSE Packet Switching Exchange, NB Modems have been shown in the figure.

Fig 5

33 MALIBNET

Madras Library Network (MALIBNET) has been conceived by academicians, scientists and technologists of Madras to overcome the resource crunch in libraries, in and around Madras, and provide information at a low cost to the users. MALIBNET was installed and made operational in May 1993 with no direct funding from the Government. Currently six major academic institutions are directly linked to MALIBNET host system.

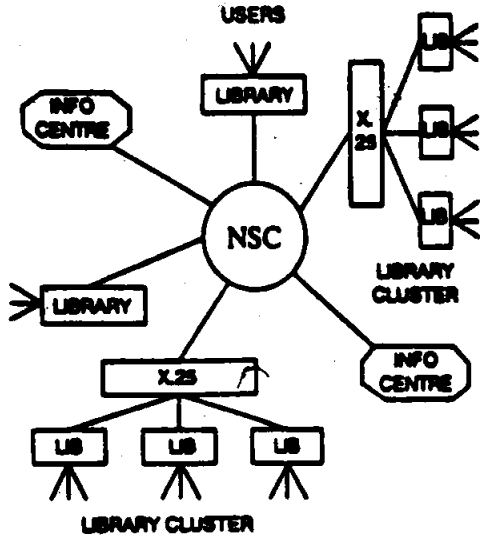


Fig 6. Network structure of MALIBNET

331 Services of MALIBNET

MALIBNET offers the following information services

- Current serials acquired in about 50 libraries
- Full journal holding of about 50 libraries
- Contents information of about 400 important journals
- Specialised database giving abstracts of articles
- Electronic mail including international connectivity
- Door delivery system, for document photocopies

332 System Configuration

The architecture of MALIBNET has a central network service (NSC) located at INSDOC regional centre, Madras. The NSC houses, the main

computer which is a INTEL 486 based system with 32 mega bytes of main memory, 1.2 Giga bytes of dist storaxe, x.25 networking interface, 16 ports modern communication, UNIX operating system and SYBASE.

4 LOCAL NETWORK

41 LIBSYS

It is a fully library automation software in India. `Libsys' is a complete solution, covering all the activities of a Library. Aquisition, cataloguing, circulation, serial controls. Article indexing & abstracting, plus `online' public access interface. It provides maximum possible integration of functions. It facilitates networking and has search facilities, comparable in ease and sophitication, to "DIALOG" databases.

42 LIBERATOR

CMC has brought out comrehensive library management software. It is designed by eminent library scientsits and computer specialists. It encompasses all activities of a library. It helps entry to networks for librarians to share resources. It is designed to international standards, for data security and datamanagement. It also supports UNIMARC. It is suitable for small as well as big libraries. It is fully automation. It functions for Acquisition, Cataloguing, Circulation, Serial control, Queries & reports, Union Catalouge, Inter-Library Loan, E-mail etc.

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COMPUTERISATION OF HOUSE KEEPING OPERATIONS OF PLANNING COMMISSION LIBRARY

BK PRASAD*

0 ORIGINS

Planning Commission was set up in the year 1950. The prime functions of the Planning Commission was to prepare a plan for the country development in a proper way so that development of the country takes place in a balanced and need orineted way. Since then the Planning Commission is working towards this end, In nut shell the aim of the Planning Commission is to formulate plan so that effective and balance utilisation of the country resources can be made, as the resources of the country is meagre.

01 DEAR TO NEHRU

Since then library has passed various stages. This library was loved by planner and destiny maker of the country, not less than our first Prime Minister of the country Late Jawaharlal Nehru who was responsible for the creation of Planning Commission, and so, the Planning Commission Library also. This library was so dear to Nehru that some time he used to visit and study here. In that way the library has contributed for the development of the country in humblest way without making noise.

02 NATIONAL LIBRARY ON PLANNING

Information is vital input for taking decision and library is a store house of knowledge and information. Planning Commission library in a way should be considered as a National Library in its own way. As it has made a good number of collection of documents related to planning of the country at the moment which are not available anywhere in the country. It has a collection of about 1,32,000 documents in which some are precious and have archival value. It has also collected a lot of reference material on the subject. Readers are coming to refer this library from all parts of the country. Some time foreign visitors also come here in search of information. So the library has become focal point of reference and research in this country in its own way.

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1 COMPUTERISATION OF LIBRARY

11 AVAILABILITY OF PC

In the eighties of 20th century the computer name was being mentioned for information/library management in India. But at that time scientific libraries, such as INSDOC, CSIR laboratories libraires were using computer only for some services of the library. For example INSDOC was using computer for preparation of index of `Indian Science Abstracts. So at that time very few libraries were using computer for management of library services, particularly in the field of social services. When personal computers were made available in the country, the library managers decided to automate the services of the library. CDS/ISIS software developed of UNESCO was made available by NISSAT for the development of the database even in the small library. Due to this development revolution came in the field of library and information management to automate their services. Planning Commission Library also decided to use computer for automation of its library services.

12 WORK FORCE TRAINING

A Committee was formed within the Planning Commission for the modernisation of the services of the Planning Commission Library. Some staff members were deputed to various organisation including INSDOC for training in computer application for the library and information services.

13 SOFTWARE

In the beginning the library was using CDS/ISIS for developing database for books on economics and planning. Later on it changed to a package developed by LIBSYS Corporation known as LIBSYS. This package was developed in the year 1988. It is a good package through which most of the library operations can be carried out in a middle level library. Library services such as acquisition, cataloguing, serial control, circulation and search by key words, author and title can be performed through this package. It can also take care of preparation of accession list, current awareness service, SDI service and preparation of subject bibliography etc.

2 LIBRARY STRENGTH

Planning Commission library has about 1,32,000 books and bound periodcals receives about 350 periodicals. Besides this we are having a collection of about 2,500 documents published/issued by Planning Commission from time to time. It has about 1,500 registered regular members of the library. Besides, a lot of readers comes to this library for reference and research purpose from outside. In a sense it has become a centre of research in the field of socio-economic planning of the country, spread to cover all

parts of the country. Till 1987 the library was being managed by traditional manner. The efforts to computerise was taken in the year 1987 LIBSYS package was purchased in 1989 the following library service were computerised.

1 Acquisition of documents

2 Public access systems

3 Serial control

4 Promoting documentation activity

5 Computerisation of library

The acquisition section deals with procurement of documents in the library. It includes acquiring, invoicing and accessioning of documents. It also keeps a watch on the budget of the library.

3 AUTOMATION

31 CIRCULATION SYSTEM

The circulation system before introduction of LIBSYS package, used to maintain the record of issuing and return of document in traditional and old fashioned way. But now the record of issuing and return is being maintained in the computer and reminders can also be sent through computer. We are also thinking to introduce bar code and user ID card system.

32 REFERENCE AND SEARCH

Public access system concern with search facilities of documents entered into the database. A reader can have information himself by interacting with the computer. Reference work has become very easy due to this.

33 SERIAL CONTROL

Serial control is a problem where record is maintained in traditional way. But due to automation of the service it has become easy now. Receipt of periodicals can be directly entered in the computer and the reminder can be prepared and sent to subscription agency easily. This has improved the receipt position.

34 ELECTRONIC CATALOGUE

In a Planning Commission Library we have nearly 1,32,000 books and bound periodicals. Catalogue of the Library is computerised. Soon it will be connected to all the computers of Planning Commission. So that every official will get information at his terminal, as to which book is available in the library or not from his desk. It will put be on LAN.

35 DOCUMENTATION ACTIVITIES

Planning Commission documentation services are very exhaustive so far planned documents are concerned. Previously they were being prepared manually. Now they are all computerised. Following services are being brought out.

351 PC Documents

This is a quarterly compilation of documents being issued time to time by the Planning Commission itself. We have about 2500 documents in our computerised data base. This is being regularly brought out since 1988.

352 Recent Additions of Books

This is being brought out fortnightly. This makes readers aware regarding recent additions in the library which includes books, report annual report etc. This is being brought out since 1988.

353 Current Awareness service for periodicals articles

This Doc Plan bulletin is being brought out fortnightly to make readers aware about the latest writing in the fields of economics, planning and other allied subjects. In this database we have about 3000 documents.

4 FUTURE PLAN OF PC LIBRARY

In future we are thinking to prepare some compact disk of catalogue of Planning Commission library. Secondary we have some documents issued by the Planning Commission from time to time. Some documents are of historical and archival value. We are thinking to keep the record of these documents on Compact Disk.

5 CONCLUSION

In this way Planning Commission library is on the threshold of modernisation, and computer is helping a lot in this task. In short automation of library and information services can make the library operation easy. It can bring a total revolution in the field of information management. We are fully convinced that we will be able to meet the challenge of information collection dissemination in the field of planning and development in the 21st century.

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EMERGING TRENDS AND TASKS BEFORE 21ST CENTURY LIBRARY

MRS K VIJAYALAKSHMI*

0 INTRODUCTION

Information is increasingly being recognised as an important resource for accelerating national development. We are in the age of fast technological changes along with information explosion. Thus it is also being felt that with the tremendous proliferation of information mostly of interdisciplinary nature of knowledge posing several challenges to libraries. In fact it is no longer possible for any one–individual or organisation–to keep trade of all relevant facts of one's interest. This has not only given rise to a number of specialised information centres in every country but also led to the awareness of the desirability of having some type of co-ordination and co-operation amongst these institutions. All these factors have profound impact on the complexities of management and organisation of libraries. Further, there are pressures of technological changes and customers needs. All these fast emerging trends of information, demands the need for an effective provision for information procuring, organisation and management of libraries. They must acquire information, analyse it and take action based on the interpretation. Thus, there is a growing consensus that information resources will play a pivotal role in determining the tasks before an organisation which holds a competetive advantage in meeting intensive challenges of the future–21st century. This paper covers the following aspects viz, (i) Information gethering; (ii) Information Technology; (iii) Planning and Development of National Information Systems; (iv) Information Services; and (v) Conclusion and some Policy implications.

2 TREND REPORT

In the preceding paragraphs the above stated emerging trends of library and Information services will be analysed in some detail in the form of a trend report.

21 INFORMATION GATHERING INNOVATIVE THRUST

The growth and survival of any institution to a very large extent depends on the capability of successful introduction of new technology, management

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practices, innovative organisational methods, to meet the fast emerging trends of information retrievals. It has been found that successful performance is characterised by outward going searches for the best technical practice and specific data on ket needs, by strong communication links to sources of specifically relevant information. Now-a-days we often quote the success and excellence of Japanese Companies comb mountains of scientific literature for hints of technological advances. The thirst for innovation has served the Japanese institutions well in their international forays. Japan has always believed in adopting acquired knowledge to their socio-cultural milieu, constantly improving on it and excelling. The thirst has always been innovative and not immitative. Ezra Vogel, a noted author writes "If any single factor explains Japan's success, it is the group directed quest for knowledge".

22 INFORMATION TECHNOLOGY

Standing on the fag end decade of 20th century, many future logists are making predictions about the 21st century world. For some that technological age begins in 21st century.[1] Some prefer to call it post–Industrial age, the earlier two being Agriculture and Industrial age. John Naisbat in his pioneering work `mega trends' points out there will be fundamental split from Industrial to information Society.[2] Most of the these world developing countries are in their initial stages of a new era in which society view itself differently, powered by abundant proliferation of technology, the advent of global demands and consequent responsibilities, the new modes of thought revolutionising the affected behaviour. We are now trying to understand the fast emerging technological trends, which will influence the development of productive forces, science and technology, information and communication and society as a whole in 21st century. The information explosion has greatly increased the number of documents, volume of data and literature. It is stated that for instance in the field of Science and Technology, knowledge is doubling in each 5-10 years period, and hence the rate of accumulation of knowledge. The number of inventions in next ten years, is projected to equal the total number of these in last 30-40 years. Xerox advertises that 72 Billion pieces of new information are created annually. Thus the information technology is emerging at a faster rate to handle this growing information. As a result, the information technological wheel, being fastly accelerated every day.

23 PLANNING AND DEVELOPMENT OF INFORMATION SYSTEMS

Now the nation is entering into the era of an advanced information and communication technology. Thus, this is an opportune time to plan the information flow for this complex field of development and management of libraries in the near future. Hence, the need has been felt to develop on a

priority basis, a national scientific and technical information system, to interlink and coordinate the various information centres and their services. This would greatly facilitate in identifying in the existing information sources and services. A well planned and efficiently run information system ensures quick and easy communication of information, as also provides to every user timely access to the information he needs.

24 INFORMATION & COMMUNICATION

An information system differs from a communication system. The later may provide the transmission of information only ie. transmitting a message from a communicator to the recipient. An information system on the other hand, provides both the preservation and transmission of information. As Doyle has put it, "an information system can be thought of as a communication system.... which must also have the messages in a state of availability for whatever future receiver may present himself".[3]

25 NATIONAL INFORMATION POLICY

Before planning an information services the requirements of users are to be carefully ascertained. The information system is very crucial. It is of intermediary between the generators and users of information. Its foremost job is to highten the awareness among the entire community of information producers and users. It should identify the relevant information, collect, analyse and record it. The Government of India, under Science and Technology Plan, after a thorough study, have recognised the importance of National Information system, and have formulated the National Information Policy, to be implemented within the Fifth Five Year Plan ie., 1974-75 to 1978-79.[4] A National Information System for Science & Technology (NISSAT), the plan apart from creating data banks in different regions/sectors will impart training to scientists in fields like information acquisition and handling. The functioning of National Information System (NIS) is a multitier. In the system, national centres for information (NCS) are proposed for Science and Technology, Medicine, Agriculture, Defence science, Patent standards, Small Industries, Earth Science, Rural Development, Banking Industry and Social Sciences. Thus the service of efficient and upto date information system is necessary to implement the R&D activities in industrial undertakings. Thus the need for national information system therefore, clearly emerges.

3 ROLE OF UN

United nations under various organisations have exhaustive plans to set up and support infrastructure of information system at different levels.[5] Global national and regional. Modern telecomunication facilities enabled us to have access within few seconds information stored at global distance.

UNESCO/UNISIST sponsored demonstration at TIFR, Bombay amply proved this. Further, improvement in the system is consider possible. In the mid 80's two significant developments have taken place, viz, (i) advent of satellite communication technology and (ii) increasing availability of micro processors and small computers and also growth of indegenous industry. These would potentially revolutionize the entire information scene in the country. After successful experiments with APPLE and acquisition of the multi-purpose satellite INSAT-1B, digital data communication between geographically spread points is now possible, coupled with the availability of cheap indegenous computers, and successful experiments with land lineleased or satellite computer based computer to computer inter connection, physical networking of information systems has become a reality. Prompted by conceptual and technological changes, the scenario has emerged to include a variety of endeavours. Perhaps in any case, none of the system can afford to indulge in superfluous activities, when individually, all have a large mandate with limited resources to operate. Thus, there is real need for some forum like a national council/commission of Information systems may be created to facilitate mutual consultations.

4 INFORMATION SERVICES

The dissimination of information is an important though complex function. Based on the information needs they may be broadly grouped into three levels. (i) Policy makers, planners, top managements and administrators; (ii) Middle management who are controlling the functions of the organizations and (iii) Shop-floor executives, technicians, and operatives are directly responsible to fulfill the objectives of the organisation through production, quality control and maintenance. However, the services that are expected from information units are;

(A) Answer telephonic/on the spot queries;

(B) Bibliographic service–Preparation of the lists on request and also in anticipation;

(C) Literature search;

(D) Reference and referral services;

(E) SDI and CA Services;

(E) Abstracting service and publication of abstracts bulletin;

(G) Reprographic services; and

(H) Translation services.

41 LITERATURE SEARCH

Literture search on selected topics is vital for R&D, activity. Abstracts and bibliographics of articles in connection with research and development work are expected from information units. In addition the central unit should undertake several tasks to meet the dynamic situation in the context of emerging trends of information needs. Before enquirng into the changes required in the professional education, let us for a while pounder over what the library and information services will be like in 21st Century, so is to prepare the manpower to meet the demands of various users? In other words what is the future of lirbary? These issues has been widely debated since 1986, as *'Library Trends'* in a special issue on the "Current and future trends in the library and information science education." Future of library widely debated in the professional debate and there is sharp division of opinion on this. Some futurists in the profession forecast "dooms day for the books as well as the library". The varying opinions about the future of the library, make it all the more difficult to predict, about the role of library in the 21st Century, for information technology has challenged the very basic function of library.

5 CONCLUSION AND POLICY IMPLICATIONS

Keeping all facts on the basis of earlier analysis some emerging trends can be discrened. The leading trends are identified in the following areas. They are, (i) new thrusts of Information gathering and Innovative technology in procuring scientific and technological information. (ii) Adoption of new information technology. (iii) Planning and development of Information systems to meet the growing needs of the users and (iv) to identify the changing role of information services and preparing the manpower to meet these requirements. These emerging trends have two important implications for policy formulation. They are firstly the real need for creation of a "National Council/Commission for Information systems" when all have a large mandate with limited resources to operate and secondly, implementation of "National Information Policy" to modernize the libraries. On the basis of these trends we may turn to the tasks before the libraries in 21st Century.[6] The task of library is universal viz every user his/her information. This task is universal. It is effected by changes in media used to bring information and people together even in 21st century. Thus libraries by exploring the potentials of new technology, give lead to the profession to achieve this universal mission of the profession, in the 21st Century, instead of being the pale reflection, of the requirements of libraries.

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HUMAN FACTORS IN INFORMATION SEEKING BEHAVIOUR: THE EMERGING RESEARCH PARADIGM IN THE 21ST CENTURY

R SUMAN

0 INTRODUCTION

Like any other discipline and profession "Library and Information Science" (LIS) has also been subjected to a series of changes, in its scope and developments over the past two centuries. During the process the domain of LIS has expanded the research field of LIS, interms of its diversity and complexity.

01 INSUFFICIENT RESEARCH

Despite the considerable progress made, the consensus is that LIS research is still "fragmentary, non-cumulative, and oriented to immediate practice. The existing research theories fail to integrate or build on findings from other studies or basic knowledge from other disciplines. LIS needs a unifying theory for a paradigm to guide research and application of professional practice, which will capture the essence of LIS. A chasm exists between the research that is needed and the research that has been produced to-date. Keeping in view all the limitations of the past studies, the modern researcher looks towards the use of different approaches, methodologies and techniques especially the qualitative ones in the LIS research.

02 PRESENT RESEARCH

However, the present on going research attempts to change the earlier approaches, methods, and shift to the basic research methodology and techniques. With the difference in its scope and a shift from a study of "Method" for acquisition, cataloging, storage and dissmination is towards "How" information is created, used and communicated.

021 Holistic-qualitative

Although with these shift there is also an paradigmatic shift from the mechanistic to the holistic which places value on qualitative aspects. A wider holistic view of the information user would shift the focus of research from an examination of information science and system, used to an investigation of the role of information in users' every day lives, work and social

settings. In a nutshell the concept of information seeking process by the user, is to be seen as a constructive process. The new paradigm is consistent with the general system of Von Bertalanffy, 1956, recognizing the importance of a holistic approach to understand phenomena.

022 Path for shift

In order to shift to new paradigm, ie, holistic broadly theoretical research, the cross-disciplinary nature of information science must be identified, theories must be borrowed from other disciplines and applied to LIS. Information seeking behaviour studies is a strong area of current research in LIS. This aims to understand "WHY" and "HOW" individuals seek information, to examine interaction among many variables, to explain pattern of information seeking and information use, in different situations. Further to study the factors affecting information seeking behaviour of an individual in general.

1 INFORMATION SEEKING BEHAVIOUR STUDIES: AN OVERVIEW

11 HUMANITIES NOT COVERED

Research on user studies is a 20th century development. During the past 40 years attention was more addressed to the information needs and uses of "Scientists", and later "Social Scientists" were included, whereas very recently "Humanities" have been drawn into these studies.

12 HISTORICAL BACKGROUND

History of 'information needs' and 'use studies' date back to 1948 ie, to the Royal Society Scientific Information Conference with the contribution of 2 papers by Bernal and Urqhart, who laid the foundation of user studies. Research on "user" gained impetus during 1950s and grew up during 1960's and 1970's, the period known as "Renaissance". During the 1960s several experimental projects were undertaken using empirical methods, which were published in Annual Review of "Information Science and Technology" with a chapter on "Information needs and uses".

13 USER STUDIES

During 1990's user studies flourished in UK. More research were centered around user with inclusion of cognitive view in information seeking behaviour. Some of the noted studies were made by MICK 1980, Raitt, 1984, Summer 1983, Sridhar 1987, Saracevic and Kanter 1988, Panelli 1993.

14 PSYCHOLOGICAL ORIENTATION

These studies concluded that there has been a perceptible shift in the user

studies in terms of focus, materials, methodologies adapted. Also reflected a major trend towards psychology of information seeking and use and future trend studies. The user in different situations probing into the searching strategies from a psychological perspective, is an emerging theoritical construct in the 21st Century.

141 Internal side of User

Every individual creates his/her own reality, have own internal information sources, which they use to make sense of external information, and of the situation in which they find themselves at any given time. The current research view the individual insight, which was ignored in the past research, and this issue tends to be included in most of the LIS research agenda.

2 THE CHANGING PARADIGM WITH CONTINUITY OF LIBRARY AND INFORMATION SCIENCE

As in any other disciplines, LIS is too experiencing a major shift in its scope, approach and methodology, for the reason that, the existing strategies cannot be utilized in the present phenomena. Therefore, a paradigmatic shift with its new knowledge, new methods and new values seems to be emerging. This emerging paradigm which only explores new directions, while the clues of the emerging paradigm will, with hindsight, are seen in the existing paradigm.

21 CHANGES

At the outset the concept and the dominant image of the library as a warehouse of books has been shifted to the dissemination of information. The practice of librarianship ie, from a concentration on the 'book', is shifted towards the 'human information use patterns'. Earlier assistance and only approach to a Card Catalogue has faded, and shifted to assisting the user with not only for accessing but providing the information across the globe, in physical or electronic form. Research and practice have to customize it, for particular repacking information, for particular users. Preparation of specialized bibliographies, has been shifted to study of how information is created, disseminated and more centered on the user and the use of information in different roles in society. The leading position in the recent LIS research "User-centred-approach" have become the vital issue.

22 ON-GOING-RESEARCH

The reflections of present on-going-research, is a growing need for a broader view in LIS, giving more emphasis on human component in information system, and information ecology, in the social context. The challenge in the information age is to identify, study and provide the user

needs through resource sharing, accessing the information efficiently across the globe. Such an approach has widened the thinking of the profession, in research and practice, and in the dissemination of information.

23 WORK PATTERN CHANGED

The core of the paradigmatic shift is 'in value system,' from a pre-occupation with 'collection', to a pre-occupation with,' user's needs'. In a nutshell the reflection of this emerging paradigm is on 'customizing services to match the needs and interests of users' to understand the complex needs of users, and creating individualized data base. The assisting and accessing the user to the information is global. The challenge is to "prepare the user" to work in the most complex situation.

24 BASIC HUMAN BEHAVIOUR

LIS is a behavioural art and needs to be on well founded theoritical understanding about the nature of information, nature and needs of human beings, the transfer process between people and information resources, the way people use information. The emerging paradigm suggests to explore the fundamental 'behaviour domension', through a cumulative body of 'behavioural research' which is not yet done, to restructure the approach by 'teaming with psychology' to evolve conceptualized studies, creative research design with clear focus on the user. The trend is towards studying the user in different situations probing into the searching strategies and the actual information use from a psychological perspective. The other most conspicious trend which is the characteristic of today's information seeking and use, is the inclusion of the cognitive process, cognitive view-point with respect to user, and system design research, has markedly increased.

3 METHODOLOGICAL SHIFTS IN RESEARCH

It is well accepted fact that earlier "user studies" have been dominated by the use of social survey methods. Although few studies did provoke need for methodological compatibility and change of research methods, not much importance was given. This apparent stability was reinforced in 1975 by the establishment of "CRUS" (Centre for Research for User Studies) to improve methodology and value of results, by providing a national focus for research, education, advice and reference information.

31 DISILLUSTIONMENT WITH EMPERICAL METHODS

The cause of this shift is to some extent disillusion with the predictive value of probalistic statements about human behaviour, which are too fluid and intangible to be described. This is to cumulate the observations, as in natural sciences. Despite this drawback, the bulk of literature continue to use

empirical social survey methods.

32 'USAGE' TO 'USE'

One of the major drawback was misunderstanding of user studies ie, we are simply inquiring what users think or feel about information systems, instead of looking into the fundamental problem ie, **"what happens when book** (information package) and **user meet"** and to **"study their interaction"** which is complex. The dissatisfaction over the individual user studies was mainly, that research was focussed 'on usage' instead of 'use', which occurred inside the user's head.

33 QUALITATIVE

Despite few user studies did highlight and emphasise the conceptual and methodological problems, more studies were undertaken to focus on library and information services and on documents use and non-use. However, a market shift in the preference of researchers developed between 1975 and 1980 from quantitative to qualitative methods for the study of human behaviour. The researcher had virtually no understanding of "HOW" user interacts with information and libraries. Instead of investigating "BASIC" aspects of research ie, "WHY" of user behaviour, more studies were anchored on "WHAT" & "WHEN" aspects of user needs.

34 NOT INTEGRATED

Although literature was abundantly available, it totally lacked integration, inter-disciplinary, inter-correlational approach. The studies did not provide uniform objectives and maintain any standardization.

35 DEFECTIVE METHODOLOGY

Despite the availability of the sophisticated methods, they were not utilised fully and even if used sometimes, they were marred by poor conceptualization. The potentiality of new methods were neither explored nor understood by the researcher.

351 Multivariate Analysis

In the later stages as more sophisticated methods were developed, it became possible to analyse more variables. The composit characteristics of users could be identified with the use of multivariate analyses techniques. Earlier studies provided demographic information to identify the variables, but provided very little insight into user behaviour.

352 Dervin Method

Among the emerging new directions in the development of methodology are 2 distinct areas ie., (1) methodology developed by Dervin et al using

situational theory and is concerned with the needs of individual in a variety of situations. This method of Dervin is encouraging but still 'developmental based', on the theoritical construct, which address 'individual differences', in time, space perceptions, and information seeking, and use. The methodology relies on a 'survey-interview-method' claled the "time-line" approach, developed, specifically to tap human-information-seeking-and-use behaviour. During the interview process, respondants were asked to identify situations in which they had a problem, worry or concern.

353 Streatfield and Wilson Method

Information needs as they arise in work setting or as a result of work tasks, a method developed by Streatfield and Wilson, considers earlier work tasks and settings was a part of the research on information needs and uses in Science and Technology. Recent studies attempt to develop new models for studying work related information needs to device better guideline for systems design.

354 Sense Making Theory

Dervin developed a theory ie, Sense Making Theory which is user centered approach, based on the philosophical assumptions of the fundamental discontinuity or gappiness of reality. This theory has absorbed elements from various disciplines, such as communiation research, cognitive Science, Sociology on LIS.

4 THE EMERGING AREAS OF RESEARCH

Areas identified is needing study in information use and information seeking behaviour are:

1 What use has been made of documents or ideas?

2 Which type of ideas were most useful?

3 What is the contribution of information and problem solving and in the work or social setting?

4 In what way did the library help?

5 What kinds of pictures do people have of their situation?

6 How do people go about making sense of their situation? What will they find informing?

7 Why do people seek information?

8 How do people seek information?

The above questions are aimed at viewing the user as "potential

consumer of information". In 1980 the US of Education had set a research agenda wherein the marketing strategies is vital and will be unique contribution, if used to the information driven society. Hence, human factor is considered today as the most important factor in information seeking, which has been neglected so far and overlooked in most of the past studies.

5 NEW DIRECTIONS IN THE ONGOING RESEARCH OF INFORMATION SEEKING BEHAVOIUR

1 To develop and design framework devising evaluation methodologies which depend on progress in dealing with the issue of value of information and developing models of human information seeking.

2 Special attention to be given to understand "What" is there about a particular situation that encourages an individual. Do we have available source of information network in fulfilling an information need.

3 Focus on the situation, which needs an information need, from the view point of person who may or may not be user of library, ie, phenomenological approach. The consequence of such studies would sharpen the image of the user.

4 More research work highlighting the value of exploring the situational variables relating to information seeking, to explore studies on situational, variables, surrounding information setting, studying cognitive styles and use of information.

6 NEED FOR TRANSDISCIPLINARY APPROACH

LIS is no longer the monopoly of one area. Closely related to the development the significance of multidisciplinary research has increased. Therefore, LIS trends to borrow the theories, methodologies and constructs from the following disciplines, to develop a research base with a socially valid theoritical foundation:

1 Communication Theory
2 Psychology
3 Cognitive psychology
4 Decision making theory
5 Management Science
6 Human computer interaction
7 Sociology
8 Artificial intelligence
9 Semantics
10 Linguistics
11 Economics
12 Philosophy
14 Computer Science
15 Ethnomethodological design.

7 CONCLUSION

User studies have observed that, information 'producing' and information 'seeking' behaviour are closely related and linked and one reason because of which information systems are not accepted, is that they fail to provide linkages between these two activities. Considerable debate and research is going on with the study of the concept and role of information as well as looking for insights into the mind of the user of this information ie., human along with the factor affecting the information seeking behaviour in the information based society.

71 USER CENTRED

Despite the LIS profession's objective to serve its patrons/clientele, only recently, the profession has began to absorb the implications of some of the true meaning of serving the user better. As the LIS heads towards the 21st Century, the profession ie, theory and practice, we may have to have 'vision' coupled with the 'changing research paradigm', towards more indepth understanding of the user perspective.

INFORMATION NEED AND PROCESSING FOR SMALL SCALE INDUSTRIES (SSI'S): A QUEST FOR INFORMATION NETWORK IN 21ST CENTURY

SUNIL KUMAR*
S SRIDHARAN**

1 THE PRESENT SCENARIO

In the Government's efforts towards globalisation of Indian economy, the immediate impact is to exert and pressure of competitiveness on the Indian Industry in general, whether they are small, medium or large. The advent of multinationals with their techno-economic might, has given a totally new dimension to the competitive equilibrium in the local market, which has hitherto been a stronghold of Indian Companies. This being the scenario, one can imagine the situation in which SSIs have to perform. However, the entrepreneurial culture has to be nurtured, promoted and developed. Though, there are a number of consultants or consultancy organisations providing techno-economic reports, feasibility study reports, business potential survey reports etc. to aspiring entrepreneurs, but most of them are not only outdated, but also non-standardised. Given the current pace of rapid environmental changes, it is imperative that the standardised method of collecting, storing and disseminating timely, accurate and pertinent information to the entrepreneurs, who want to be self-employed, or who are already in the business. Keeping this in view, an effort is made to provide a model of Information processing system for SSI's.

2 INFORMATION : THE NEED

In the age of fast changing technology, competition and customer preferences in an open economy, the Small Scale Enterprise cannot afford to miss the information essential for major decision and long-range planning. Information helps to identify the types of products to be manufactured, buyers of the product, needs and demands of the customers etc. In other words, information is a basic resource, on which depends all other resources, ie., it

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allows other resources to be identified, evaluated and utilized in a systematic and efficient manner. Business information is the published data, facts and statistics needed for decision making in business organisations, private or public, as well as, in Government. It includes marketing information, financial, banks and company information, laws and tax regulations, economic, commercial and trade information, as well as factual information about the environment in which business operates. There are a number of reasons, why an entrepreneur needs information. To sum it up an entrepreneur mainly needs information due to the following reasons:

(*a*) To identify and select the items which are exclusively viable at small scale level (reservation, markets, etc).

(*b*) To prepare a project reports and feasibility studies on selection of particular product or process;

(*c*) To find out the sources of information/assistance on raw materials, machinery, marketing, finance etc;

(*d*) For making decision to start up a plant, choosing technology, venture investment etc;

(*e*) To find out the source of financial assistance, contact person, designated officers, nodal agencies etc.

(*f*) In case of sick units, how to revive and whom to contact for the remedial measures.

To meet the above requirements, a good information system can provide timely, accurate and pertinent information to the users in an organized manner and make it available at the reasonable price.

3 INFORMATION PROCESSING SYSTEM

Planning of an information system (IS) is an activity which considers a number of related issues such as:

(*a*) Analysing the business objectives;

(*b*) The information needs and priorities;

(*c*) The functions that makes up the business, the types of facts that are kept and how all these relate to each other.

Information sources/database, Lib & Inf Services and manpower are the three basic elements for operating and managing the information system. The analysis of data input are to be processed into information output documents. Thus, comperised information processing is an activity of handling or manipulating of raw data, and transforming it into meaningful information,

to achieve some desired goals and results in decision making. This system performs three basic functions:

(*i*) accepts raw data;

(*ii*) processes or converts raw data into information; and

(*iii*) products and communicates information to the users.

In other words, it consists of outer environment; an input model, a process model and output model. It may be best presented as Fig 1.

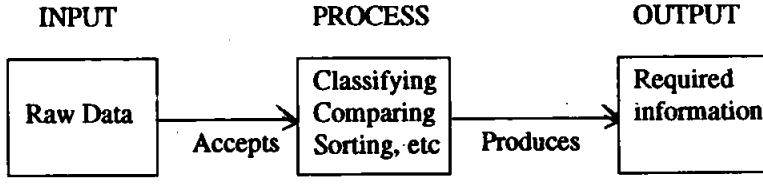


Fig 1. Model of Information Processing System

In order to achieve the objectives, it must be able to handle voluminious data, complicated processing of data and multidimensional analysis, provide speedy search and ease of retrieval, and communicate with any destination in its purview, on time at a reasonable cost with the help of information network.

To provide an effective IS, we should consider the following three components:

(*i*) Nature of data itself;

(*ii*) Nature of sources; and

(*iii*) Method of dissemination of information. (keeping in view the literacy level of the entrepreneurs.)

Generally, an entrepreneur needs information in the following areas. The nature of database should correspond to these following:

31 NATURE/TYPES OF DATA REQUIRED FOR SSI'S

(*a*) Market potential;

(*b*) Product and its uses;

(*c*) Production details and process of manufacture;

(*d*) Quality control and standards;

(*e*) Land and building;

(*f*) Machinery and equipments;

(*g*) Raw materials;

(*h*) Utilities, eg., power, water, communications etc;

(*i*) Working capital;

(*j*) Requirements availability of finance;

(*k*) Names of machinery and equipments with their suppliers;

(*l*) List of raw material suppliers with their suppliers/sources;

(*m*) List of supplying agencies, type of support and addresses, officers to be contacted, etc;

(*n*) Latest technology available in their area of concerned;

(*o*) Information regarding Government rules and regulations, their policies and programmes specifically to reserved items for SSIs respectively.

32 INFORMATION SOURCES & ASSISTANCE FOR SSI'S

Information sources can be of two types namely, Documentary and Non-documentary. These are very useful for an entrepreneur to get the required information. Through an information centre having them, it helps to identify and select items, etc to set up an enterprise.

321 Documentary Sources

Documentary sources includes primary, secondary and tertiary documents. Primary information is collected directly from the first sources and generates it. It is referred as first hand information eg., (internal information within the organisation) can be treated as primary information. A single enterprise cannot afford to collect data directly from original sources. In such a situation, an enterprise seeks secondary information which is derived from primary sources of information. It includes directories, handbooks, statistical reports, market survey, literature survey, abstracts, indexes, bibliographic databases etc. Most of them are highly specialized ones. Tertiary sources helps to identify and select the information in using primary and secondary information effectively eg., bibliographies, directores of directores, abstracting bulletins, databases and so on. It can be enumerated as follows:

(1) Data handbooks, General books, Project profiles etc.

(2) Trade directories, Yellow page directories.

(3) Trade catalogue and brochure.

(4) Newspapers, advertisements, Government reports, etc.

(5) Column's on New product and Processes in journals and newsletters, etc.

(6) Product specification, standards and so on.

322 Non-documentary sources

Some of them are the following:

(1) Agents, dealers and distributors;

(2) Consultants, and advisory cells etc;

(3) Customers and consumers;

(4) Friends, established or experienced entrepreneurs;

(5) Financing agencies, Government department, banks etc;

(6) Exhibitions, trade fairs, seminars, etc;

(7) Training Institutes, chambers of Commerce, Industrial Associations and so on.

33 METHOD OF DISSEMINATION

Information can be disseminated through the use of electronic media and communication technology in an efficient manner. Some of the ways of disseminating information are as follows:

(a) Publishing materials;

(b) Broadcasting (Radio & TV etc);

(c) Advertising in newspapers, journals, etc;

(d) Through electronic media/Audio Visual equipments (eg., CD-Rom etc);

(e) Sattelite communication technology with computer networking system and so on.

4 INFORMATION NETWORK: THE NEED OF THE HOUR

To handle specialised and technical information, there is a need of institutional networking to provide business information on demand, to those who are in need, at least at one central place, to carryout their business and research activities, if necessary at a nominal cost. The need is felt due to the following:

(1) Duplication of published materials & their rising cost in collection of business information;

(2) Non-availability of information sources at one central place for the

development of industries;

(3) Lack of speedy, accurate and authentic information at the right time to the business community, research scholars, policy maker, etc;

(4) Lack of clearing houses at the central level where an entrepreneur can have access all types of required information that needs to be shared and disseminated through out the country.

To set up a clearing house for information network, we require:

(*i*) Necessary infrastructure and physical facilities ie., computer and communication facilities etc.

(*ii*) Highly skilled and trained manpower specialised in networking who can handle technical information effectively.

(*iii*) All types of published and unpublished documents on industries and related subjects for storing and disseminating business information to the user.

Thus, it will integrate and coordinate the service of business area. So, it become necessary to organise a system of linkages engaged in business organisations, government departments, research institutions including non-profit organisations with the help of nodal agencies, ie., NIC, or participating in already existing information network such as INFLIBNET, DELNET, CALIBNET, and so on.

5 CONCLUSIONS

With all our advancements so far, the need for updated, accurate, standardised informations of SSIs is not yet fulfilled. But at the same time a lack of information makes the aspiring youth of India, as well as young entrepreneurs, get confused in their entrepreneurial career decisions. It is high time, a nodal agency at all India level to take up the challenge to be already source of the required information for entrepreneurs covering important aspects of product/project selection, market survey report, techno-economic feasibility report on enterprise launching, management, modernisation and diversification through an integrated information centre by the networking of several institutions. This information is fed into a common computerised data base, enjoying the same access facility connected with the help of National Informatic Centre (NIC).

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INFORMINATION TECHNOLOGY AND CHILDREN

ANNAPURANA DEVI

1 INTRODUCTION

Library and informination services are very important for the development of nations.While the development of the nation is concerned Library service to the young is vital, not only for the future of the Library, but also to the welfare of the society. The young, means the children, should not be ignorant about the benefits obtained from the Library.

11 PLACE OF CHILDRENS' LIBRARY

The Librarian's service to children requires as much scholarship as any other part of the library profession. The planning of library, whether it is academic, special or public, is considered as a part of educational, scientific and cultural process of socio economic development of a country. Children should be taught to be library oriented. On the other hand it must be taken for granted, that to be a good children's librarian, requires a very special kind of skill, which unfortunately few people possess. The main quality expected is the ability to communicate with the child, to understand needs, interests and desires. Besides, the librarians must be aware of the literary values, which will enable to window the good materials from the inferior, and there is much of both in today's book productions. The aim of service to children is of course the expansion of the children's intellectural horizon. Some parents consider children's library as day-care centre, that is, a suitable place for keeping their children safe in the periods, they are out from home. But this is an indecent idea. The Library should not be a children's home.

2 PRESENT POSITION

Ours is an age, that is called the 'Information age' beginning around 1950's. It has long been recognised that access to scientific information is necessary for technical and economic progress. As a matter of fact, information has become such a precious resource, that the fate of a modern nations, in all its essentials, is connected with the capacity to generate and exploit it. Countries, who do not develop this capacity in the near future, will be left even more behind.

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21 DEVELOPING COUNTRIES

The developing countries have many obstacles to overcome on their road to establishing a national infrastructure for library and informination services. One of such obstacles is economic situation. Substantial economic resources are needed to provide the manpower, professional education and the necessary investments in literature, buildings and equipments, and to build the technological communication necessary for library and information services. Some obstacles are of cultural, political, administrative, technical and professional nature. Low status of the profession is frequently mentioned. Regarding political factor, unstable government and constant changes in the priorities set for development are very much known.

3 CHILDREN'S LIBRARIES

Regarding children's library in India, it can be mentioned, that India indeed has a treasure of Children's literature. The stories of Panchatantra, Hitopadesha and other such works are nice examples-which are very much tempting for the children. Books are enjoyable in all cases. If a child cannot reach books, then books must reach the child. The public libraries in many places have separate corner for the children. Some universities provide children's corner in their libraries. The children section of the National Library at Calcutta is also very popular and is known to all. The Delhi Public Library too has a children's section in its main Building. The Manmohan Bal Pustakalaya in trans-Jamuna area of Delhi, and children Book Trust Library in New Delhi are drawing crowds of young folks. Like these, there have been scattered efforts in many places. The creative genious Shankar founded children's Book Trust (CBT) and Association of Writers and Illustrators for children (AWIC). The AWIC is an active forum for the development and promotion of children's literature. It has a children's library project under which it is running 50 home libraries in Delhi and a few major cities in UP, Gujarat and Maharashtra. This effort of AWIC deserves appreciations and should be followed up by all other States in the country.

31 CHILDREN'S LIBRARIAN

Good children's books alone do not make a good children's library, unless there is a good children's Librarian in charge of it. In a good children's librarian, the prime qualification is to have a genuine interest in and love for children. Liking for children is a primary requisite. In fact children do not need a librarian as a guide, but rather a friend to meet them more than a half way. For this the librarian must have a warm heart and a generous nature, willingness to smile and laugh and a capacity to accept the child as it is and to acknowledge its distinctive characteristics.

32 OBJECTIVE OF CHILDREN'S LIBRARY

"Education is to liberate"–This cannot be ignored. But this reality of life cannot be achieved without developing the abilities of self learning and use of library. In order to inculcate these abilities through promotion of reading habits, the children's libraries should be considered as a resource centre. The children's minds would be library oriented only when there will be a library meant for them. Children's library with a librarian of attractive nature will encourage all children to use library and devote themselves to books.

33 INNOVATIONS

We are now moving forward to the 21st century which century will be the age of creativity. A paperless society will be round the corner, whether we like it, or not. It can be well felt after finding the development of science and technology at present, that the conventional paper based documents would vanish from every day life. Microforms, which is a substitute for paper is not much popular, because the microform reader is not convenient to be used for the mass of people. Instead pocket-held Video units, such as wrist-watch TVs will be introduced soon, in the 21st century. Technological upgradation should take place in libraries.

4 EMERGENCE OF INFORMATION TECHNOLOGY AND MICROGRAPHICS

It has been found that the children are becoming more and more inquisitive in science and technology. They are very much fond of any new innovation. They like to be amidst the electronic world. The information revolution of today is indisputably caused by the unprecedented advances in computers, telecommunications, micrographics and reprographics. The advancement in technology has made the accessibility to world information and knowledge from any part of the globe.

41 MODERNISING LIBRARIES

Realizing the need to access information available at any corner of the world and to face the challenges posed by the information age in the 21st century, most of the institutions in India are getting themselves equipped with the modern technology.

42 COMPUTERS

In this age of science, electronic computers provide information which subsequently helps to reduce the bulk of the printed materials. So the computers have significant contributions in making the libraries and the societies paperless in future. Today, the amount of information available in books, articles, periodicals, abstracting and indexing periodicals, conference proceedings, seminar papers, bibliographic databases has grown phenomenally.

5 CONCLUSION

Now the science and Technology has given our society to jump to a wonderful upliftment. Application of Information Technology (IT) in the organisation and services of libraries has brought a sea-change in the functioning of libraries in the last two decades. It has given us:-

(1) New ways to store information compactly and cheaply.

(2) New mechanism to manipulate, scan and search records; and

(3) New facilities for cheap and rapid transmission for information over long distances.

51 LIBRARY GRID THROUGH LEGISLATION

In our country the position of the children's libraries is pitiable. Keeping in view to develop the nation, there should and must be a corner in every public library as well as academic library, for a collection for the children. Libraries do not grow in vaccum. They are a part of the society. The first and foremost thing which will accelerate our library service is library Legislation. The states that are not having any Library Legislation be pursued to fall in line with others that already have it. Having Library Legislation only, any organisation can step forward to be equipped with all information Technology in the 21st century. In the 21st century the development of any kind of libraries, specially the public libraries can be expected with the applications of Information Technology, for which it can be expected too, that we shall get some modernized Children's Libraries.

52 ILA'S ROLE

It is felt that Indian Library Association or other conventional organisations should take such steps which may be helpful in not only creating a national conciousness for establishing Children's Libraries in all regions of the country, but also take up some steps to further this noble cause. Such steps are as follows:

(1) Preparation of a workable scheme of a self sufficient Children's Library–one for a urban and other for a rural area.

(2) Preparation of an integrated plan of the working of Public school and Children's library.

(3) Preparation of bibliographies of Children's books written in different Indian languages.

(4) Preparation of a scheme of training of Children's libraries.

(5) Setting up a central committee on the line of Children's Book Council

proposed by the National Book Trust Seminar for co-ordinating the activities of writers, publishers, librarians and educators, to promote writing and publishing of healthy and worthy Children's literature.

53 FUN & RECREATION

Some games with computers can be kept for recreation/fun. Besides these a librarian may be chosen for the children, who has a requisite professional training. Librarian must be trained as a specialist. Some specialised subjects to be learnt by the librarian which generally cover:-

(a) Children's books and reading,

(b) Reading guidance,

(c) Storytelling,

(d) Organisation and administration of Children departments,

(e) Co-operation with school libraries and extension works. It can be expected that good trained Children's librarian will be produced so that any scheme of the development childrens libraries in the country may be established in the near future, that means in the 21st century.

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INTERNET AND ITS RESOURCES FOR THE HEALTH INFORMATION SCIENTIST

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0 INTRODUCTION

Rapid developments in the Information Technology are having great impact on our society. Mankind is rapidly leaping from industrial age to information age. Today we play chess with machines and use computer screens to pain master pieces of art instead of canvas. We communicate across the continents without knowing whether the voice and pictures are beamed to satellites, carried over radiowaves, over wires or through optic fibres.

Professionals of almost all professions are experiencing new challenges of adopting to new work environment influenced by the information technology. The methods, materials and tools of working are undergoing dramatic transformation. As with other professions, Information Scientists are also experiencing new opportunities and challenges of working under the influence of information technology. The world of information is changing rapidly due to increasing possibilities and channels of "interconnectivity". Scientists, researchers, library and information professionals are increasingly interchanging e-mail with their counterparts across the globe, accessing fulltext databases, navigating through the online catalogues of universities situated at different corners of the world, accessing international databases, downloading files, copying electronic journals residing on a university computer, getting informal advices on their research topic from news groups and a great deal more. All these are possible due to omnipresent 'Internet'.

Under such a technology onslaught it has become imperative on the part of librarians and information scientists to understand and realise the potential of Internet as a source of information and master the techniques for exploting its functionality in order to satisfy the need of the users. Moreover, Internet can be of immense utility for information requirements of professionals. It is now possible to communicate at amazing speeds with professional colleagues all over the world. In case of a problem, one can

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consult with an expert by joining a discussion group which communicates via E-mail. For instance CDS/ISIS user groups can provide answers to those who are having difficulties using the software. With Internet connection one can now interrogate vast amounts of knowledge at a distance. National Library of Medicine, for example, provides access to its MEDLARS databases over Internet. The WHO Library now offers its WHOLIS database, its newsletter Liasion and WHODOC over Internet. Moreover, the retrieved information can be downloaded and synthesised with existing information and passed on to end users.

1 WHAT IS INTERNET

The Internet (Inter-network) is a loose collection of millions of computers at thousands sites around the world, whose users can pass along information and share files, no matter which of those computers they are using. It was born about 20 years ago, out of an effort to connect together a US Defence Department network called ARPAnet and various other radio and satellite networks. The ARPAnet was an experimental network designed to support military research–in particular, research about how to build networks that could withstand partial outrages like bomb attacks and still function. In the ARPAnet model, communication always occurs between a source and a destination computer. Users on these computers could send messages to and share files with other users almost instantanously. The original project, called the ARPAnet, after the Advanced Research Projects Agency, which supervised the project, grew gradually for a long time, adding new computers and users at government and university sites.

11 SPREAD

From the mid-1970s to the 1980s, smaller networks that used the ARPAnet technology, such as NSFnet, run by the National Science Foundation (NSF), decided to work together or **internetwork.** They started sending information to one another across special high speed telephone lines, with the ARPAnet as the core. By the 1980s this **internetwork** of computers reached not only across the country, but around the world. Today it links government, university, college, research, and commercial sites, and is known around the world simply as Internet.

12 STANDARD TRANSMISSION LANGUAGE

Internet is constituted of different types of computers. In order to render them interconnected the administrators agreed to have their computers spead the same transmission language, Transmission Control Protocol/Internet Protocol (TCP/IP). That agreement has spawned a worldwide web of computers that are all connected. To send a message on the network, a com-

puter simply has to put the data in a envelope, called an Internet Protocol (IP) packet and "address" the packets correctly. The communicating computers will ensure that the communication is accomplished.[5]

13 WHO RUNS INTERNET

No one person or group runs the Internet. There is no single authority figure for the Internet as a whole. Much of its direction however comes from a group of volunteers called the Internet Society, or ISOC. ISOC is a voluntary membership organisation whose purpose is to promote global information exchange through Internet technology. It appoints a council of elders, which has responsibility for technical management and direction of the Internet. There are two major subgroups of the ISOC: (a) Internet Architecture Board (IAB) which focuses on producing interconnection standards, (b) Internet Engineering Task Force (IETF) which concerns itself with technological development and their impact on the Internet. These groups hold public on-line discussions, where Internet users register their opinions and try to create standards for the Internet Community.[6]

14 WHO PAYS FOR INTERNET

Similarly, no one pays for "it"; there is no Internet Ltd that collects fees from all Internet networks or users. Instead, everyone pays for their part. The NSF pays for the NSFNET. NASA pays for the NASA Science Internet. Constituent networks get together and decide how to connect themselves together and fund these interconnections. Internet is not free, however many times these fees are not passed on to the actual users, which feeds the illusion of free access. Some sites are supported by private grants, others by government funding.[6] The growth of Internet is a phenomenon. The Internet global population is 15 million, with 1,50,000 members joining every month.[4]

2 GETTING CONNECTED TO INTERNET

To use Internet one must get connected to it. There are several ways of getting connected to Internet. These are:

21 PERMANENT DIRECT CONNECTION

Permanent direct connection to a TCP/IP network, that is inturn connected to the rest of the internet. A dedicated Internet line provides fast, round the clock access, for a large group of people. This requires network adapter card, packed drivers, TCP/IP software. This connection makes available the complete Internet services, like electronic mail, bulletin boards, file transfer, remote login etc for the user. This is the costliest way of getting connected to the Internet.

22 ON DEMAND DIRECT CONNECTION

There is more cost effective way. It is to have a dial-in connection to a SLIP/PPP server, which is in turn connected to Internet. This arrangement requires modem, SLIP or PPP software in the users system. Serial Line Interface Protocol (SLIP) or Point to Point Protocol (PPP) are the versions of Internet software, that run over normal phone lines, using standards high speed modems. When the user wants to access Internet, hs has to call a SLIP/ PPP server. Once the connection is made the user is a Internet participant and can use any of its resources. In case of such type of connection access, speed depends on the speed of the modems at both ends. Modem of 9600 baud or prefarably of 14,400 baud are required for such type of connection.

23 DIALUP TERMINAL CONNECTION

With dial-up terminal connection the user links to an Internet service provider as if the user is a terminal on the service providers computer. Internet access utilities (like telnet, FTP etc) are actually run on the service providers computer. The users keystrokes are sent to the software on the service providers computer and the screen output is sent back to the user. To read or send a mail, the user has to log into the remote system first, and only then he can read or write a mail. In order to fetch a file using ftp one has to save the file first to the remote system's disk and then has to use communication programme, to move files from the remote system back to his computer. The user can access all the Internet tools, unless restricted by the system manager. Dialup connection is very cost effective. Other than an account with the service provider, user needs a modem, a telephone line, any type of PC and a terminal emulation package like Crosstalk (Fig 1).

24 MAIL ONLY CONNECTION

UNIX systems having connection to service provider like UUNET, can use its UUCP services to pickup Internet mail and USENET news using standard phone lines. The UNIX system uses UUCP to dial into a remote system at regular intervals and transfer news and mail. Most networking services like BITNET and compuServe has gateways that allow a user to exchange electronic mail with Internet, read USENET news, and allow the user to request a file via an electronic mail message.

25 INTERNET AVAILABILITY IN INDIA

In India a Library can access Internet through networks like NICNET, ERNET etc. NICNET users can send or receive e-mail from Internet using any of its more then 600 nodes spread all over India. Users living in 14 cities (which will soon be increased to 70) which are connected over high speed link can have full Internet facilities. Recently, National Information Center

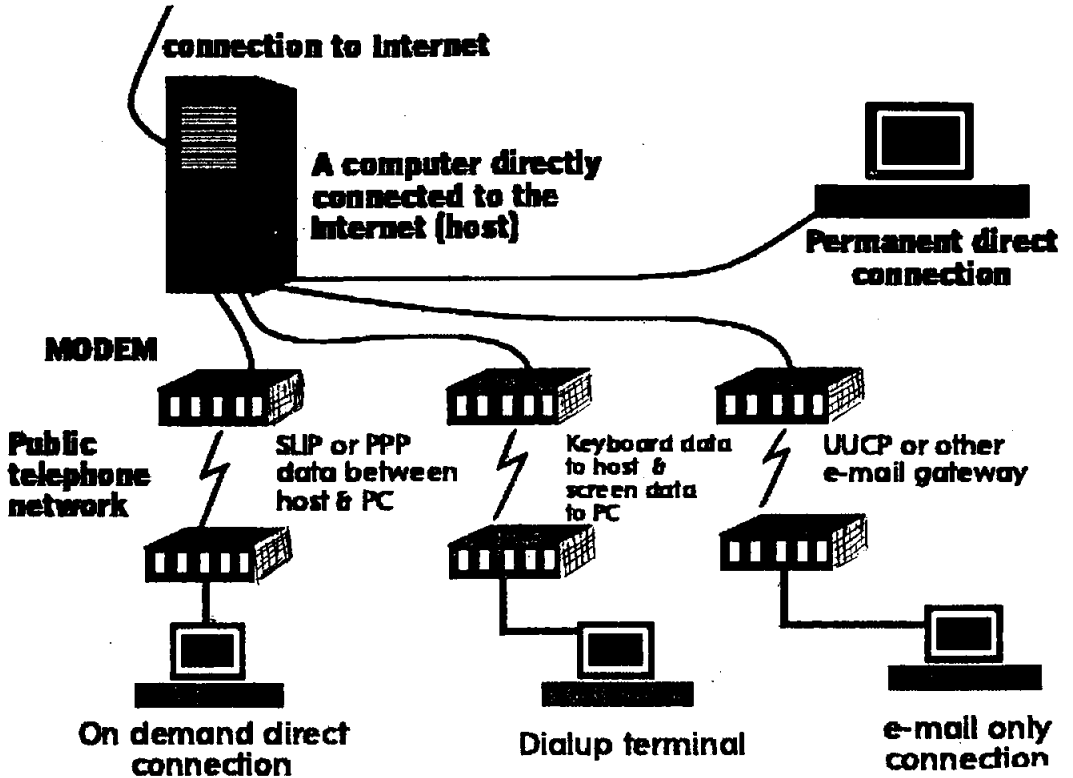


Fig 1. How permanent direct. on-demand, dial-up termina' and e-mail only connections access to Internet

(NIC) has started a programme called Research and Education Network of National Informatics Centre (RENNIC), which will provide educational and research institutes Internet services like e-mail, file transfer, remote login, gopher etc.

3 TOOLS & UTILITIES FOR INTERNET USERS

It is easy to get connected to Internet than to find out what one needs. Because the Internet was built by and for sophisticated comupter users. It is not as user friendly as the general user needs. The Internet is hard to learn for use, almost completely disorganized, there is too much of information and it is also growing too fast. There are some basic tools and utilities for working on the Internet. Here is a brief note on each of them, and in the next section a detail discussion on each and the resources that can be accessed using them is given.

Electronic mail allows users to send messages.

USENET News is the worlds largest bulletin board service, it lets the user read and post message that have been sent to public newsgroups.

Telnet is used for logging into other computers on the Internet. It is used to access databases, library catalogue etc.

FTP is a tool for moving files back and forth, and is useful for retrieving files from public archives scattered around the world.

Archie lets the user to locate files on Internet.

Gopher lets the user to prowl through the Internet by selecting resources from menus.

WAIS searches and provide access to resources on Internet without regard to where they really reside.

WWW provides information through **hypertext technology.**

31 ELECTRONIC MAIL (E-MAIL) & BULLETIN BOARD SERVICES

E-mail stands for electronic mail and allows to send messages from one computer to another via a telecommunication channel. The basic concept behind e-mail is same as ordinary mail. Users of Internet have their own unique e-mail addresses. One can send e-mail to people at their particular addresses. In turn, they respond to sender's e-mail address. One can also subscribe to the electronic equivalent of magazines and newpapers. However e-mail has two distinct advantages over ordinary mail. The most obvious is speed, and other advantage is that one can also transfer programmes and data files through e-mail. It also has advantages over the telephone. One can send

his message when it is convenient for him and recipients repond at their convenience.

E-mail Addresses of Interest to Health Information Scientist

Internet has e-mail addresses of people and organization that exchange information on various subject interest. It is known as Publicly Accessible Mailing List (PAML). Email addresses that can be of interest to a health information scientst are outlined in the following paras.

(a) Act-Up

Its purpose is to discuss the work being done by the various Act-Up chapters world wide, to announce events, to exchange ideas related to AIDS activism and more broadly to discuss the politics of AIDS and health care.

Address: act-up-request@world.std.com (Lenard Diggins)

(b) Add-Parents

It provides support and information to parents of children with Attention Deficient/Hyperactivity Disorder. To subscribe, send mail with message body of this form **subscribe add-parents your fullname.**

Address: listserv@n lkbt.rain.com

(c) AIDS

It is a distribution list for people who can not read **sci.med.aids.** This list covers predominantly medical issues of AIDS, with some discussion of political and social issues. Postings to AIDSNEWS and Health InfoCom News mailing lists are also carried.

Address: aids@cs.ucla.edu

(d) Ayurveda

This mailing list is used to help people find out more about ayurveda such as lectures, workshops, stores that sell ayurvedic herbs and so on.

Address: ayurveda-request@netcom.com

(e) Biomeh-L

It is for the members of the International, European, Biomechanics, ISEK (International Society for Electrophysiological Kinesiology), and for all others with an interest in the general field of biomechnics and human and animal movement.

Address: listerv@nic.surfnet. (Tom Van den Bogert)

(f) Blind News Digest

It is moderated mailining list in digest format that deals with all aspects of the visually impaired/blind. To subscribe, send the message **subscribe blindNws yourname** to **listserv@vm1.nodak.edu** or send mail to **wtm@bunker.afd.olivetti.com.**

Address: wtm@bunker.afd.olivetti.com

(g) Cancer Net

CancerNet is a quick and easy way to obtain, through electronic mail, cancer information statements from the National Cancer Institute's Physician Data Query (PDQ) system. CancerNet also lets one request information about PDQ, PDQ distributors, and other products and services from the NCI, including a list of patient publications available from the Office of Cancer Communications. One can get help by writing **help** in the message of the e-mail.

Address: cancernet@icicb.nci.nih.gov

(h) Cogneuro

It is an informal media to discuss matters at the interface cognitive science and neuroscience.

Address: cogneuro-request@ptolemy.arc.nasa.gov

(i) Down Syndrome

It is for discussion of any issue related to Down Syndrome. This list is open to parents, siblings, relatives, friends, teachers, and professional; as well as to people with Down Syndrome.

Address: wtm@bunker.afd.olivetti.com

(j) Genetics Banks

The RETRIEVE e-mail server allows users to retrieve records from gene sequence databases at the National Centre of Biotechnology Information (NCBI), National Institute of Health, Bethesda, MD. Several sequence databases, including GenBank, can be searched (one at a time) by sending a specially formatted mail message containing the query to the RETRIEVE server. The results are returned in a mail message. One can obtain detailed information by sending e-mail with word **help** in the body of the message.

The following databases are currently available for RETRIEVE searchers:

Name	Description
genbank	GenBank DNA sequence databses (only the current public release is searched)
gbupdate	GenBank update (cumulative daily updates since the last public release)
embl	EMBL DNA sequence database (only the current public release is searched)
emblupdate	EMBL update (cumulative weekly updates)
swissprot	SWISS-PROT protein database
pir	PIR protein database
vector	Vector sequence subset of GenBank (LANL)
genpept	GenPept (translated GenBank)
gpupdate	GenPept update (cumulative daily updates)
kabatnuc	Kabat's database of sequences of immunological interst–nucleotide sequences
kabatpro	Kabat's database of sequences of immunological interest–protein sequences
tfd	Transcription Factors Database

Address: retreive@ncbi.ntm.nih.gov

(k) Immune

It is a support group for people with immune system breakdrowns and their syndromes, such as Chronic Fatigue Syndrome, Lupus, Candida, Hypoglycemia, Multiple Allergies, learning disabilities etc.

Address: immune-request@weber.ucsd.edu

(l) Info-Aids

Its purpose is to act as a clearing house for information and discussion about AIDS, including alternative treatment, political implications, etc.

Address: info-aids@rainbow.uucp

(m) Medphys

It is to foster electronic communication between medical physicists. Most of the subscribers are involved in radiotherapy.

Address: medphys-request@radonc.duke.edu

(n) NeXT-Med

It is open to users and developers interest in medical solutions using NeXT computers and/or 486 systems running NeXT step. Discussions on any topic related to NeXT use in the medical industry or relating to health care are encouraged here.

Address: next-med-request@ms.uky.edu

(o) Nucmed

It is discussion group of nuclear medicine, format of digital images and related issues.

Address: nucmed-request@unwovax.uwo.ca

32 USENET NEWS GROUP LIST

One of the valuable resources the Intenet has to offer is the mother of all electronic bulletin board systems: USENET. Unlike e-mail, which is usually "one-to-one". Usenet is the international bulletin board service of the Internet. It is like a meeting place, where people gather to meet their friends, discuss the day's events, keep up with latest trends areas of their interest, or talk about whatever is on the mind; all electronically. The basic building block of Usenet is the newsgroup, which is a collection of messages with a related theme. There are now more than 5,000 of these newsgroups, in several different languages, covering everything from Art to Zoology. Newsgroup names start with one of a series of broad topic names. These broad topics are followed by a series of more focused topics. The main hierarchies are:

alt	"Alternative" discussion on a wide variety of topics.
bionet	Research biology
bit-listserv	Conference originating as Bitnet mailining lists
biz	Business
clari	Clarinet commercial news service
comp	Computers and related subjects
misc	Discussions that don't fit anywhere else
news	News about Usenet itself
rec	Hobbies, games and recreation
sci	Science other than research biology
soc	Social group often ethnically related
talk	Politics and related topics

One can use "newsreader" programme and join such news groups on

Unix systems rn or nn are the commonly available programmes.

e.g. to connect to news.announce.newusers

nn news.announce.newuser

33 NEWS GROUPS OF INTEREST TO HEALTH INFORMATION SCIENTIST

alt.drugs	Recreational pharmaceuticals and related flames
alt.drug.caffeine	About stimulant drugs
alt.folklore.herbs	Discussions of herbs and their uses
alt.med.efs	Chronic fatique syndrome information
clari.news.law.drugs	Drug related crimes and stories
clari.tw.health	Disease, medicine, health and sick celebrities
clari.tw.health.aids	Aids stories, research and politics.
sci.anthropology	All aspects of studying humankind
sci.bio	Biology and related sciences
sci.environment	Environment and ecology
sci.life-extension	Slowing, stopping or reverting the aging
sci.med	Medicine
sci.med.dentistry	Dentally related topics
sci.med.nutrition	Physiological impact of diet
Sci.med.occupation	Occupational injuries
sci.med.pharmacy	Teaching and practice of pharmacy
sci.med.physics	Phyisics in medicine
sci.med.telemedicine	Clinical consulting via computer networks

4 TELNET

Telnet is the Interenet's remote login protocol. It allows one sit at a keyboard connected to one computer and log on to remote computer across the network. The connection can be to a machine in the same room, on the same campus, or in a distant corner of the world. When one is connected, it is as if his keyboard is connected directly to that remote computer. He can access whatever services the remote machine provides to its local terminals. Telnet is a software tool that allows to use Internet to connect to databases, library catalogues and other information resources around the world. To use telnet the user has to type just

telnet remote-computer-name
e.g.
telnet access.usask.ca
and hit return.

This is all one has to do to connect a telnet site. In this case it will be connected to a service known as Hytelnet, which is a database of computer-

ised library catalogues and other databases availabe through telnet.

41TELNET SITES OF INTEREST TO HEALTH INFORMATION SCIENTIST

(a) Alcoholism Research Data Base.

It is a database of articles and other information related to alcoholism and other forms of substance abuse. It can be accessed by giving the command **telnet lib.dartmouth.edu.** Once it is connected type **select file cork.**

(b) Conversational Hypertext.

Communications Canada, a Canadian government agency is developing Conversational Hypertext Access Technology (CHAT), a system to provide easy database access to people with little or no computer experience, using what is known as hypertext links. Instead of cryptic computer commands, users type questions in English. It can be connected by command **telnet debra.doc.ca 3000** or **telnet 142.92.36.15 3000** and when connected login as **chat.** Three databses are available. AIDS is one of them. You may "ask" AIDS database, "When was AIDS first discovered?" and it will answer: "The first case of AIDS in North America was diagnosed in 1979. Before that, it existed in Africa, probably beginning in the 1950s. AIDS was discovered in North America when a number of young men with history of homosexuality developed a rare type of cancer called Kaposi's sarcoma."

(c) FDA Elelectronic Bulletin Board

It is a bulletin board containing information on Food and Drug Administration (FDA) action, congressional testimony, news release, consumer information, AIDS, and veterinary medicine. It can be accessed by the command **telnet fdabbs.fda.gov** and once connected login as **bbs.**

(d) MEDLINE

The MEDLINE database contains article citations and abstracts, indexed from over 4000 journals in medicine and related health sciences. It may be accessed by telnet by connecting any of these sites.

telnet melvyl.ucop.edu
telnet lib.dartmouth.edu
telnet library.umdnj.edu; Login LIBRARY
telnet utmeml.utmen.edu; Login HARVEY

These are some university and medical school libraries providing access of MEDLINE. However access is normally limited to students, faculty and staff.

(e) National Library of Medicine

The National Library of Medicine (NLM) holds over 4.5 million records, including books, journals, reports, manuscripts, and audio-visual items, and offers online information on a variety of medical topics. It has a family of databses known as MEDLARS. It can be accessed by command **telnet etnet.nih.gov,** once connected login as **etnet.**

(f) American Type culture Collection

It can be accessed by command **telnet atcc.nih/gov** or **telnet 156.40.144.248,** login as **search** with password **common.**

(g) Texas Cancer Data Center

The Texas Cancer Data Center is funded by the Texas Cancer Council as a component of the Texas cancer Plan to provide computerized information on cancer demographics, resources, services and programs to all who plan, develop, fund, provide, need, and/or use cancer resources in Texas. It can be accessed by command **telnet txcancer.mda.uth.tmc.edu** or **telnet 129.106.60.97,** when connected login as **TCDC.**

(h) Educatiional Tech Net

It offers forums and discussion groups on medical technology and education. It may be accessed by command **telnet etnet.nih.gov** or **telnet 130.14.10.123,** when connected logih as **etnet.**

(i) Genomic database

It offers genomic databse of the mouse. It can be accessed by command **telnet morgan.jax.org** or **telnet 192.43.249.17,** when connected login as **guest.**

42 CONNECTING TO COMMERCIAL DATABANKS WITH TELNET OVER INTERNET

Until 1993, one needed to dial directly to a service via modem and pay a long-distance charge, or access through an X.25 network like SpintNet, BT Tymnet or Telenet to connect to commercial information services. Today, it is possible to access these through Internet.

Commercial information services are collections of databses from a variety of information providers that are available for a fee. Every one of these services requires an account. Some accounts are free, some require an initial small charge, and some requires monthly surcharge. The Internet is just a way of get to these services–a conduit. Traditional Internet tools are unlikely to work here; one has to learn to use each service's proprietary interface and query language. A few services have begun allowing you to e-mail search

results back to user's mailbox.

Besides connect time fees and per record costs, X.25 networks add a small telecommunications charge to the bill. Accessing over the Internet is usually cheaper than X.25 links, sometime even free. Once on the Internet, accessing the commercial databases via telnet takes fewer steps and less time to establish connections, which can be an advantage. Some of the commercial services accessible via Internet are as follows:

(a) DIALOG Information Service

Dialog is one of the largest information provider. It provides more than 450 databases covering nearly every coceivable subject area, including science and technology, company information and financial data, medicine and news. Most of the databases are full text, including many major newspapers, patents and trademarks worldwide, and social sciences. Accessing via Internet cuts the communication charges to $4.20 per hour.[7] It can be accessed by the command **telnet dialog.com.**

(b) Data-Star

Data-Star is online information service with a heavy emphasis on European trade and business data, biomedical and chemical industries, and technology. Until recently it was an independent company; now it is owned along with Dialog by Knight-Ridder. It is $3 an hour to access via the Internet, as opposed to $11 for SprintNet.[7] It can be accessed by the command **telnet rserve.rs.ch.**

(c) Lexis/Nexis

It is Dialog's main competitor from the Mead Data Paper Company. Nexis is known for its extensive coverage of newspapers, magazines, and esoteric trade journals, virtually all in full text. Lexis is the legal databse side of the service. Here one can access US state and federal laws, legislation, court rulings and so on. There are also financial and medical resources on the twin services. One saves $13 per hour by accessing it on Internet.[7] It can be accessed by the command **telnet lexis.meaddata/com**

(d) STN (The Scientific and Technical Information Network)

STN is the online service for scientists, particularly chemists and engineers. It is a joint effort of several scientific organisations including American Chemical Society's Chemical Abstract Service. It is rich in chemistry and material sciences. Access via X.25 networks is priced at $9 to $12 an hour. Internet access is only $5 an hour.[7] One can have records sent by e-mail to one's Internet mail address for the same cost as a paper printout and

save the connect charges one had to pay if these were captured online. It can be accessed by the command **telnet stanc.ca.org.**

(e) BRS

BRS, which once stood for Bibliographic Research Service, was part of the Robert Maxwell empire. In March 1994 it was acquired by CD PLUS Technologies. BRS offers access primarily to medical and scientific collections of databases and serves library and medical professionals. Internet charges are $5 an hour, versus $13 for X.25 networks.[7] It can be accessed by the command **telnet brs.com.**

(f) Orbit Information Services

Orbit is the other online service once owned by Robert Maxwell. It has been acquired by Questel, an international online service based in Virginia and Paris, France. It has ninety files that contain mostly patent, chemistry, and technological information. X.25 charges are $13 per hour whereas Internet access charges are $6 per hour.[7] It can be accessed by the command **telnet orbit.com.**

III. FTP

One may find information or some useful software on the Internet which he may want to copy or download on local system. The tool for doing this is **ftp.** Ftp is named after the application protocol it uses: the "File Transfer Protocol" (FTP). As the name implies, the protocol's job is to move files from one computer to another. It does not matter where the two computers are located, how they are connected, or even whether or not they use the same operating system. Provided that both computers can "talk" the FTP protocol and have access to the Internet, one can use the **ftp** to transfer files. Like **telnet, ftp** requires to specify the machine with which one would like to exchange files.

e.g.

flp 128.167.254.179

Connected to 128.167.254.179

220 nic.sura.net. FTP server (Version wu-2.4(1) Fri May 20 10:20:58 EDT 1994) ready.

Name (128.167.254.179:sukhi): anonymous

331 Guest login ok, send your complete e-mail address as password.

Password:

ftp>

After the remote system has accepted login and password, one can start

transferring files. A **get** command will copy remote file on the local machine and **put** command will copy local file to remote machine. If one does not have a login ID on remote machine then **anonymous** may be tried, it will work in most of the cases.

43 FTP SITES OF INTERST TO HEALTH INFORMATION SCIENTIST

(a) Family Medicine Discussion Archives

It is growing collection of material relating to family medicine, including archived mailings from the FAMMED listserv. These are discussions about uses of computers and networking to help in the teaching and practice of family medicine. It can be accessed by command **ftp ftp.gac.edu,** once connected login as **anonymous.** Change directory to/pub/fam-med by **cd/ pub/fam-med** command. Relevent files may be copied by **get** command.

(b) Internet/BITNET Health Science Resources

It is a very large file of e-mail discussion lists, USENET newsgroups. Free-Nets and other Internet resources relating to health and medicine, complied by Lee Hancock of the University of Kansas Medical Centre. It can be accessed by **ftp ftp.sura.net** with login as **anonymous.** Change directory to pub/nic by **ch/pub/nic** and **get** the **medical-resources-3.94** file.

(c) Sunsite.unc.edu

Sunsite is run by the University of North Carolina. It is a major site for academic information. Health information scientists may look under the medicine and psychology director. It can be accessed by anonymous ftp (**ftp sunsite.unc.edu** or **ftp 152.2.22.8; login anoymous**).

(d) Online issues of **The Scientist**

These are available on Internet. These may copied from anonymous ftp site **ds.internic.net** in **/the-scientist** directory. It can be accessed by **ftp ds.internic.net** or by **ftp 198.49.45.10.**

(e) World Health Organization (WHO)

The WHO's ftp site offers information on major health programmes as well as press releases, e-mail, phone contacts, and general information of the organization. Look under /subject and **/programme** directories. It can be accessed by **ftp ftp.who.ch; login anonymous.**

5 FINDINGS FILES: ARCHIE

Historically, one of the biggest problems on the Internet has been finding what exists on it. Internet has file libraries, archieves and libraries of documents. How to find a file one needs. Alan Emtage, Bill Heelan and peter

Deutsch, students at McGill University in Montreal created a database system called **archie.** It would periodically call up file libraries and basically find out what they had available. In turn, anybody could dial into archie, type in a file name, and see where on the Internet it was available. Archie currently catalogues about 1000 file libraries around the world. There are three ways a user can ask **archie** to find a file:- through telnet to a archie site, programme on your own system or e-mail. All the three methods let one type in a full or partial file name and archie will tell where on Internet it is stored.

51 GOPHER

Gopher, or accuratley, "the Internet Gopher", is a lookup tool that lets one prowl through the Internet by selecting resources from menus. The name "Gopher" is an interesting pun. It started out as a distributed campus information service at the University of Minnesota, home of the Golden Gophers". Originally, it was conceived as a distributed document search and retrieval system. Now it has databases allowing users to search for documents that contain words or phrases; browsing menus of documents; and many more additional features. Although each gopher site uses its own organization for the materials in its domain, gopher menus are like a directory listing of information sources. The user can browse through the directory via an on-screen menu display and request items of interest. In case, the user does not find everything desired in one gopher "library", gopher allows the user to pass electronically to the next gopher library and check there. Gopher supports a great diversity of data. It can be directores of documents and services; user can enter a text words search against the document collection known to a local gopher or multiple gopher sites across the Internet; ASCII text files; images, audio and video file formats; or Phone books. Some gopher allow users to start terminal sessions with available applications. For example, the National Library of Medicine's Gopher allows the user to connect to NLM Locator (public access catalogue) or to MEDLARS.

511 Gopher sites of interest to Health Information Scientist

(a) AIDS Information

The National Institute of Allergy and Infectious Disease maintains a special section of its Gopher for AIDS information. It can be accessed by **gopher odie.niaid.nih.gov.** At **gopher gopher.cic.net** an online newsletter is available on the treatment of AIDS.

(b) CancerNet

It is available on National cancer Institute's Gopher site also. It can be accessed by **gopher biomed.nus.sg.**

(c) Cholesterol

It is an explanation of what cholesterol is, where it comes from and how it affects the body. It can be accessed by **gopher bluehen.ags.udel.edu.**

(d) Clinical Alerts

Clinical Alerts are distributed by the National Institute of Health and the National Library of Medicine for the purpose of getting important findings out to health professionals as quickly as possible. It can be accessed by **gopher uicvm.uic.edu.**

(e) Great Beginnings

It is a newsletter on the care and feeding of infants and young toddlers. It includes information about parental expectations, typical behaviour, home-made toys, language games and so on. It can be accessed by **gopher bluehen.ags.udel.edu.**

(f) National Institutes of Health (NIH)

NIH gopher includes information on the links to biomedical data, activities and grants of the NIH. It can be accessed by **gopher gopher.nih.gov**

(g) World Health Organization

Information about WHO's major health programmes, press release, e-mail/phone contacts etc. can also be had from its gopher service. It can be accessed by **gopher gopher.who.ch.**

6 WIDE AREA INFORMATION NETWORKS SERVER (WAIS)

There are hundreds of databases and library catalogues available on Internet. Each may have its own unique method of searching, if one connects to several, searching can become a pain. Gophers reduce this problem somewhat. WAIS promises another way to obtain information on Internet. In a WAIS, the user sees only one interface, the programme worries about how to access information on dozens, even hundreds, of different databases. User gives keyword and WAIS scours the Internet looking for places where it is mentioned. It provides a menu of documents. Like gopher, WAIS allows user to find and access resources on the network without regard for where they really reside. In gopher use find resources by looking through a sequence of menus. WAIS does the same thing, but it also does the searching for the user. WAIS programme may be on user system, if it is not there then user can connect WAIS site through telnet to another system that has it.

7 WORLD-WIDE WEB

The World Wide Web, or WWW, was developed by researchers at

CERN, the European Particle Physics Laboratory in Geneva. It is similar to WAIS, but is designed on a system known as **hypertext.** Words in one documents are linked to other documents. It is something like sitting with an encylopedia–one is reading an article, sees a reference that intrigues him and so he flips the pages to look up that reference.

71 WWW SITES OF INTEREST TO HEALTH INFORMATION SCIENTIST

(a) CancerNet

CancerNet can also be accessed by **www http:/biomed.nus.sg/Cancer/wecome.html.**

(b) National Health Security Plan

It deals with the practice of medicine and medical insurance in the US. It can be accessed by **www http:/sunsite.unc.edu/nhs/HSN-T-o-C.**

(c) National Institute of Health (NIH)

This is a former Gopher server, with a www front end now available, too. It can be accessed by **www http:/www.nlh.gov/.**

(d) National Library of Medicine

NLM's information services are also available from its **www** site, which can be accessed by **www http:/www.nlm.nih.gov/.**

(e) Palo Alto Medical Foundation

It is a symposium on "managing health care: is it capable of maintaining quality while reducting costs?" It can be accessed by **www http:/www.service.com/PAMF/home.htm.**

8 ELECTRONIC PUBLICATIONS

Internet has large number of electronic publications like Journals and Newsletters. Some of these are table of contents, while other are full texts. Following are some of these electronic publications which are relevant for health information scientists.

(a) Aids Alert for Health Care Workers

Access: The ALERT is distributed elctronically by the instit ute for AIDS Information. libr8508@ryerson.

(b) ALS Digest

Access: To subscribe, unsubscribe, or to contribute notes, send email to bro@huey.met.fsu.edu (Bob Broedel).

(c) Biolone Publication

Access: To access Bioline Publications using gopher choose the Bioline Publications option from the menu of the Base de Dados Tropical at bdt/ftpt/ br (IP address 192.207.195.1), in Campinas, Brasil. All information and instructions for use are availebl online from the main menu.

(d) Biomedical Library Acquisitions Bulletin

Access: Send email to David Morse–dmorse@hsc.usc.edu. and request to be added to their mailing list.DMORSE@HSC.USC.EDU.

(e) Catharsis

Access: Back issues of Catharis can be obtained by sending the command GET CFS-CATH ### (where ### is a particular edition number, e.g. to get edition no. 1, use GET CFS-CATH 100) as the text of a message to the Internet address of the Listserv, i.e. LISTSERV@SJUVM.STJOHNS.EDU or to LISTSERV@SJUVM

(f) CFS-News

Access: e-mail to LIST.NIH.GOV with message subscribe your name.

(g) CFS-News (Chronic Fatigue Syndrome Newsletter CFIDS/ME)

Access: To Subscribe send the following command to LISTSERV@NIHLIST or to LISTSERV@LIST.NIH.GOV (in the BODY of email) LISTSERV@NIHLIST or to LITSERV@LIST.NIH.GOV.SUB CFS-NEWS your full name.

(h) CFS-wifre

Access: To subscribe, use the usual Listserv procedure.

(i) Deaf magazine list

Least access: To sign up mail to deaf-request@clark.net leaving the subject blank and including the following command in the body: SUB DEAF firstname lastname Eg. sub deaf Sukhdev Singh.

(j) Disaster Research

Access: Send email to HAZARDS@VAXF.COLORADO.EDU requesting subscription.

(k) EUITnews

Access: Send email to euitedit@bitnic.educom.edu or euitedit@bitnic.easi and request a subscription.

(l) HSP Digest

Access: Send email to LISTSERV@ALBNYDH2 with the following message; afd add hsp digest.

(m) Information Technology and Disabilities

Access: Address e-mail mesage to: listserv@sjuvm.stjohns.edu leave subject line blank, send the following one line message: sub itd-jnl John Smigh.

(n) Journal of NIH Research

Access: gopher gopher:/gopher.internet.com:2100/11/collected/nih

(o) Lymenet-L

Access: electronic Mail to mcg2@lehigh. edu

(p) Mednews– Health Infocom Newsletter

Access: Send an email to LISTSERV@ASUACAD.BITNET with the line Sub MEDNEWS First Name Last Nem.

(q) Midwifery

Access: Anyone with full interest access can read Midwifery Toda's subscription, submission and conference information on the Nightingale Nursing Gopher at the University of Tennessee and the University of Warwick Nursing Gopher, in England.

(r) National Library of Medicine Publications

Access: Gopher–World Wide Web; URL Address: Gopher:// .nlm.nih.gov: 70/11/nlmpubs link

(s) NIBnews

Access: Send email to either sabbatini@bruc. Bitnet or sabbatini@ccvax. unicamp. br and request a subscription.

(t) Online Journal of Current Clinical Trials

Access: Gopher–World Wide Web; URL Address: Gopher:// gopher.psi.com:234772/clinical.

(u) Repetitive Strain Injury (RSI) Network Newsletter

Access: FTP to access to pointer to information on tendititis, carpal tunnel syndrome, and other repetitive strains, ftp to sunsite.unc.edu and look at the stuff in /pub/docs/typing-injury, especially the RSI Network Nesletter, whose back issues are in the directory/pub/docs/typing-injury/rsi-network.

(v) The Blind News Digest

Access: Send email to WTM@BUNKER.SHEL.ISC-BR.COM and request

to be added to their mailing list. Relates to listserve list BLINDNWS@NDSUVMI

(w) The Handicap Digest

Access: Send email to WTM@Bunker.SHEL.ISC.BR.COM to request subscription.

9 CONCLUSION

Internet provides new opportunities of communication among information professionals and provides access to vast information resources. Librarian and Information Professionals must learn the various Internet tools and utilities such as e-mail, usenet, telnet, ftp, archie, gopher, wais, www and should gear themselves to exploit this vast amount of information available in various anonymous ftp, gopher, www sites by paying nominal charges. There is a big challenge ahead for health information professionals to adopt with this new era of Information Technology.

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LIBRARIES IN 2000 –TECHNOLOGY TRENDS

DR AMIT KUMAR CHATTOPADHYAY*

NK KHATRI*

1 INTRODUCTION

Information is the essential ingredient in decision making. Its efficient storage and use is utmost important for growth and development of any society. Indeed the ability to maintain rapid growth of scientific, technological and social changes require that vast amount of informatoin is instantly available whenever required. Libraries have traditionally played the role of a catalyst in such a change for the society. However, unlike a catalyst which activates a reaction but remain unchanged, libraries themselves have undergone rapid changes. These changes have helped libraries to perform its catalytic role even better and so are welcome developments. Library is a social entity. So, for a clear understanding of the way our libraries develop in 21st century, it is necessary to identify `change factors' in the broader social perspectives[4,5].

11 CHANGE FACTORS

The change factors may be broadly categorized as Economic, Political, Social, Cultural and Technological. Technological Change factors, likely to bring major changes in libraries of 21st century are the subject of the paper.

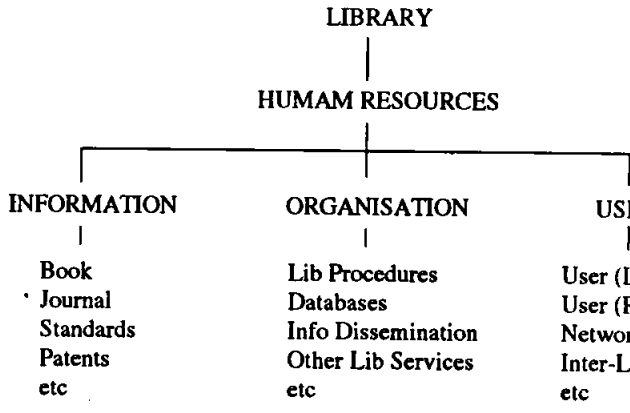
2 ELEMENTS OF A LIBRARY

A closer look at the role and function of a library reveals three distinct factors that are integral part of any library. These are information, Organization and Use, Over and above these, there is library professionals or human resources that drives these elements for complete synergy. The library elements are also inter-related with each other. The figure shows this relationship.

A library collects information in recordable media, organizes these for meaningful use by its local users or by remote users through telecom network or distributed databases like CD-ROM databases. A complete synergy is possible only through harmonious integration of all these elements and library professionals are responsible for attaining this synergy.

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3 IMPACT OF TECHNOLOGY ON INFORMATION

Information in the context of a library always denote recorded knowledge which can be preserved for use. So, media for preservation is an important field for any library. Print medium has so far been the mainstay of libraries and is likely to remain so for quite some time. However, at the same time, we are slowly but inexorably moving towards a paperless library where information will be stored in magnetic or optical media instead of paper. Market economy which is supposed to determine the course of development of a product or technology also suggests the same. Print medium is becoming costly and only one person can use a printed document at a time. In contrast, magnetic or optical media are becoming cheaper day by day and information stored in such media can be used by any number of users in a network. Raw mateials for paper is wood which is increasingly becoming scarce in an environment conscious society. Factors in favour of print medium include human habit of reading and lack of telecommunication facility to hook into a library. However, progress in technology will remove technical and mechanical barriers and market economy will force human being to change habit. As the recording media in a library becomes magnetic or optical, definition of 'library document' is also bound to change. So far, our understanding of a document is predominately text. However, advent of magnetic and optical media will enable librarians to store text, image and voice in a single document. So our perception of 'library document' will change and accordingly that of libraries.

31 CURRENT SCENARIO

At present serious research work is in progress in laboratories of major computer companies (IBM, Xerox, Microsoft etc) on development of a 'document' standard. Some of these standards are SGML (Standard General Mark-Up Language), Open-Doc etc.[3]

4 IMPACT OF TECHNOLOGY ON ORGANIZATION

This is probably one of the areas where maximum automation shall take place. It is impossible to describe in detail all the exciting technologies waiting to be exploited in near future. Only a few representative ones are described below:

41 MECHANISATION IN DATA CAPTURE

411 Future Scenario

Databases including library catalogue are integral part of any library. No library can expect to make use of its resources without an efficient device for retrieving its contents. However, data capture mechanism in our libraries are still primitive. Manual data entry, checking, editing etc take a large part of database creation time leaving comparably less time for intellectural activities like indexing, classification etc which should be other way round ideally. With advent of technology, this situation will change. Technologies like optical scanning of image, conversion of a textual image into ASCII text through Optical Character Recognition (OCR) shall make manual data entry work redundant. It may even be possible in future to use voice to text technology for data capture. OCR technology has improved tremendously in last few years and it is bound to be used for data capture in this century itself.

412 Current Scenario

Forward looking, technology driven organizations like Technology Information Forecasting and Assessment Council (TIFAC), an autonomous body under Dept. of Science and Technology are already using this technology for database creation.

42 INDIGENOUS TEXT RETRIEVAL SOFTWARE

421 Future Scenario

India does not have any sophisticated text retrieval system of its own. However, the talent and genius of Indian software inudstry shall make it available in the near future. With that a major hurdle in indigenous database development work shall disappear, as retrieval software from foreign vendors are exorbitantly priced and there are various restrictions on their use for database publications. There will be number of such text retrieval systems available for librarians at reasonable price, so that database publishing shall not be as costly as it is today. Database vendors with indigenous network will gradually appear who will be in a position to hook these databases in their network for public access.

422 Current Scenario

A number of Indian software companies are engaged in database

retrieval technology. Softlib India has a retrieval software that 'look and feel' like Silver Platter Information Retrieval System (SPIRS). Indigenous database vendors like Dartnet, Business India Information System, have started operation. Dartnet even has a service called 'Indian Online'.

43 IN-HOUSE CD-ROM PUBLISHING

CD-ROM publishing has, so far, been a very complex technology requiring millions of Rupee in capital investment. It is suicidal from business point of view to publish a CD-ROM database without sufficient volume and marketing muscle as capital investment required to publish a CD-ROM is very high. However, things are changing very fast and desktop CD-ROM publishers are now available freely. Through this publisher, called CD-R (CD-Recorder), one can easily publish a CD-ROM database at an affordable cost. The cost of CD-R is also falling, as more and more companies are announcing their products.

431 Retrieval Software

Libraries of future will have retrieval software and CD-R with mass production capability so that library resources can be easily made available to its users. Moreover, when cost of such CD-ROMS falls below a critical value, libraries will start storing full-text documents with accompanying image and voice, if any.

5 IMAPCT OF TECHNOLOGY ON LIBRARY USE

The libraries, specially larger ones, will have two kinds of users, local and remote. Remote users will use library through networks. Major developments anticipated in this fields are Wide-Area Networks (WAN) with high bandwidth, Internet working and Information Superhighway. Of these, Wide-Area Networks with reasonably high bandwidth are available today in limited fiels (Railway Reservation, NICNET for Govt Depts, etc). Though there are some public access WANS (eg. GPSS, I-Net, RABMN etc) available today these are not as popular as they ought to be. It is expected that WANs will proliferate with time and encompass library areas in 2000 AD. It is almost sure that future WANs will have much higher bandwidth with the advent of fibre-optic and other such communication medium. VSAT (Very Small Aperture Satellite Terminal) network, expected to be operational from the middle of 1995 will have 64Kbps bandwidth capable of communicating voice, image and data(2).

51 NETWORK OF NETWORKS–INTERNET

Internet is a worldwide collection of thousands of interconnected computer networks. Originally a project of US Dept of Defense, Internet has

become a global asset with people from all over the world from every field subscribing to it. According to one estimate, there are more than 5000 announced networks in over 50 countries connected to Internet as of October's 1992. India shall firmly integrate with Internet in coming years and global exchange of data without any kind of restriction (popularly described as Cyberspace) will be a reality in 2000 AD, if not before.

52 INFORMATION SUPERHIGHWAY

The Information Superhighway is a catch phrase for an evolution that will unfold over the next decade or so, as the technologies of the computer, telephone and television merge. Once this superhighway becomes a reailty, it will be possible for people to tap a few buttons on a high-speed, high-capacity information conduit in their homes, to order and receiving everything from Hollywood movies, to books on health care. However, it is still a vision and opinions differ on how to achieve the vision.

6 CONCLUSION

We usually paint the image of future with brightest colours at our disposal. However, new technology brings with them new set of problems not anticipated earlier. It is not our contention to negate the achievements of new technologies but to be aware of sociological impact of new technologies, as aptly described by Alvin Toffler in his trilogy (Future Shock, Third Wave and Powershift). It will be pertinent to describe here a sociological findings of a survey in US households on impact, of information technology (1). The survey unravels the thorny issue of `access to technology' or information haves and have-nots.

61 DISADVANTAGES

According to this study, households in which the adults earn $50,000 or more a year are five-times more likely to own a PC and ten-times more likely to go on-line. The information is disturbing enough given the critical role PCs play in the distribution of and access to information; but the study goes on to consider what effect the unequal distribution of technology has on children.

611 Students?

Among college graduates with children, 49 percent households surveyed had a PC; compared to just 17 per cent of homes in which parents had a high school diploma. Other findings of the survey are: children who do not have access to PCs at home, can not compete on an equal basis with classmates having PC at home. They may not fare well at school and are not expected to earn significantly more than their parents.

The findings have important bearing on our society where a wide gap between rich and poor already exists. Advent of computerised information may complicate the balance till more.

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MANPOWER DEVELOPMENT FOR HANDLING MODERN LIBRARIES

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0 GROWING IMPORTANCE OF INFORMATION

As the society is becoming more complex, competitive and dependent on science and technology, the need for timely organisation, communication and dissemination of information is growing. Information is now considered as an important resource for socio-economic development of society. Information is the key element that marks the difference between the highly developed and developing societies of the world. With the growing international trade, globalization of markets and economic liberalisation, information has acquired much more importance.

01 SUBJECT LITERATURE GROWTH

There is growing tendency to have access to relevant and potential information at the earliest. The increasing volume and redundancy of information is creating problems for information handling, and timely access to really relevant information. "A situation can well be imagined during the 2000 AD, when there will be approximately 24 million of publications, and if each paper runs for approximately 10 pages, and for each such paper, 10 copies are maintained, there will be more than 2 billion sheets of paper for storage."[1] The journal articles are increasing at a very fast rate. "The quantitative growth of S&T information, far from slowing down, is accelerating exponentially, ie, the volume is swelling by about 10 percent annually, due mainly to the multiplication of disciplines, their increasingly market specialisation and inter-disciplinarity. Scientific and technical journal titles have grown from 10,000 in 1990 to (more than) 1,00,000 in 1990."[2]

02 NEED FOR AUTOMATION

Thus, this generation of voluminous information has become a great challenge for the librarians and information experts. In this environment, automation of library services is, therefore, imperative for efficiency and effective working of a library system. The expendiency of automation is dawning upon the library scientists, not only due to copious flow of information and reading material, but also for apparent economic consideration and viability.

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Hence, efficaciousness and economy of library systems, both, become more meaningful as a result of automation.

03 INDIAN COMPUTER ENVIRONMENT

Libraries in the developed countries have realised the need for application of computer technology in library and information activities. However, computerisation in Indian libraries is still at an experimental stage. This is probably due to

–lack of overall computer environment in the country
–lack of funds
–lack of emphasis on manpower development programmes in this particular area.

04 GOVERNMENT COMMITTEES

Fortunately, in recent years, there have been favourable developments with the emphasis laid by Government, on modernisation. Under Seventh Five Year Plan, Government of India appointed, the 'Steering Group on S&T and Environment', which suggested that the present library community should be exposed to computers and its applications. During the same plan, 'Working Group on Modernization of Library Services and Informatics', was appointed to make proposals for modernisation of library services. Similar 'Working Group' was also constituted again to formulate proposals 'for the Eighth Five Year Plan'.

05 COMPUTERISED LIBRARY NETWORKS

Government initiatives, efforts and plans helped in the modernization and amelioration of several libraries. Computerised library networks are also being developed and some of the libraries are already hooked to comprehensive international databases facilitating on-line information services for their users.

1 HUMAN RESOURCE DEVELOPMENT

For the effective use of information technology for library work in future, there is an urgent need for human resources development at two levels, ie at library schools and for libraries actually adopting the new technologies for information handling. Education and training programmes of libray schools must confirm to the future requirements of libraries to be computerised. During the earlier part of 20th century, only the conventional education pattern in library schools prevailed. Around 1980's computers began to penetrate some Indian library schools. There has been no doubt, significant quantitative expansion in library and information education, in terms of both the number of institutions offering programmes and the intake

at various levels. For example, there were only 4 schools in the 1940's, whereas in the 90's there has a been a spurt of library schools, as many as 90 have got established. The investigator made a survey of 70 Library Schools, to review their education and training programmes, and to assess their existing facilities and curricula, in relation to the challenges of information technology.

2 TRADITIONAL TRAINING--A MISHATCH

On the one hand, there is a surplus of manpower traditionally trained by a large number of library schools having inadequate infrastructural facilities in terms of space, teaching aids, laboratory, departmental library, faculty positions, etc, on the other hand, there may be a shortage of manpower to meet the current and future job requirements. A study of the curricula of various library schools reveals that courses of study of a number of library schools, especially at BLib Sc level, do not match the human resources needs of modern libraries for handling latest information technologies.

21 MOSTLY THEORETICAL

The course contents at BLib Sc level are by and large traditional. Only about 9.5 percent of the library schools studied include the paper 'Computer Application in Libraries'. About half of the syllabi of majority of these library schools relate the Classification and Cataloguing, theory and practice. Even at MLib Sc level the courses are not upto the mark. No doubt at MLib Sc level, various library schools have introduced the paper related to 'Computer Application in Libraries', in recent years but the course contents of this paper are mostly theoretical in nature, vastly lacking in practical exposure.

22 INSUFFICIENT NUMBER OF COMPUTERS/LAB EQUIPMENT

The main reason for the absence of practical exposure, seems to be inadequate facilities for practical training, incorporating various aspects of library expertise. In a majority of the library schools, man-machine ratio for trainees remains widely imbalanaced. One computer per person is not available during training. It emerges quite clearly that library schools in India though train traditional manpower much more than the country's requirement; yet many schools are not well equipped to develop human resources, keeping in view the modern technological needs of the libraries.

23 FACULTIES UNPREPARED

Numerically as well as qualitatively, faculty members belonging to library schools find themselves unable to cope with the accelerated growth and development in the concerned spheres mainly due to insufficient

resources at library schools. As far as faculty resources of Indian library schools are concerned, only 243 full-time teachers operate in 70 library schools studied. Whereas a single library school in Denmark namely, Royal School of Librarianship, Copenhagan, has about 135 persons on its staff. About 33 percent of the teaching load is shared by part-time teachers in Indian library schools.[3] This trend of adhocism shows impediments in fostering healthy library education.

3 RECOMMENDATIONS

Manpower is an essential element as far as application of information and communication technologies is concerned. Periodic Manpower surveys should be conducted from time to time to know the problems of library professionals.

31 LIS SCHOLS TO HAVE COMPUTER LABS

Necessary steps should be taken to develop competent human resources library, for proper staffing of automated library systems. Instead of increasing the number of library schools, improvement in the laboratory facilities and quality education should be emphasised and efforts should be redirected upon to develop suitable courses in tune with the present and anticipated future requirements of libraries. The UGC recommendation regarding considering Library Science departments, at par with science departments for allocation of grants, must be implemented by all the concerned universities. Library schools should develop laboratory facilities which may have all modern equipment for training in information technology. A computer laboratory with the provision of several computer terminals is extremely essential in any modern school of librarianship.

32 TWO-YEAR INTEGRATED MLISC

Courses in library schools should be thoroughly revised and remodelled, in view of the development in electronic publishing, on-line information networks, and their likely impact on libraries. Such changes in the courses should not be merely cosmetic. The amalgamation of BLib ISc and MLib ISc, each a one year course, into a two-year integrated course, is recommended to provide comprehensive knowledge on the subject. If this amalgamation is not possible in some of the library schools in the near future, paper in **Computer Applications to Libraries** must be introduced at BLib Sc level also, because a number of professionals seek library jobs after achieving BLib Sc.

33 REAL 'ON-LINE' 'HANDS ON' EXPERIENCE

Developments in information technology now facilitate easy and earliest access to global information. Significant development in information tech-

nology and information databases, policies and developments at international level, must be constantly tracked, and should form a part of library curricula. The students must be taught about on-line searching. The students **should be given the opportunity to use a real system and conduct the search.** Some private agencies, publishers and other institutions engaged in the business of database maintenance and development, may be approached to make available their databases for education and training of students, viz, In USA, HW Wilson Company provides free access to its on-line databases namely WILSONLINE for the use of students.

331 Recorded searches for Teaching

In case this type of facility is not available, demonstration of live searches becomes very expensive. In that case various teaching aids, such as Recorded Searches, Cassette, Video tape, etc may be used for imparting education to students in on-line searches.

34 REFRESHER COURSES FOR FACULTY MEMBERS

As far as faculty resources of library schools are concrened, qualitative, as well as quantitative improvement has to be there. UGC's CDC recommendation regarding appointment of maximum full-time teaching staff, must be taken into consideration by all the universities. At least one refresher course in a year must be organized for faculty members by INSDOC, New Delhi and DRTC, Bangalore, on regular basis under the sponsorship of NISSAT. Such a measure will greatly update existing knowledge and skills of faculty members of library schools, making them conversant about the latest developments in the concerned area.

35 ACCREDITING AGENCY IN LIS

Some kind of mechanism for the control and coordination of library and information science education at national level, has to be there. It is necessary that diversity of course contents must be accredited under the uniform national policy. So that a certain level of standardisation enters into the quality of library education. Only those universities and colleges should be allowed to start library and information science courses, which meet certain specific requirements, essential for high quality education. In this context, it is recommended that ILA or IATLIS may be appointed as a 'National Accrediting Agency' to provide guidelines regarding course contents, structure, infrastructural facilities, etc.

4 CONCLUSION

Indeed, this is the right time when library schools must recognise the lacunae in library education and restructure their curricula to make them compatible with emerging human resource needs of modern libraries.

MULTIMEDIA INFORMATION SYSTEM: A NEED FOR TOMORROW'S LIBRARY

S GOPALAKRISHNAN*

1 INTRODUCTION

Today it seems that each new advance in technology centers around new ways to store, retrieve and transmit information. To PC can now deliver all types of information ie. text, still images, graphics, audio etc. More importantly, the Personal computers has the ability to present all type of information in two different ways ie. in an integrated way and in an interactive way. Based on this principle it is believed that MULTIMEDIA will be around us within a short span of time.

2 WHAT IS MULTIMEDIA?

Multimedia in computer systems means, from the user point of view, using many input media (ie. text, speech, gestures, direct manipulation) and output media (text, sound, graphics, video) in the same application. Multimedia is, computers using multiple media, to let the user deal with information naturally.

21 EXAMPLE

Multimedia has grown out of a variety of media disciplines. For example, if one has the choice of picking up films clips frame-wise from video tapes, sound sequences from CD-ROM disks, adding a touch of animation and throwing in data or statistics scanned from OHP slides, and all these, controlled by personal computer is called multimedia. The term multimedia is used to denote a combination of text, graphics, animation, sound and video. It is a part of a service for developing presentations and applications. Multimedia in the integration of several media for presentation. It uses the computer to integrate and control diverse electronic media, such as computer screens, video displays, cd-rom and speech and audio synthesiser. This can be defined as the technology that allows to handle information in multiple media such as text, graphics, animations, audio and video through computer. Multimedia indeed opens exciting avenues in several application areas. Multimedia technology allows all type of information including full motion video, still images, audio, text and graphics to be stored and distributed on,

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an all digital source. The PC can manage all of the information, as digital files, and can deliver it to the computer-user from CD-ROM or hard disk, or sent over networks or telephone lines. This capability turns the PC into a multimedia tool.

3 FACTORS CONTRIBUTED FOR MULTIMEDIA

Multimedia constitutes the latest revolution in communication.

The major factors that contributed for development of multimedia are:

1 Growth of telecommunication services;

2 Convergence of several technologies and

3 Development of optical storage technology.[1]

4 History of multimedia information system

Nicholas Nagroponte, a scientist of MIT's Media Laboratory, predicted in 1978 the fusion of the broadcast, print publishing and computer industries, as the direction of progress of communication technology.

41 HOUR'S RUN

The second conference on CD-ROM organised by Microsoft, General electric and RCA during 1987, displayed a system which could run an hour of full screen, full motion video on a standard CD-ROM disk.

42 DVI

A CD-ROM disk can store 74 minutes of audio or only 90 seconds of video. It cannot sent a full 30 frames per second of full screen, full motion video data to the computer. One can see only a few frames per second that too with jerk and unrealistic motion in pictures. This problem was overcome by the technology called Digital Video Interactive Shortly known as DVI.

43 INTEL

Digital Video Interactive was conceived by Larry Ryan of the David Sarnoff Research Centre, then RCA Laboratory, in 1983. RCA began working on an analogue video disk system, with unsatisfying results. Ryan suggested an all digital approach. Subsequently, RCA was acquired by General Electric, who then sold the technology to Intel.

This technology combines motion video, still picture, multi track audio and computer graphics in a single integrated environment controlled by a PC. It provides all the facilities necessary to produce truly excitng interactive video presentations. DVI uses a single storage device and a set of chips to produce live-action video, synthetic 'video and audio' under the control of PC. DVI has facilities to create computer-generated images in real time.

431 Chip Processors

DVI technology has two video processor chips developed by Intel. One chip, called the pixel processor, is a microprocessor that runs at 12.5 million operations per second [MOPS]. The second chip is the output display processor which acts as a super CRT controller.[2,3]

5 STANDARDS FOR MULTIMEDIA

Initially, standards for digital multimedia were established by fait. Recently, important new international standards for images, audio and video have been accepted by electronics, Computer and communication organizations through consensus with the standards groups. Table 1 presents the summary details of standards for multimedia.[4,5]

6 SYSTEM REQUIREMENTS

A multimedia system consists of three key elements such as multimedia hardware, operating system & grapical user interface and multimedia software. The standard PC systems do not have the necessary built-in hardware or software to handle audio and video information. So one needs multimedia PC shortly known as MPC.

61 CONFIGURATION

The MPC can be any, PC-AT/386 system or higher configuration fitted with a stereo audio card and CD-ROM drive of specific capabilities. A typical multimedia system will consist of a powerful workstation–preferably 486

Table 1

Short name	Standard Group	Purpose
JPEG	Joint Photographic Expert Group	Digital Compression & coding of continuous-tone still images
H.261	Specialist group on coding for visual telephony	Video coder/decoder for audio visual services
MPEG	Moving Picture Expert Group	Coding of moving pictures and associated audio
MHEG	Multimedia & Hypermedia Information coding Expert Group	Coded rerpesentation of multimedia and hypermedia information.
HyTime	Standard Music Representation Work Group	Hypermedia/Time-based structuring Language

and above, and for more common applications, an RISC workstation–with minimum of 4 to 8 MB of main memory, ovr 100 MB of hard disk, a high quality SVGA colour monitor, windows environment, mouse and the add-on cards like 'Sound blaster' and 'Video blaster]' card with the necessary software.

62 CLASSES & SYSTEMS

The different classes of multimedia system are:

First generation multimedia system

Second generation multimedia system and

Third generation multimedia system.

Multimedia Information System is a set of new technology for the capture, manipulation, presentation and integration of various types of data, including audio, image, motion, video, animation, graphics and text. The original data can be in either analogue or digital form.

7 MULTIMEDIA ELEMENTS

The different elements of multimedia information systems are:

–Still photography: full frame, partial frame, pixel depth.

–Motion video–RTV and PLV

–Graphics: DVI or VGA graphics

–Animation: computer generated or video animation

–Text

–Audio–music, speech, sound etc.

–Interactive program for the purpose of presentation

Each of these options can be presented in a variety of ways. Normally interactive programmes are written in C programming language.

8 DESIGNING MULTIMEDIA APPLICATIONS

The three important factors will give effect to the multimedia design are

–Subject

–Setting

–Audience

The subject of the application determines the content and the purpose.

9 ADVANTAGES AND PROBLEMS

Multimedia, as used in computer-supported information systems, has

both its advantages and problems. Some of the advantages from the user's point of view are:

–multimedia uses the wide perception capabilities of the human beings.

–multimedia can better convey the meanings of various information objects.

–A paperless system.

–Increases the efficiency and accuracy.

91 PROBLEMS OF MULTIMEDIA USE INCLUDE:

–Multimedia is not very interactive in itself.

–Simultaneous use of too many media can cause an information overflow.[6,7]

10 APPLICATIONS OF MULTIMEDIA

There are many potential multimedia applications. A few specific examples are given below:

1 Market research–video demonstrations and polling.

2 Education and training including interactive teaching and the ability to mix entertainment with education.

3 Health care–consultation with, and between, doctors and specialists.

4 Securit–checking on home, children, elderly relatives.

5 Consultancy–access to specialist skills and experience.

101 ENTERTAINMENT

On the entertainment front the potential is equally interesting. Many of these applications require large computing resources, which could be located with the service provider and connected via a broadband network. Examples are:

1 Interactive games, including the enormous potential offered by virtual reality;

2 Video-on-demand, including, in the future, high-definition video;

3 Telepresence–be a spectator 'inside' a game, concert or theatre;

4 Video books and library facilities;

5 Video meetings–parties and coffee mornings or special interest groups; and

6 Holography–three-dimensional viewing for business or entertainment.

Three important applications already in use are:

1 Multimedia mailing system;

2 Collaborative work system; and

3 Multimedia conferencing systems.[8]

11 CONCLUSION

In all these applications, the use of multimedia provides a much enhanced interface between the user and the information. By use of fixed or moving images, combined with text and voice, information can be provided in forms which are more easily interpretable by the recipient. The bandwidth multimedia technology is almost unbounded and is constrained only by the limits of imagination. Some of the applications listed above may appear frivolous but the impact on many aspects of business and social life will be significant.

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NATIONAL AGRICULTURAL ENGINEERING INFORMATION SYSTEMS (NAEIS) A PROPOSAL

LN VERMA
JMS RATHORE

1 INTRODUCTION

Agriculture, the backbone of the Indian Economy, is one of the important sectors, contributing as much as 35 percent of the Gross National Product and engaging directly as well as indirectly over 70 percent of population. Though it is a traditional sector, technological progress in the production techniques has been quite rapid. At the present point of time when India's granaries are full and the country is heading for an all time production of 175 million tones of food grains, research workers within as well as outside the country are anxious to know, more and more not only about the how and why of this achievement but also the lessons one could learn for future agricultural development.

11 ROLE OF INFORMATION

Information plays a vital role in achieving these desired goals. Information is recognised as a national resource, a commodity which should be acquired, organised, preserved and managed for use in evolving strategies for national development.

12 INSTITUTIONS OF AGRICULTURE

In India there are 61 Research Institutes of ICAR, 27 Agricultural Universities having research station at different places and more than 100 Agriculture Colleges. Besides these there are a number of research institutes under different ministries related to Agricultural subjects. There are a number of National Agricultural Research Projects and the States Departments of Agriculture having also their own research projects and the States Departments of Agriculture having also their own research projects. All these have their own Library, Information and Documentation Units to cater to the needs of their scientists and other staff.

13 INTEGRATION NEEDED

It has been felt that all these institutes can be coordinated and integrated to develop a feasible National Agricultural Information System for dissemination of information. Such information system may be established as shown

Table 1
Indian National Information System for Agricultural Sciences (INISAS)

National Agricultural Library (ICAR, Delhi)	National Information Centres* (NIC)	Sectorial Information Centres* (SIC)
	1 National Agricultural Research Management Information System	Cotton Fisheries Grass & Fodder
	2 National Agricultural Statistics Information System	Jute Oil Seeds Plant Genetics
	3 National Horticultural Information System	Sorghum Potato
	4 National Soil Resources Information Systems	Rice Sugar cane
	5 National Agricultural Engineering Information System	Tobacco Mushroom Citrus Groundnut Soyabean

* Number may be increased as per needs.

in Table 1 and as suggested by YM Patil.[1]

2 NATIONAL AGRICULTURAL ENGINEERING INFORMATION SYSTEM (NAEIS)

21 EXCLUSIVE FIELD

Now-a-days engineering has been profitably applied to all sectors of agriculture, and Agricultural Engineering is viewed as an independent field of study, research and extension. It has greatly affected the life of the agricultural community.

22 NEED FOR INDEPENDENT INFORMATION SERVICE

Agricultural Engineering is partly agricultural and partly engineering, with balance tipping a little towards the later. It is however, already a science in its own right, attracting a devoted band of workers whose number keeps growing all the time. Development in Agricultural Engineering has resulted in a large volume of information and scientific knowledge, facilitating intense R&D activities all over the world. The need to keep the workers abreast of the latest information on advances in Agricultural Engineering has

been imperative for rapid progress in research, production and application. Therefore, there is a need to establish an independent National Agricultural Engineering Information System (NAEIS) to meet the requirements of the Agricultural Engineers in particular and other Agricultural Scientsts in general. Following are the needs for forming NAEIS.

(1) Develop Programmes of sharing of resources and services, so as to minimise duplication and maximise the utilization of financial resources and other facilities, and

(2) Provide access to their resources, so that any user living any where may have the required information at the time of needs and in a form suited to the purpose.

3 STRUCTURE OF NAEIS

Today there is quite a good number of organisators in India related to Agricultural Engineering. ICAR has established the CIAE, Bhopal in 1976 to conduct the research in Agricultural Engineering. Seventeen Agricultural Engineering Colleges are functioning in different State Agricultural Universities. Apart from these, the ICAR, Ministry of Environment and Forest, Ministry of Agriculture, Ministry of Science and Technology have their own Research Institutes having relation with Agricultural Engineering discipline. All these Institutes and Colleges can become part of the NAEIS. CIAE, Bhopal can coordinate all the work of this Information Systems. The Structure of NAEIS can be as shown in Fig 1.

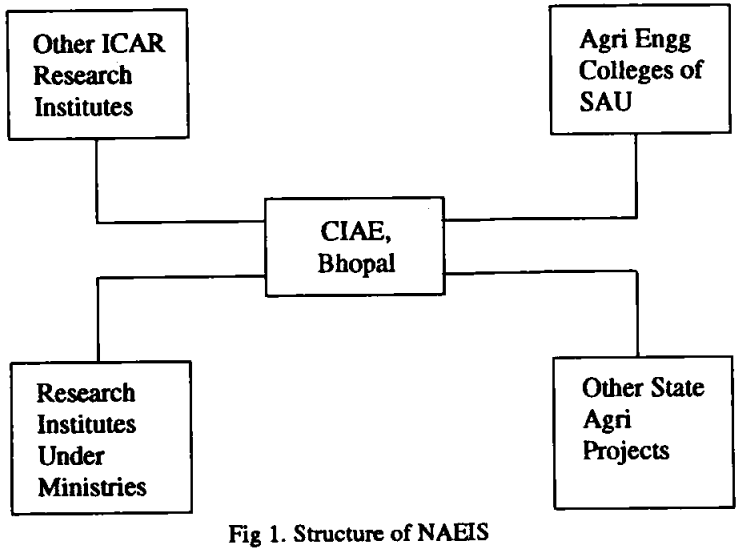


Fig 1. Structure of NAEIS

4 OBJECTIVES OF NAEIS

The main objective of NAEIS can be summarized as follows:

1 To build up a repository and dissemination centre in Agricultural Engineering;

2 To gear up the modern technologies of information acquisition, processing, storage, retrieval and dissemination of Agricultural Engineering;

3 To support and promote research, development and innovation in the Agricultural Engineering information technology;

4 To facilitate Scientific Communication through new techniques like electronic mail, computer conferencing, and

5 To evolve standards and guidelines, for techniques, methods, procedures, hardware and software etc for facilitiating the exchange and use of information, etc.

5 SERVICES OF NAEIS

To achieve the above objectives of the proposed NAEIS, the following services as suggested by SR Banerjee[2], need be taken up and organized systematically at the national level for NAEIS also:

1 Computerized Current Awareness Services, including SDI Services to Agricultural Engineers or Scientists,

2 Indexing Services,

3 Select bibliographic Services of Agricultural Engineering subjects,

4 Evaluation of information and preparation of synopsis or abstracts on Agricultural Engineering topics on demand,

5 Current contents Service,

6 Gleanings of press services for agricultural information,

7 Reference and referral Services,

8 Advisory Services for Library and information Centres,

9 Inter Library Loan Services,

10 Reprographic Services,

11 Research and Training in Library and Information Science,

12 Assisting in organization of Seminars/Workshops/Summer Schools on Library and Information Science,

13 Translation Service,

14 Assisting in transfer of Agricultural Technologies directly or indirectly, etc.

6 CONCLUSION

Agriculture is an industry. It has been conceived as an important sector in planning and development with varying degrees of emphasis. Application of engineering in the field of agriculture, has resolutionised its role. In India at present a number of Agricultural Universities, ICAR Institutes and other Research Institutes under various Ministries are working in the fields of Agricultural Engineering. There is a need to establish a system for acquisition, processing, storage, retrieval and dissemination of information to Agricultural Engineers in particular and Agricultural Scientist in general. This can only be possible through an effective National Agricultural Engineering Information System.

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NETWORK SCENARIO: PHARMANET
(A Proposal)

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0 IMPACT OF PHARMACEUTICALS

Since the beginning of 20th Century due to unprecedented advances in Science and Technology, revolutionary changes have taken place in the lives of human beings. These changes have irrevocably altered the lives and "Quality of life". The R and D sections of Drug and Pharmaceutical of different countries have played a major role in this.

01 QUICK INFORMATION

The Alma Ata declaration of the global goal of "Health for All" by 2000 AD pledged urgent action by WHO member states keeping in view the specific problems of the third world. Hence, indigenous Research and Development activities in all the three sectors: (a) Public Funded Institutions (b) Public Sector Production Units (c) Private Companies; have been increased. As research activities increased in these sectors, the need for more systematic information is felt. Some Libraries attached to these departments took up automation for quick access of information.

02 NETWORK

Automation or having databases has helped these libraries to give information economically and effectively, but access to maximum information is denied. This is because, basically some systems are working in isolation. The time has come for the managemnt to inter-connect them to be able to retrieve and co-relate maximum information about the on going research activities for the entire drug industry in India. The research scientists, the manufacturers, marketers will have more access to information, thereby the drug industry will have a boost. In other words the issue here is co-operation or resource sharing thus having high reliability, less cost and manpower. In modern days connecting these isolated databases will be Networking.

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1 WHAT IS PHARMANET

It is a network system connecting the databases of major drug and pharmaceutical, R and D Departments of Government, Public-funded and Private Institutions in the country.

2 NEED FOR PHARMANET

–Normally R and D activities are financed from the internal resources of the company. The return on the investment in research, is an uncertain factor, and risk element is quite high. Exchange of information becomes necessary to get high turnover.

–Co-ordination between libraries is an essential step in utilization of resources and optimizing returns on R and D system.

–Since this inudstry involves large investments of capital, unnecessary duplication of work should be reduced wherever possible.

3 ORGANIZATIONAL STRUCTURE

30 LAN (LOCAL AREA NETWORK)

Local Network are being welcomed by users as well as manufacturers of distributed data processing systems, because they eliminate problems at every level of the system, and satisfy the need for efficient communication. This enables a collection of inexpensive computers, to share not only data, but also the inexpensive peripheral equipment.

301 Efficient Specific Application

In developing a local area network architecture, the primary goal has to be, achieving cost competitiveness with any general purpose network design, while at the same time equalling the efficiency and performance of a network, designed for a specific application.

302 Govt & Private

Various R and D institution like ICMR, National Chemical Laboratory, Indian Institute of Chemical Biology, Indian Institute of Science and some of the big R and D activity libraries in Private Sector like Ciba, Sandoz, Hoechst, Glaxo, Serabhai Chemicals and Unichem, Ranbaxy etc can have LAN.

303 Beyond Library

LAN contributes to library services in different ways, either the library is a node or the LAN operates within the Library itself. However, a LAN as an isolated entity by itself has limited potential and usefulness.

31 WAN (WIDE AREA NETWORK)

There are three alternatives for linking LAN's into WAN. They are circuit–Switches, based lines and packet switched connection's. LAN's can be connected with a pair of Ethernet-Gateways (X25) for Packet-Switched mode. Packet switching network functions like large LAN's connecting many computer's to each other.

311 Packet Switching

Packet–switching allows (a) large number of message to pass in a small amount of time thus improving the speed and function (b) digital electronic communication signals are carried out at low cost (c) since transmission is in small packets, big files can be transmitted while allowing shorter messages to move without occupying transmission space (d) file transfer through E-mail, downloading of data from a main-frame and the other way round is possible.

312 Host Institutions

The country can have the following centres as host Institution:

Table 1

Sl No	Place	Host Institution
1	Lucknow	Central Drug Research Institute
2	Bangalore	Indian Institute of Sciences
3	Bhubaneswar	Regional Medical Research Centre
4	Jaipur	Regional Medical Research Centre
5	Pune	National Chemical Laboratory
6	Delhi	Institute of Pathology
7	Bombay	Glaxo

313 International Access

To bring the information services to R and D Scientists in India NISSAT has established five NISSAT Access Centres to Internationa Database Services (NACIDS). National Chemical Laboratory at Pune is one among them. Hence, other databases can have access to these databases by having network with it.

314 E-MAIL

NISSAT has also established E-Mail facilities through ERNET to the

various information centres dispersed in the country under NISSAT Central Drug Research Institute, Lucknow (NICDAP) is a sectoral information centre. NICDAP, can have access to foreign databses. NICDAP already maintains databases on Natural Products, folklore databases, letters of intent and industrial database, Research Project database, Union Catalogue of Periodicals in Lucknow city, etc.

32 MAN (METROPOLITAN AREA NETWORK)

If necessary in-between the LAN and WAN, MAN can be introduced. A MAN can cover an entire city using LAN Technology, for example in Delhi City the following centres databses can be inter connected.

Table 2.

Sl No	Name
1	Institute of Pathology
2	Malaria Research Centre
3	Institute of Research.Medical Statistics
4	Cytology Research Centre
5	Univ Patel Chest Institute
6	Glaxo, etc

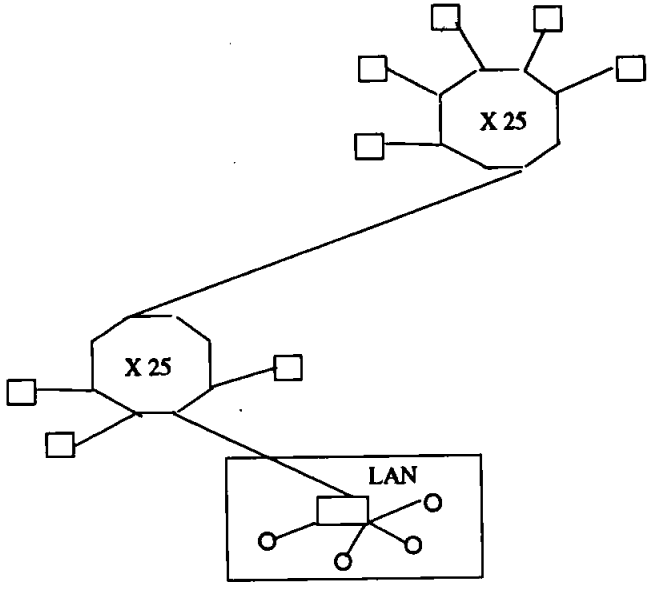


Fig 1. Network

These institutions coming under MAN, can access databses of other geographical area with WAN.

4 SERVICES/FUNCTIONS

Some of the Services/Functions that PHARMANET should give are

–Cataloguing

–Cataloguing search

–Inter Library Loan

–Electronic Mail

–Bulletin Board

–Bibliographic database Search

–Document Delivery

–CAS

–SDI

Once installation is done, the quantity and quality of services could be improved depending upon the demands of the users.

5 THE FUTURE TREND

The SEA-ME-WE 2 fibre Optic network, which will interconnect 13 countries around the globe, would provide India with a direct communication gateway to both the East and the West. Digital optic cable offers both high reliability and outstanding perforamnce. The bit error rate (BER) is less per repeater span for a theoretical capacity per pair of fibres of 7680 two-way circuits at 64 kbps. That is equivalent to just one misprint in several huge encyclopaedias. The cable and all system components are designed for an overall reliability, of statistically fewer than three failure during a 25 years lifetime.

6 CONCLUSION

There has been a lot of progress in providing WAN support in India over the past few years. However, the pace has been painfully slow and far behind industrial expectations. The current problem of WAN's in India is lack of end user software, for effectively utilizing these services. While E-Mail and low-volume data transfer facilities are not enough, Facilities like a good bulletin board system, transparent access to remote machines, access to databases which store commonly needed information, are not there.

61 KEEP UP WITH GLOBALISATION

Whatever the constrains are, India has to overcome them for it should

not fall back in the technological race of the world. The world in the twenty first century will be for Globalization and Information Industry should keep pace with.

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PREPARING PUBLIC LIBRARIES FOR 21ST CENTURY

SATYABRATA SEN*

1 REDRAFTING OF INDIAN PUBLIC LIBRARY ACTS

10 SPREAD OF PLS

A system of Public Libraries has already been grown in Indian states through institution of State Central Libraries in almost all States and Union territories at state level, and District Libraries at District level. Out of 22 states and 9 Union Territories, 21 States have got State Central Libraries and 8 State Central Libraries in all the Union Territories except Delhi, which is a territory of somewhat different character. Among all the 390 Districts, only 346 District libraries have been instituted in India so far.

11 DIVISION

Other than State Central Libraries, District Libraries, other nomenclatures, such as, Sub-divisional Libraries, Municipal Libraries, Taluk Libraries, Rural Libraries, Panchyat Libraries, Area Libraries, Village Libraries etc are found in one State or other. In addition, there is one National Library.

12 GOVT AIDED

National Library, State Central Libraries and a few District Libraries, though managed by the Central Government or State Government directly or indirectly, most of the other libraries said to be playing the role of public Libraries, are still Government aided having provisions of maintaining a few part-time or full time staff.

2 WHAT IS ACHIEVED?

In response to long cry, for about three decades of the 20th century, for library law supported public library system, only Eight States have enacted library laws during the period of 1948-94 to overcome such an anamolous scenes. It is a poor scene indeed.

But the question remains, as to how far desired conditions of Public library services achieved for the people of Indian States with even without Library Laws? It will not be unwise and unreasonable to say that everywhere in India, Public Library Service is in doldrums.

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21 WHY IS IT SO?

In order to find out answers to this 'why' it is required to examine the Library Laws already enacted in eight States, viz, Tamilnadu, Andhra, Karnataka, Maharashtra, West Bengal, Haryana, Manipur & Kerala, on at least five points: (*i*) statement of purpose of the Act, (*ii*) definition of Public Libraries in these Acts, (*iii*) provision of fund for Public Library System, (*iv*) structure or organisations of Public Library Service System, (*v*) Controlling Authorities of Public Library Service system including place of Public Library Workers in the Acts. Out of these, we may discuss first two points elaborately as far as possible in the Section 1.

211 Statement of Purpose

2111 Tamilnadu: An act to provide for establishment of Public Libraries in the province (state) of Tamilnadu..... and the organisation of a comprehensive Rural and Urban services.....

2112 Karnatak: An act to provide for *establishment and maintenance of Public Libraries* and organisation of a comprehensive rural and urban library services in the state.....

2113 Andra Pradesh: An act to consolidate and amend law relating to the *establishment and maintenance of Public Libraries* in the state of..... and matters connected therewith.

2114 Maharashtra: To provide for the *establishment, maintenance, organisation and development of Rural Libraries* in the State of.....

2115 West Bengal: To provide for *establishment of Public Library to regulate, guide, control supervise the library in the State as also to provide for comprehensive* rural and urban Library Services.....

2116 Manipur: An act to provide the *establishment and maintenance* of Public Library in the state of ..... and matter concerned therewith.

2117 Haryana: An act to provide the establishment, *maintenance and development of Public Library* in the state of ..... for matter ancilliary thereto.

2118 Kerala: An act to consolidate and unify the Library Laws in the State and to provide for *recognition of entire Library System* in the state of..... with a view to development and maintenance of a comprehensive rural and urban Library services and for matters concerned therewith or incidental thereto.....

212 Surmise

From the above, it may be noted that all the Acts have given stress on establishment of Public Libraries and to some extend to include, maintenance, organisation, development, guide, control, supervision and recognition etc. Kerala Act has not even mentioned the term Public Library or Public Library services in their purpose statement. Instead, it used recognition of entire Library system which is confusing to understand as to whether such term relates to School Libraries, college libraries, special libraries as well. In all these purpose statement, it appears that Public Library and Public Library Service are not clearly indicated.

3 DEFINITION

However, the meaning of Public Library may not be found in the propose statement, but may be found in the difinition part of the Acts.

31 DEFINITION OF PUBLIC LIBRARY

311 Tamilnadu: Public Library means a library *established or* maintained by a local Library authority and includes the branches and delivery stations of such library.

312 Andhra Pradesh: Public Library means (*a*) a library *established* or maintained by zila Granthalaya Sanstha including the branches and delivery stations of such a library, (*b*) a library *established or maintained* by the Govt. and *declared open to the public,* (*c*) a library *established or maintained* by local body or co-operative societies and *declared open to the public* (*d*) a library *declared to be eligible for aid and receiving* aid from the Government or from the Library Fund and includes any other library notified by the Govt as a public library for the purpose of the act.

313 Karnatak: Same as above, except Zilla Granthalaya Samatha which has been replaced by Local Library authority.

314 Maharashtra: Public Library means (*a*) a Library *established and maintained by the State Government for use* of the public, (*b*) a library *recognised by the Director* for the purpose of *grant-in-aid from the Library Fund* and (*c*) any other library which the State Government by notification in the official Gazette *declared to be Public Library* for the purpose of this Act.

315 West Bengal: Public Library means a library open to the public, (*a*) and established and maintained by the Government; or (*b*) declared by the Government as sponsored Public Library under section 16(A).

316 Manipur: Same as Andhra Pradesh definition except–zilla Granthalaya sanstha replaced by District Library Authority.

317 Haryana: Public Library means, a library which *permits member of the public to use it for reference and borrowing without charging fee as subscriptions.*

318 Kerala: Public Library means a library *established or* maintained or run directly by the State Library Council, a District Library Council or a Taluk library Union under the Act.

32 SURMISE

Here points to be noted are (*i*) importance have been given in almost all the Acts for the establishment and/or organisation, (*ii*) Haryana Act has only given importance on the 'use-side' by mentioning "permits members of the Public to use it for reference and borrowing without charging fee or subscription; (*iii*) None of the Acts has mentioned that a Public library containing books and reading materials of knowledge imparting other materials, for use by members of the public for their *"Life Long Self Education"* as well as getting information whatsoever.

321 Uniformly in Essential Features

The Acts are not uniformly drafted to institute or incorporate essential clauses of similar type of Fund provisions, controlling Democratic Agencies at different levels, uniform pattern of service organisations and staff pattern in each of the service points and controlling points at different levels.

322 Redraft

In order to prepare Public Library Service for 21st century at this stage, first suggestion is to take bold step for redrafting of the public library Acts in India, keeping in view all the necessary aspects helpful for appropriate and essential needs to ensure wide Public Library service in the Country. Such drafting cannot be done without the help of Bureaucrats who used to get importance in drafting such Laws. But cautions step be taken about their insufficient practical nowledge; if not taken care of drafts will not reflect the actual desires of the People. Democrats, though given scope to go through the same before enactment, their participation is not also sincere or active and not free from hastiness or superiority complex, Bureaucrats and Democrats should do the same again jointly, in a friendly give and take.

4 OTHER ASPECTS OF PUBLIC LIBRARY SERVICES

41 NEEDED ASPECTS

In respect of preparation for Public Library Service in India for 21st century, some more points are required to be considered among which important few are:

(1) *Integrated Public Library System for the People.*

(2) *Provision of Resources and its sharing.*

(3) *Role of the government and other agencies.*

(4) *Role of the Library Professionals and their training.*

41 INTEGRATED PUBLIC LIBRARY SERVICE SYSTEM FOR THE PEOPLE

While considering Integrated Public library System, clarify in the idea plane should exist as to for whom the Life Long Self-Education is meant for. Is it for all the People or for the elite and the rich People? Or, anybody who tries for continuing education or for willing people as a matter of compulsory Life Long Education? If it is taken that a Public Library is meant for Life Long Self-Education for the People who thirst for continuing education to create something and to earn necessities of life, then, consideration on other aspects, where the people reside–in the villages, in the towns or in the cities, in the hills, on sea-shores, may be taken into account. Wherever residences of the people are situated, Public library organisations, small or big in size, should exist. Our Acts are lacking in having such a clear level-wise Library Organisation Systems. Certain level of organisation, are mentioned in some of the Acts, and that is also in a round about way. It is, therefore, suggested that while redrafting, importance of structure or organisation of Public Services in all the states should be given by mentioning.

411 PLS Structure

(*i*) State Central Library at State level in the capital city of the State.

(*ii*) Below that District Libraries in each administrative District at the capital city of the District or at a populous town or municipality.

(*iii*) Since each administrative District is further sub-divided into Sub-Division or taluk or development Blocks or Panchyats etc, hence every such division of third phase of Administrative unit should have one Sub-Divisional or Taluk Library.

(*iv*) Because of heavy population in a particular place due to existence of industry, health resort or travel-spot etc, Scope of special Public Library Unit development must be kept open. Acts may have not such a detail structure-indications, but upto third phase structure-indications, but upto third phase structure-indication with mutual co-operation should not be avoided, and upto third phase, Administrative as well as Democratic Control must exist. To assure a tangible Public Library Service in the 21st Century in India, a clear view of Public Library Services is a prime-need. Our Public Library Acts are suffering from Library Service oriented organisational system.

42 PROVISION OF RESOURCES AND ITS SHARING

Public Library is to provide scope for Life Long Self Education to any citizen or residents of the country. This provision may be made possible in reading materials or knowledge imparting materials as are available. But it is known to all, that all such resources is only possible on mutual co-operation of Libraries of Public Library Service/System. And above all, monetary Fund are the real source of Book, Periodical, and other documents and equipment that are helpful for imparting knowledge so far. It is our ill luck that Fund provisions in the Acts in Indian States are different as mentioned in the Table.

421 Sharing

The main monetory, sources are different in different Acts. It is possibility due to variation of outlook towards the need of Public Library Services as an avenue of Life Long Self Education. At the sametime none of the Acts has mentioned any scope as to the ways and means of resource sharing, such as co-operation, or mobile Library Services etc among the different service points functioning or will function under Acts though everybody knows that money of the state or Nation is Limited and therefore shared enjoyment as is necessary to maintain a healthy Civilized Society for ages to come. Costly and valuable books or documents cannot be procured or purchased by all the Units of Public Library Services for which resource sharing from top to bot tom ie., National Library to rural library cannot be ruled out. Only question is there, How? Answer to this 'how' is also the necessity of redrafting of the Acts accommodating the solution of the problem.

43 ROLE OF THE GOVT AND OTHER AGENCIES IN THE PUBLIR LIBRARY SERVICES

In all the Acts, mentioned earlier, arrangements have been made to keep a definite role of the Governments. State or Central, by incorporating some Govt controlled (*i*) State Library Authority/Councils and District/Zilla/Local Library Authority/Councils.

(*ii*) And/Director/District Library Officer etc in the Acts. Incorporation of Director and/or District Library officer etc in the Act, it was clearly stated that they are Govt officers and quite naturally are governed by services rules for such other Govt officers such in-corporation may be necessary but in the case of formation of Councils or Authorities, Democratic Leaders are also included alongwith some other Govt Officers, because of which their attitude become dubious ie scope of influences or interferences from either side remains open.

Table

(1)	Govt grant-in-aid, donation etc	Tamil Nadu	Andhra	West Bengal	Manipur	Maharashtra	Karnataka	Kerala	Haryana
(2)	Dist Library fund or LLA Fund	"	"	"	"	'	'	"	"
(3)	State Library or Council Fund	"	"	X	X	X	X	"	"
(4)	Tax as Source of Fund	"	"	X	X	X	"	"	X
(5)	City or Town or Block Library Fund	X	X	X	X	X	X	X	"

431 Byelaws & Subrules

Taking advantage of such situation Govt kept keys of Fund position in its own hand. As a result, Public Library Service to People has become a lame service. Strength of the Service is carried by Sub-rules or Bye-Laws under Acts. Delays in many respects cannot be avoided. Bureaucracy is caused but Bureaucracy, here, is born out of Democracy.

432 Define the Spheres

Hence, here is another strong point to be included while re-drafting Acts will take place. Can we not specify clearly, (*i*) Democratic Interests to be represented in the Council/Authority, (*ii*) the limitation of the Role of Democracy and (*iii*) the limitation of the Bureaucracy separately, in order to ensure proper Public Library Service, at least, in the next century?

44 ROLE OF LIBRARY PROFESSIONALS AND THEIR TRAINING

441 Professions, Experience and Pay Scales

To ensure Public Library service in our country, depends on another factor, the role of Library Professioanls and their Associations in the field of Public Library Service. Library Professionals, here also, are supposed to be trained in Library (and Information) Science. They become technical hands and experts. But no gradation of Professionals in different categories of Public Libraries at different stages of the society. Indecision on this point created dissatisfaction and disturbance in rendering desired services. Librarian, as a Professional, is necessary for each Library. But, are they to be of same qualitifications, same experience and at same remunaration and status? No, not at all. But though such gradation of Professionals being a matter of detail study of field of work, cannot be expected through Acts, still sincerely in dealing with the same must be shown in the Act.

442 Professional Associations

Library Professionals form Associations of their own, with exclusive Professionals or with other persons of the Library movements. There Associations have some other responsibilities of movement, excluding their status problems. It is their positive role to draw the attention of the people as to their need of Public Library Service in their day to day activities in the society. Such role will make the people feel that it is their birth right to be informed and the Library service wherever, it is available, is an essential service. Strength of this role usually generates first among the Professionals from the Training in Library Science and through social outlook of the Association. Every Training in Library Science at any level should have

some provision of lessons on behaviour of the people in respect of use of Library.

4421 Beyond the Sets

This probably cannot be a part of the Library Act. But Acts may throw light on it having indication of necessity of in-service Training or re-training or exchange of views and experience of Professionals associated with Public Library Services.

5 CONCLUSION

(*a*) All Acts in Indian States should be re-drafted keeping in view at least on (*i*) Purpose Statement of the Acts, to mean, provision of scope of Life Long Self Education. (*ii*) Clear definition to indicate not only organisation establishment, maintenance or eligibility of Govt grant, but also to the extent and nature of public Library Services.

(*b*) All Acts should have a section on structure of Public Library service from State level to village level.

(*c*) All Acts should have specific Section on Fund for Public Libraries at State level as well as at other level.

(*d*) All Acts should have some clear indications about the specific positions of the Professionals association with Public Library Service from State Library Council/Authority to Village Library authority/Committee.

(*e*) All Acts should have indication about in-service Training of the Public Library Professionals under Acts and a new lesson on Human Behaviour in getting Public Library Service in all the Academic Library Science Curriculum. Of course, question of responsible central co-ordinating and controlling Forum may come into picture in order to ensure uniform Acts in Indian State. It has not been discussed anywhere in the above text. A simple suggestion on this point is that the RRR Library Foundation may be entrusted with this responsibility. This responsible Task will be more helpful and purposeful role of the Foundation towards ensuring objective Public Library Service in India in the next Century than the procurement, distribution of Books to Public Libraries and circulation of model Public Library Bill. Bill is necessary to be proposed at the end point, then and point to Central Co-ordinating & Controlling point and again to and point ie., state point.

PUBLIC LIBRARIES ACT OF MANIPUR: A PREPARATION FOR TWENTYFIRST CENTURY LIBRARY SYSTEM

DR KHOMDON SINGH (TH)*

1 WHAT, WHY AND HOW OF LIBRARY LEGISLATION IN INDIA?

Library legislation is a legal document for organisation and administration of public libraries. It is a sine-qua-non for establishment of a perfect public library system in a state.

11 LEGISLATION ESSENTIAL

The very nature of public library and its scope needs sound financial support. Besides the problems of land, building, gift, donation, legacy, appointment, purchase and sale of property for the library etc, will certainly call for a library legislation. Regarding the necessity of library legislation in the development of public libraries, the Government of India's Planning Commission's Working Group on Libraries, on its report of 7th September, 1965 says, "There is no alternative to library legislation". It is a fact that if we trace the library map of the world, where there is library legislation, we will find more and more public libraries in the areas. It is also true that public libraries are treated as step-sons in the areas where there is no library legislation.

12 LIBRARY-STATE SUBJECT

The constitution of India enlisted the powers of the Government as: Union list, State list and Concurrent list. In the Seventh Schedule of the constitution the public library service is included as entry No 12 of the State list. Therefore, the provision of the public library service is the responsibility of the State Government. After the successful implementation of the Public Libraries Acts at Tamil Nadu, Andhra Pradesh, Karnataka, Maharashtra and West Bengal, many states and union territory Governments realised the importance of library legislation in the development of public libraries and tried to have Library Legislation of their own. But so far, only five more states viz: Manipur (1988), Kerala 91989), Haryana (1989), Mizoram (1992) and Goa (1993) could come into the picture of library legislation in the country.

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2 MANPUR: A PROFILE

Manipur is one of the smallest states of India covering an area of only 22,327 sq km. It is situated in the North East of India. It is bounded by Nagaland in the North, Mizoram in the South, Myanmar (Burma) in the east, and Assam in the West. The total population of Manipur accordign to the 1991 census is 18,26,714 (9,13,511 males 8,95,203 females). The density of population per sq km is only 82. The rate of literacy is 60.96%. Manipuri the state language of manipur was recognised by the Indian Parliament as a National language on 20th August, 1992.

21 DEVELOPMENTS SINCE 1947

Until the merger of Manipur in the Indian Union on the 15th October 1949 it was a princely state. For quite sometime it was treated as a Part 'C' state governed by a Chief Commissioner. Under the Territories Act of 1956 the first Territorial Council with 30 elected and 2 nominated members was constituted in 1957. In 1962 the Government of India agreed to convert the Territorial Council into the Territorial Assembly by increasing the nominated members into 3. Till 1969 Manipur was treated as only one district territory with 10 sub-divisions. On 14th November 1969 the Manipur territory was organised into 5 districts and 25 sub-divisions. Alongwith the status of the administrator was raised from that of a Chief Commissioner to that of a Leiutenant Governor with effect from the 19th december 1969. In 1971 the North Eastern (Reorganisation) Act (81 of 1971) was passed and enacted in 1972. In accordance with the Act Manipur became a full fledged state of India on 21st January 1972. Since then there has been 60 members in the Legislative Assembly, 2 members in the Lok Sabha, 1 member in the Rajya Sabha with one Governor at the Head of the State. Now Manipur has 8 administrative districts and 30 sub-divisions.

21 PUBLIC LIBRARY MOVEMENT IN THE STATE.

The public library movement in the state was started as early as 1940. The year 1958 was however a landmark in the movement. In this year the present Manipur State Central Library and the Children's Library were established at Imphal, the capital of Manipur. With the passage of time district libraries at Chandel, Churachandpur, Senapati, Tamenglong and Ukhrul and a branch library of the State Central Library at Ningthoukhong of Bishnupur district were opened. Now every district of Manipur except Thoubal has a Government Public library. Besides at present there are more than 200 club libraries organised by voluntary organisations scattered all over the state.

22 ORGANISATION & PEOPLE

From continuous efforts of the Manipur Library Association, library

professionals and voluntary organisations; now most of the people in Manipur are aware of the importance of libraries. Public participation in the movement leads to energise the library atmosphere in the state. At the same time the assistance rendered by the Raja Ram Mohon Roy Library Foundation for the cause of public libraries in the state, is another instance of the voluntary organisation to enhance Library Resources.

3 PUBLIC LIBRARIES ACT OF MANIPUR

The Manipur Library Association (MALA) was rejuvenated on the 24th May, 1987. Soon after the Association took up many steps regarding the library movement in the state. Among other activities the members of the MALA were able to appraise the Education Minister, that effective public library services will be possible only through a public library system, supported by library legislation. The honourable Minister was fully convinced and shouldered the responsibility of passing a public libraries Bill.

31 LEGISLATION PASSED

Sri Y Erabot Singh, the then Education Minister introduced the Manipur Public Libraries Bill in the Manipur Legislative Assembly session on 29th July 1988. While introducing the Bill, the Minister said "Development of libraries constitute an important aspect of cultural development. There is a necessity of having a co-ordinated network of libraries, spreading to the village level, in all regions. There is also a special need to improve the professional or more specialised libraries, and to explore possibility of using them, more and more by the genuinely interested readers. Libraries have assumed added importance in view of the launching of the NAEP (National Adult Education Programme) during the 6th plan period. After giving 3 days time to the members of the legislature for study of the Bill, the Minister moved the Bill in the house for passing. Thus the Manipur Public Libraries Bill was thoroughly discussed in the Legislative Assembly on 1st August, 1988 and declared passed as Manipur Bill 14 of 1988.

311 President's Assent sought

However, the then Governor of Manipur General KV Krishna Rao, kept the Bill reserved for the consideration of the President of India. As a result, the Law Secretary wrote a letter to the Secretary, Government of India, Ministry of Home Affairs, for a obtaining the assent of the President. Excerpt of the letter is as given below:

312 Letter seeking approval

"The Mainpur Public Libraries Bill, 1988 has been passed by the Legislative Assembly, Manipur on 1.8.88. During 1964, the Ministry of Education

had circulated a Model Public Libraries Bill, to all the state Governments, suggesting legislation by the respective states on the lines of the Model Bill. As per the information available, the states of Tamil Nadu, Andhra Pradesh, Karnataka, Maharashtra and West Bengal have already enacted legislations concerning libraries in their states. It is felt that Manipur should also enact such legislation so as to provide a legal framework for proper development of libraries in the state. The Bill also seeks to amend the press and Registration of Books ACt, 1867. Hence, the Bill is required to the reserved for consideration/assent of the President under Article 254(2) of the Constitution of India.The Governor of Manipur, therefore, has reserved the Bill for consideration of the President".

313 Centre's Comments

In reply of the above letter the Director (J) of the Ministry of Home Affairs, Government of India sent its observations and asked the State Government to send comments. The excerpt is as given below:

"The Bill has been examined in consultation with the concerned Department and our comments are:

3131 Land Acquisition Aspect

(i) Sub-clause 1 of Clause 18 of the Bill refers to vesting of properties in the District Library Authorities while its sub-clause (2) makes it clear that all immovable property shall be acquired under the Land Acquisition Act, 1894. According to the provisions of the Land Acquisition Act, only an 'appropriate Government' can acquire land. The construction of sub-clause (1) gives an impression as if the properties are to be acquired by the District Library Authority. If it is contemplated that the District Library Authority will acquire the land, then the State Government are requested to modify the said provision suitably to dispel this impression.

3132 Funds & Audio-visual formats

(ii) The bill deals primarily on the organisational structure of the proposed library system in the state, and it is seen that it does not indicate the scope and objective of the public libraries. It leaves the entire operational part on the proposed constitution of the Department of Public Libraries and the two Committees (1) State Library Committee and (2) District Library Authorities by framing rules and bye-laws. It would have helped if under Chapter V. 21(3) some indication is given of, the percentage of funds to be allocated for library development out of the total State Education Budget. In the National Policy on Library & Information System, 6-10% of the total education budget has been proposed to be utilised annually for library

development. In chapter VII 27, where it is proposed to make some amendments to the press & Registration of Books Act, 1867, it would be advisable to incorporate audiovisual materials also by defining "Book" suitably, in as much as a public library today, is expected to deal not only with printed material but also with audio-visual material, relevant to visually handicapped people etc.

3133 Advice of Director, National Library Sought

The Law Secretary Directed the letter to the Education Secretary to furnish his comments. As such the Education Secretary requested Sri AK Das Gupta, the then Director of the National Library Calcutta to come to Manipur and advise in the matter. But the latter did not come in Manipur.

314 Agitation for early action

In this way the concerned authorities were taking their time quite leisurely. The delay enraged the executive members of the MALA. The MALA started its actions by persuing relevant personnel, by observing Public rallies and meetings, by submitting charter of demands to the Chief Minister etc. Consequent upon the persuation, the State Government sent the necessary comments to the Ministry of Home Affairs, with a note that the observation of the Ministry will be incoporated at the 1st amendment of the Act.

315 President's assent atlast & rules

After a delay of about 5 years, the President of India's assented to the Manipur Public Libraries Bill 1988, came on 9th June, 1993. The Manipur Gazette published it on 17th June '93 as "The Manipur Public Libraries Act, 1988 (Manipur Act No 7 of 1993) and hence become an Act. Soon after, the MALA Organised the "Third State Level Seminar on Manipur Public Libraries Act: Rules and Regulations" on 12th Aug '93 at Imphal. The draft proceedings of the seminar were submitted to the concerned authorities for earliest implementation of the Act. From reliable sources it is learnt that the rules are now under process.

4 SUGGESTIONS FOR EFFECTIVE LIBRARY SYSTEM IN 21ST CENTURY

(i) Morning shows the day. Public Libraries Act shows the way of progress of an effective public library system. To cope with the latest information technology, all existing Acts should be amended from time to time and Acts which will introduced in future should incorporate the changing trends of librarianship.

(ii) All the states and union territories are part and parcel of Indian

Union. They are as important as every limb of a human body. A man is healthy only when all his limbs are fit. Likewise if we are going to prepare a strong library atmosphere in India for the 21st Century there should be a library legislation in all the states and union territories of the country. There is also need for introducing an 'Indian Public Libraries Act' for: (a) coordinating all state Acts; (b) maintaining the standards and norms of all the public libraries in the country; and (c) establishing library networking and resources sharing all over the country.

(iii) In the last few years we were talking about Information explosion. But to-day computer can easily be used to sort out hundreds of information in seconds, and can retrieve the right information to the right person at the right time. So, people all over the world are becoming conscious of the computer. But in India most of the library professionals in general, and the professionals in the public libraries in particular, do not know how to process information with computer, as such library automation is a dream for them. Therefore, in order to enable them to serve their clients effectively, computer oriented training programmes should be arranged by the competent authorities well in time. For new recruitment special preference should be given to the library professionals, who have the knowledge of computer.

(iv) 'United we stand and devided we fall' is a popular dictum. But most of the librarians in India behave as monarch of their domain! In fact it is one of the most important causes for the delay of library co-operation, resource sharing and networking. In anticipation of 21st century information technology, the librarians should come forward and join hands to serve human beings in the retrieval of knowledge.

4 CONCLUSION

Public library, the treasure house of knowledge, is for the use of all the people in the society. In democracy, majority rules the state. In order to bring public support library popularisation is a must. With this view the Manipur Library Association, since its inception in 1987, took up all possible steps to make the people aware of the usefulness of libraries. Ultimately the Association got public support to move the Manipur Legislative Assembly in passing the Manipur Public Libraries Bill in 1988. Time and time wait for nobody; but government always responds to public pressure. After strong pressure from the Association the bill became an Act only on 17th June 1993. At this critical moment the state is again in the grip of the President's rule. Hope the Act will be implemented after formation of a new popular government.

PUBLIC LIBRARIES OF WEST BENGAL: A PROPOSAL FOR THEIR UPLIFTMENT TOWARDS THE 21ST CENTURY

AMIT KUMAR BANDYOPADHYAY*

1 HISTORY OF PUBLIC LIBRARY DEVELOPMENT IN THE STATE

11 PRE-INDEPENDECE ERA

Bengal has a long tradition of library movement. The Calcutta Public Library was established in 1836. "Quite a good number of public libraries were then established in different districts of Bengal.... by a band of devoted people, who believed that public libraries can play a vital role in the upliftment of educational and cultural level of the people..... At the beginning of the 20th Century..... hundreds of libraries were established in villages and towns..... with patriotic zeal..... The then imperialist Government were not happy with the growth of these libraries. Instead of receiving Govt's assistance, many of these public libraries became victims of harassment.[14] The Bengal Library Association was established in 1925 for the promotion of library movement.

12 POST-INDEPENDENCE ERA

"At the time of Independence there were nearly 5000 public libraries managed by the common people in West Bengal."[14] However, most of them were no better than collection of one or two almirahs of old cheap fictions or so, and not worth the name of a library. During the 2nd and 3rd Plan period the State Govt took some programme of public library development. By 1977, there were 759 Govt controlled and sponsored public libraries (701 Rural Libraries, 35 Town/Sub-divisional Libraries, 19 District Libraries, 1 State Central Library and 3 other libraries).

121 Staff

There are two staff members in every Rural Library (RL), four staff members in every town Library (TL), and ten staff in every District Library (DL).

122 Finance

However, these libraries were severaly affected by financial crisis. There

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was no grant for purchase of books for 701 RLs. They were getting only Rs 50/- per month as Contingency grant. Even for the TLs and the DLs, there was no grant for purchase of journals, purchase of furniture and for preservation of books.

123 Administration

"Salary and service conditions were extremely distressing. A full time Rural Librarian used to get a consolidated pay of Rs 75/- per month, and a full time District Librarian Rs 250/- per month. There was no retirement benefit, and no Service Rules for them. Library staff were victims of frustration and despair.[14] The libraries were functioning in a disjointed manner, having no integration and coordination among them.

13 IMPROVEMENTS IN LEFT FRONT ERA (1977/78)

After 42 years of independence, the Left Front Ministry took some real interest for library development. Many new libraries were brought under the Govt sponsored system and their maintenance grants were considerably enhanced. This Library act was passed. A massive quantitative change was very soon noticed with respect to the number of sponsored libraries, staff salary, and maintenance grants of the libraries. People at every corner became at least aware of the existanceof Govt Sponsored public library in their locality, running mostly from public exchqeuer. The number of Govt sponsored libraries quickly rose from 759 to 2418.

131 New Outlook of the Government

In developing these libraries, a new outlook was developed. The libraries `were conceived as vital social institutions for mass education. That the public libraries can play vital role in the eradication of illiteracy and retention of newly acquired literacy, in the development of social and democratic values,... and in the provision of information for socio-economic development of the country were conceived.[14]

2 LIBRARY ACT

In 1931, it was first time in India that a Library Bill was placed in the Bengal Legislative Council by Kumar Munindra Deb Roy Mahasay. Long after Independence, The West Bengal Public Library Act was passed in 1979 by the goodwill of the Left Front Ministry with the aim of doing something for mass education.

21 BASIC FEATURES OF THE ACT

The objective of this Act is `to provide comprehensive rural and urban library service in the State of West Bengal.[18] There is provision of a State

Library Council (SLC) with Minister-in-charge of Library Service as its Chairman, a separate Directorate of Library Service with a Director of Library Service (DLS) at the apex, Local Library Authorities (LLA) and District Library Officers (DLO) at the District level, for proper control and supervision at every level.

211 Basic Principles Absent

The need of any Library Act is said to be (*i*) for Free library service for one and all in the society, (*ii*) Assurance of finance, and (*iii*) Integrated network of libraries with cooperation among each other. We find none of them in the West Bengal Public Library Act.

22 THE LIBRARY ACT THAT WAS PROPOSED BY BLA

The Bill submitted by the Bengal Library Association[13] to the Committee appointed by the State Govt for preparing a Draft Bill proposed for:

(1) Free and integrated library service,

(2) Brining the sponsored libraries under direct Govt control,

(3) Spending 2.5% of State Education budget for the libraries,

(4) Integrated library system throughout the state for cooperation, keeping the SCL at the apex.

221 BLA Proposals Negated

But neither of these proposals has been accepted or implented through the Act passed in 1979 and later ammended.

23 EARLIER COMMITTEE RECOMMENDATIONS NOT FOLLOWED

As observed by the Bengal Library Association[4], "Recommendations of the Advisory Committee on Libraries and the Planning Commission's Working Group on Libraries, both appointed by the Union Govt have not been implemented. In 1950, Dr SR Ranganathan published his Library Development Plan outlining a 30 year plan for library development in India. Again in 1964 he suggested a 15 year library development programme for Plan periods 4-6. Unfortunately the expertise of Prof Ranganathan was ignored by the Union and State Govts. The Unesco Public Library Manifesto, which was first published in 1949 and consequently received by IFLA in 1972, has laid down some major principles for public libraries and public library system. The public library system as envisaged in the Unesco Manifesto is yet a dream in our country."

3 PRESENT CONDITION

Things were developing very smoothly during the first few years of the

Left Front Ministry.

But after few years, owing to severe financial problem, some internal Ministerial problem, and some problems of traditional bureaucratic system, things have become almost stagnant.

31 GAZETTE NOTIFICATION OF THE LIBRARY NAMES NOT MADE

Even in the 15th year of Library Act, no library is declared to be under the provision of the West Bengal Public Library Act, simply for want of Gazzette Notification of the names of the libraries, which is required under clause 6(c) of the Act.[18]

32 FUNCTION OF SCL

The function of the State Central Library, the expected apex library of the whole system, is not mentioned in the Act and it is not yet prepared to render its expected duties.

33 SHORTAGE OF STAFF

There is a severe shortage of staff in the office of the DLS and DLOs. There is no DLO in many districts. As a consequence, there is no system of regular inspection of the libraries, and implementation of many decisions are subject to delays.

34 LOCAL LIBRARY AUTHORITIES AND LIBRARY COMMITTEES

The LLA meeting is not held regularly in many districts. No election is held in many libraries for last 15 years, on the plea of possible injunction due to some conflict of applicability of Societies Registration Act and/or WB Pub Lib Act. The matters are kept pending with no clarification from the Library Directorate. Often, no meeting of the library committees could be held, owing to the absence of LLA's representatives.

35 GRANTS NOT RELEASED

The library sponsored/upgraded in 1986 are not yet receiving their due grants. There is often complaint of late release of grants to the sponsored libraries. Library staff do not get their salary in due time.

36 INSUFFICIENT GRANT

The existing grants for purchase of books and other purposes is not at all sufficient, considering the high rising cost of books and other materials, increasing population and increasing demand of service.

37 ABSENCE OF SCIENTIFIC STAFF PATTERN

The existing minimum staff pattern of different categories of libraries is not prepared considering the work load and types of services rendered. Many

old libraries are running with extreme shortage of staff.

371 Result of BLA Proposals on Staff

In a memorandum submitted to the West Bengal Pay Commission, in 1978 the Bengal Library Association[3] demanded for the minimum staff of 20 persons for a District Library, 9 persons for a Town/Sub-division Library and 5 persons for a Rural Library. Now there are respectively 10, 4 and 2 staff in these libraries.

38 INSUFFICIENT NUMBER OF LIBRARIES

According to Biren Chand[5] there are 2421 Govt and Govt sponsored public libraries in West Bengal, that counts to one library for every 26,656 persons on an average. If we demand one library for every 20,000 population, we need 3400 libraries (as per 1991 census, population of WB is 6,79,92,732) or we need to establish nearly 1000 new libraries. Again, if only 10% of the total population use the library, there will be 2000 members per library (with the set target). But the infrastructures of our Rural Libraries cannot give service to 2000 readers with 2 staff! So we need to increase the number of staff per library.

4 INFORMATION SERVICE

41 NEED OF INFORMATION

Information is a basic input to all developmental activities. Availability of information expeditiously and pinpointedly, supports all decision making process at all levels. Relevant information accelerates the pace of national development. An informed citizen is an asset to a democratic system of government, and the proper utilization of information can improve the quality of life of citizens.

42 RIGHT TO INFORMATION

According to the National Policy on Library and Information System drafted by RRRLF[12]. "Every citizen must have the right to obtain the information he needs irrespective of his physical, social and economic condition".

According to Bengal Library Association[4] "Right to free public library service to read and to acquire information should be guaranteed as one of the fundamental rights of the citizen.

Our libraries need be smart enough to convert themselves to Community Information/Resource Centres.

According to Prof CP Vashishth[17] "The people should have timely access to relevant information, pertinent knowledge and opportunities to learn and

adapt appropriate technology. No development programme will ever succeed, if people for whom it is meant do not understand, appreciate and participate. The provision of `Rural Library and community Resource Centre' can provide the necessary base for all development programmes, aimed at raising the standard of liviging of our rural people".

"That 'information' is a vital factor for socio-economic development, is not yet within full understanding of our planners and administrators"[4].

43 COMMUNITY INFORMATION

According to the Working Party on Community Information, 1979[19] "Community Information Service can be defined as services which assists individuals and groups with daily problem-solving and with participation in the democratic process. The services concentrate, on the needs of those who do not have ready access to other sources of assistance, and on the most important problems that people have to face, problems to do with their homes, their jobs and their rights".

431 Sphere

Community Information may cover a very wide field of our day to day needs; eg. information on housing and other loan systems, location and facilities of rural banks, prices and availability of various agricultural inputs and also fishery and cottage or small-scale industry inputs, local market for their products,.... Panchayat and Cooperative Society facilities, hospital services and so on.

44 ADVANTAGE OF COMMUNITY INFORMATION CENTRE IN LIBRARY

According to Barun Kr Mukherjee[10], wastage and expenses on running parallel agencies may be minimised with the maximum utilisation of resources. All sorts of information may be available under one roof. With the cooperation of all agencies, necessary supporting documents may be available in one place. Expertise for organising information materials and handling queries are available with the professional staff. Libraries will automatically become popular with a wider user base.

45 CONSTRAINTS OF PRESENT SYSTEM

According to Saha, Ghosh & Roy[15], some of the constraints of strategic importance which require special attention are:

1 Apparent dearth of 'need information' both in quantity and quality,

2 Problems related to harnessing information, information media in regional languages, efficient channels to maintain uninterrupted flow of information,

3 Constraints of applying techniques of library & information service, in order to disseminate information to the users,

4 Lack of coordination among the existing institutions who are engaged in information dissemination.

5 NEED FOR A COOPERATIVE NETWORK OF LIBRARY SYSTEM

Recognising the role of public libraries play as disseminators of information–both governmental and non-governmental, the 38th All India Library Conference, 1992[7] resolved to request the Government of India to establish a network of public libraries.

50 IFLA GUIDELINES

According to the IFLA Guidelines for Public Libraries, 1986, the concept underlying a public library system is that, no single service point should stand alone. Each must be able to draw on the support of the system as a whole, and each should be able to provide access to the full resources of the system. Library users should be encouraged to regard their local service points in this way, and the staff and equipment of the service point should be such as to reinforce such a view.

51 NEED FOR COOPERATION

The concept of lirbary cooperation is for making the maximum amount of literature available to the maximum number of users, without a proportional increase in expenditure. The cooperation can be effective in the stages of acquisition, processing, storage and use.

511 Avoid Duplication

The area of overlap in respect of acquisition in our libraries is high and is a huge wastage of public fund. According to Dr RK Dasgupta[8], "We spend very little on our libraries and a good deal of what we spend is a wasteful expenditure".

52 NATIONAL NETWORK NEEDED

According to CONPOLIS[7], isolation is the common and abiding factor as far as Indian libraries are concerned. To break this isolation, the nation requires a national network, within which will be accommodated libraries of different kinds, at different levels, from the rural society to modern city, from the school to the research organisations[9].

53 MOVEMENT FOR COOPERATION IN WB

Interlibrary cooperation was the topic of the 22nd Bengal Library

Conference, Balurghat, 1968 and of the 39th Bengal Library Conference, Purulia, 1984[2]. However, no effective steps are taken as yet in this direction.

6 RECOMMENDATIONS

61 NAPLIS

Report of the Empowered Committee on National Policy on Library and Information System, be published immediately and their recommendations be implemented as soon as possible.

62 LIBRARY ACT

The West Bengal Library Act be immediatley ammended to ensure

(*i*) Free library service for all,

(*ii*) 6% of Education budget for Library Services,

(*iii*) Integrated network of libraries with full cooperation among each other,

(*iv*) More power to State Library Council, so that their recommendations may be implemented,

(*v*) Clear mention of the functions of the State Central Library, keeping it at the apex of the library system,

(*vi*) Bringing the District libraries under direct Govt control,

(*vii*) Declaring the Director's post as strictly professional.

63 FREE SERVICE

As per Unesco Manifesto[16], the libraries should be maintained wholly from public funds and no direct charge should be made to anyone for its services.

64 GAZETTE NOTIFICATION

Immediate Gazette Notification be made of the names of the sponsored libraries to bring them under the purview of the Library Act.

65 WB PUB LIB ACT AND SOCIETIES REGISTRATION ACT

The apperant conflict between West Bengal Public Libraries Act and the Socieites Registration Act be resolved and clarified immediately, and election of Managing Committees of libraries be made regularly.

66 STATE LIBRARY NETWORK

As per CONPOLIS[7] recommendation no (3,10), all the libraries within the State should form part of a network, extending from the community library of the village, through intermediatry levels to the district, and to the

State Central Library. This State Network should eventually connect with the National Level.

67 The State Central Library/Directorate of Public Libraries has to perform as the coordinating agency for the public libraries in the state.(3,11)

68 The District library will take the leadership in establishing linkages between all other public libraries of the district, and work towards resource sharing within the area.(3,8)

69 According to CONPOLIS recommendation no 8.5, use of communication facilities for developing inexpensive local library and information network has to be supported for practising resource sharing. Any user should have ready access to documents/information wherever he/she is located.

6(10) The 38th All India Library Conference, 1992[1] resolved to request the GOI to establish a network of public libraries as an extension of NICNET to collect as well as disseminate useful information to the public, automatically and expeditiously.

6(11) Computers to Dist Lib

GOI has allready made arrangement of INDONET/NICNET for providing nodes in each and every Dist Hq for processing of all Govt Information. District Libraries are mostly situated in the Dist Hq. The facility may be extended to each and every District library at a very little extra cost. Then the District Libraries may very easily collect all governmental information for rendering valuable information service and the DLs may form a network and communicate among themselves for resource sharing.

6(12) RRRLF should initiate a scheme for funding the public libraries going to install computers.

6(13) Rural Libraries as Community Information Centres

According to conpolis recommendation no 3.2, the main thrust in this area should go to rural public library. A village or a village cluster with an adequate population should have a communtiy library which will also serve as an information centre. Resources of different agencies engaged in the work of public health, adult education, local self government and such others may be pooled to build up this composite centre.

6(14) Telephones to rural libraries

Govt has decided to provide telephone at each and every village. All the RLs must be provided with telephone for collecting information from DLs.

6(15) Mobile Library Service

The CONPOLIS recommended[3.5] that District Library and branch librar-

ies should arrange mobile and circulating library services wherever it is necessary and feasible.

The Mobile vans of the District libraries are very old and mostly out of work. New Vans should be provided to the DLs. Fuel and maintenance grant of these vans should be increased.

Town libraries should maintain branch libraries and reading centres where the population is high.

The RRRLF Scheme of Assistance[11] for mobile vans should be increased and this should be fully exploited.

6(16) Duty & Responsibility

The Govt should clearly specify the duties and responsibilities of different libraries and relations among them.

Standard of service of different categories of libraries shouldbe formulated, keeping in view the present situation of the libraries and achievable goals.

6(17) Staff Welfare

Salary of every staff of sponsored libraries be paid on the 1st day of every month on a very regular basis, through some local bank.

Service Rules of sponsored libraries' staff be introduced with immediate effect.

Pension to retired staff be released within 3 months of retirement.

6(18) Library Grant

Quantum of financial assistance to be given to each library be decided after considering services rendered and actual requirements.

Grants for purchase of books, furnitures etc be increased every year at least by 15% considering the price hike, increase in number of books, increasing population and demand of service.

Grants be released very regularly at the beginning of the year and not at the fag end of the year.

6(19) Staff

Staff requirement in each library be decided based on membership strength, number of documents, rate of annual acquisition, types and quantum of services rendered etc.

In BLA's Memorandum submitted to the West Bengal Pay Commission

in 1978[3], there as a demand for the minimum staff of 20 persons for a Dist Library, 9 persons for a Town Library and 5 persons for a Rural Library. At present there are 10, 4 and 2 staff in each of the respective categories of libraries. The aforesaid staff pattern be granted immediately for introducing new services.

6(20) Reading Material

* Books on Agriculture, fishery, Animal Husbandry, Health, Cottage Industry and other popular science topics and neoliterate books and related documents be published in local dialect for general people. The SCL and the State Book Board should joinly look into the matter. Consequently, Dr DP Chattopadhyay observed in the Interim Report on NAPLIS[6] that the major problem for book acquisition in public libraries is non-availability of suitable reading material in local languages.

* The SCL should maintain contact with different govt and non-govt generators of information at the State and National level, collect, process and provide access to relevant information to DLs and other libraries on need.

* The SCL should have separate sections for preparing/repackaging documents in new media like film, audio and audio-visual and arrange for their use by different libraries.

* State Central Library should compile union catalogue of important documents of the state.

* SCL should organise preparing appropriate audio-visual materials and it should work as a centre for collection of audio-visual materials.

6(21) Training

* SCL/DLs should organise training in reprography, book binding, preservation, information processing, computer application, etc.

* An orientation training centre be opened at the SCL considering the thrust of work for giving training in handling information service and computer application.

* RRRLF scheme of assistance towards organising seminar, workshop, training courses etc on 50% sharing basis be utilised to the fullest for the purpose. The limit of assistance of 10,000/- per scheme be enhanced to at least 50,000/- per scheme.

6(22) District Library

* The DLs should organise collection and prepare list of local history,

human resources and institutional resources.

* It should prepare union catalogue of the important documents of the district.

* DLs should help in acquisition and processing the books of the rural libraries.

* DLs should acquire TV cum VCR sets and cassettes for educational and information service purpose under RRRLF matching scheme[12]. This has been recommended also in the CONPOLIS Report under clause no 8.9(7).

* DLs should provide information/material in local languages as per local need to the rural libraries. DLs should prepare such materials through translation/repackaging of information, through SCL or directly through govt departments. District Libraries should be strengthened considerably for the purpose.

6(23) Opening Hours and days

* SCL/DLs must be kept open for 12 hours a day and be kept open on all the days of the week. According to the IFLA Standard for Public Libraries[9], urban main libraries should be kept open for atleast 60 hours per week.

* No library be kept closed on Sundays.

6(24) Finance

* As per CONPOLIS recommendation no 10.6, the national as well as state govts should provide for an expenditure of 6-10% of their education budgets for the libraries. Public libraries should draw resources from all official agencies working for rural development. The Empowered Committee on NAPLIS is heared to have agreed in principle on this point and recommended that attention may be drawn to the Ministries/Departments of Central and State Govts seeking their help and support.

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PUBLIC LIBRARY SYSTEM IN ASSAM: AT THE DOOR OF 21ST CENTURY

DR RK BARMAN*

0 INTRODUCTOIN

Man is a social animal and libraries are social institutions. The library and the society are interlinked and interdependent. There is a close relation between these two. Society cannot exist without library and library can't exist without a society. According to Compbell and Metzner "Public library is one of the few places remaining, in an overstructured society where one can search freely for whatever one wants from the vast resources".[1] As an agency for public assistance, it is unique and precious and wins the plaudits of everyone providing information to the general public, for their mental development enabling them to utilise their leisure hours. In short, it is an agency for helping alround development of the community.

1 SCOPE OF THE PAPER

Due to vastness of the topic and problems of space, this study has been kept confined to the organisational aspects of the public library services. Special emphasis has been given to the post independence period which witnessed a significant development of public library development.

2 METHODOLOGY

Data referred to in this paper has been collected from the Directorate of Library Services. However, some secondary sources such as Handbook of Statistics etc were also consulted in preparation of this paper. Statistical analysis has been done in support of some of the observations made in the study.

3 ASSAM AND ITS PUBLIC LIBRARIES

Assam, the gateway of NE Region of India, had a glorious heritage. The ancient name of Assam was 'Kamrupa', which was famous for its innate love for education, books and libraries among the rulers of the country.Bana's Harsa-Charita bears a clear testimony to the fact. It is said that King of Kamrupa, Baskar Varman had sent some books to Harshavardhan Siladitya of Thaneswar, as a taken of love.

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Upto 1826, Assam was an independent State. It came under British dominion as per Treaty of Yandaboo of 1826. There has been no record of any library services in the State during this British period except a Small Govt Library at Shillong.

4 CURRENT SCENARIO OR PUBLIC LIBRARY SYSTEM

Chronologically, history of Public Library (PL) Service in Assam dates back to 1904. As already stated, a small library was set up in 1904 at the British Capital of Assam, by the Government of Assam.[2] Though it was a public library, yet it catered mainly the need of a few high ranked officials.

41 SINCE INDEPENDENCE

Public Library services in real sense of term was initiated in Assam during the First Five Year Plan. India just after independence started a Nationwide Scheme "Free Book Service to All" under the patronage of the first Prime Minister, Pandit Jawaharlal Nehru. Government of Assam welcomed this scheme and in 1954 established the first State Central Library (SCL) in Shillong. Thus, by 1955, there were only two government libraries. In 1956, the old Public Library was amalgamated with the SCL.[3] Thus, the library movement got a start in Assam. Gradually, the library services got extended, following mass appreciation of the common people. By 1961 all the then existing seven Districts were covered under the PL (Table 1) system.

The development of libraries were spontaneous and continued under the able guidance and supervision of State Central Librarian. Following the success of the library services at District level, Govt of Assam was pleased to extend the services to Sub-Divisional level. By 1991 fourteen Sub-Divisional Library (SDL) were established.[4] These are:

Table 1
Districts covered by PL System upto 1961

No	Name of the District Library (DL) located at District HQ	Districts served
1	Gauhati	Kamrup
2	Nagaon	Nagaon
3	Jorhat	Sibsagar
4	Dibrugarh	North Lakhimpur
5	Tezpur	Darrang
6	Dhubri	Goalpara
7	Silchar	Cachar

1 Sadia	8 Majuli
2 Tinsukia*	9 Hailakandi
3 Morigaon*	10 Hamren
4 Biswanath Charali	11 Charadeo
5 Rangia	12 South Salmara
6 Dhemaji*	13 Udalguri
7 Jonai	14 Hojai

* Recently these sub-divisions have been declared as Districts by Govt of Assam. As such the SDLs are being upgraded into DLs.

41 MOBILE LIBRARY SERVICES

To provide library services to the inhabitants of rural areas, three mobile vans were procured. Thus, in collaboration with Social Education Dept Mobile Book Service was introduced in the 2nd Five Year Plan period. Under this scheme some Deposit Centres were set up in select areas of Jorhat and Gauhati. Books were issued to these centres at regular intervals through the Mobile Vans.[5] Finally these were issued to the inhabitants of rural areas for home study. Poor people who could not afford to visit DL or SDL (located in urban areas) were extremely benefitted by this schemes. Unfortunately, due to some operational and administrative difficulties, the scheme had to be abandoned after a few years. At present there is no mobile library services in the State. Thus quite a good proportion of rural people are yet to get the benefit of library services.

42 STATE CENTRAL LIBRARY

As already discussed, the SCL was established in Assam in 1954. In 1956, Govt Library created in 1903 merged with SCL. Since 1956, the SCL used to get full patronage of the Government and public as well and developed steadily. Due to the untiring efforts of Mr Ram Goswami, the founding State Central Librarian, the library services in the State began to flourish. By 1971-72, the SCL had a rich collection of 1,80,156 documents. But following the creation of Meghalaya in 1972, the SCL was bifurcated and Assam's portion was transferred to Gauhati, leaving the beautiful SCL building in Shillong. The documents of SCL were divded in 2:10 ratio to Meghalaya and Assam.[6]

421 SCL Loses Building

From 1972, the SCL of Assam began functioning in the fist floor of DL at Gauhati. Thus space problem developed and it became more acute with

the passage of time and by now a chaos have developed. This has compelled the authorities to shift the reading room to a distant place.

422 Directorate

With a view to give better library services to the people and streamline the administration of public libraries the `Department of Public Libraries' was upgraded to a `Directorate' in 1984. In 1985 it was declared as Head of the Deptt.

4221 SCL Vanishes

Following the creation of Directorate, the SCL ceased to function. Most probably, documents of SCL were placed at the disposal of DL at Gauhati. Besides, a branch library was opened at Dispur to cater the needs of the peopel of Capital Complex areas.

4222 Resurruction

However, the need of a full fledged SCL for the State in addition to the Directorate is felt by the people of Assam. Following public demand for a modern SCL, the Government of Assam is proposing to revive SCL in a spacious building in Gauhati.

43 INFORMATION & RESEARCH WING

The research wing of the SCL still functions as a `Research and Reference Library,' though housed in a congested and unhygenic room of DL, Gauhati. It contains a rich collection of 4000 rare books pertaining to different aspects of socio-economic cultural life of NE People. From the time of establishment, this sectional library has been able to attract the attention of a good number of research scholars, academicians, statistian, writers, scribes etc. However, due to financial constraints,the section has not been able to maintain the status quo by procuring the latest editions of reference collections. This has resulted in a number of problems for readers. This section has a well trained Reference Librarian.

44 SCIENCE & TECHNOLOGY LIBRARY

This is the age of Science and Technology (S&T). There is hardly any field left untouched by the impact of S&T. To develop a scientific temper among the youngsters and also to help the general readers, a sectional (S&T) library was set up in 1990 at a cost of Rs 10 Lakhs. At present there are 4463 books in this library, most of which are reference books belong to Medical Science, Zoology, Botany, Technology, Physics, Chemistry, Astronomy, Mathematics, Agri & Vety Geological Sciences.

441 DCL's S&T Collection

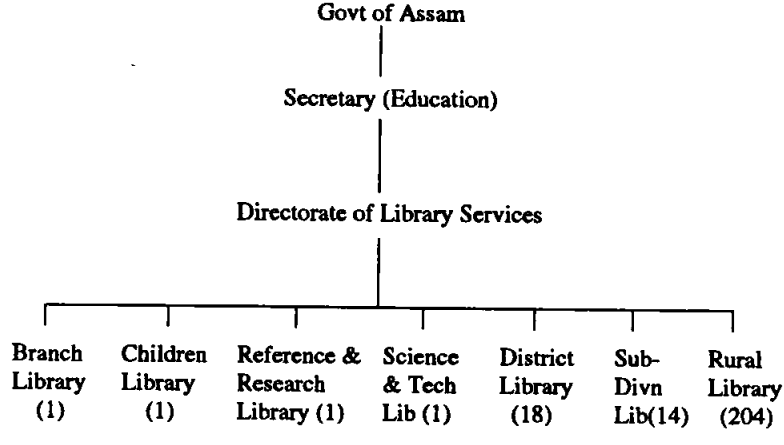
The Directorate, also hoped to open such S&T library in each of the DLs of the State. But, due to financial constraints, it couled not open any more as yet.

45 CHILDREN'S LIBRARY

The SCL used to have a Children corner. But with the ceasure of SCL, a problem arose regarding the children section. At last, the problem was resolved with a setting up of a full fledged library for children in 1987. The library was housed in a building donated by the successors of Late BR Medhi (Ex CM) and it has been named afted him. The library since then is functioning smoothly and at present it has a collection of 7487 books in English, Assamese and Hindi languages and the number of registered readers stands at 1903 (As on 31-3-93).

5 PRESENT STRUCTURE OF PL

The present structure of Public Libraries is shown in Fig 1. As already discussed, there is a full fledged Directorate at the top, which controls, the entire library services throughout the states. The Directorate is headed by a professionally qualified library administrator. She is assisted by a Deputy Director, a planning Officer, one Office superintendent and a number of professional and non-professional workers assisted by a team of ministerial workers.



51 STAFF OF PUBLIC LIBRARY: SALARY AND STATUS

Table 1 gives the staffing pattern in public libraries:

Table 1

	Name of the Library	Designation	Status	Scale of Pay
(A)	Directorate of Library Services	Director (1)	Gezetted	3375-5200
		Dy Director (1)	"	2275-4450
		Planning Officer (1)	Non- Gazetted	1635-3950
		Superintendent (1)	"	2095-3950
		Asstt Librarian (2)	"	1375-3375
		Ref Librarian (1)	"	
		Technical Asstt (2)	Technical	1125-2215
		UDC Accountant	Ministerial	1595-3175
		LDC Typist	"	1125-2215
		Counter Attendant/ Book Binder	"	975-1935
		Duftary	"	930-1735
		Peons, Cleaners etc	"	900-1435
(B)	District Library	District Librarian in each DL (1)	Officer (non-gazetted)	1375-3375
		UD-cum-Accountant (1)	Ministerial	1515-2715
		Lib Asstt Tech Asstt(1)	"	1285-3075
		Tech Assistant	"	1065-2095
		Counter Attendant	"	960-1835
		LDC-cum-Typist (1)	"	1065-2025
		LDC-cum Caretaker	"	"
		IV Grade (varies)	"	900-1435
(C)	Sb-Divisional	Librarian (1)	Officer (non-Gazetted)	1285-3075
		LDC-cum-Accountant	Ministerial	1065-2095
		Counter Attendant	"	960-1835
		IV Grade Staff	Subordinate	900-1435
(D)	Rural Library	Librarian	Honorary	Rs 250 (Fixed)
		IV Grade Staff	"	Rs 150 (Fixed)

51 RURAL LIBRARIES

Govt of Assam initiated the scheme of Rural Libraries in 7th plan. Under the scheme, it planned to establish 664 village libraries during the 7th plan ie., by 31st March 1990. But till today only 204 libraries have been set up, of which only 182 are somehow functioning. Again in 1990, Govt of Assam decided to establish libraries in 714 Gaon Panchayats. Though, there are 204 rural libraries, the services, they offer, the collection and the reading facilities, are far below the minimum expectation. Again though Government is claiming to have established the rural libraries, actually in most of the cases, it has donated only a few hundred books to the already existing village libraries (established by the educated villagers of the area) and giving a pitiable amount to the caretakers (Librarian) of the library. In no sense, these may be termed as libraries. Recently, a few of such caretakers of the rural libraries have been given a training for 2 days [1-2 Nov/93] (inclusive of Inauguration Veledcitory function). Only time will show the effectiveness of this training of the Caretaker Libraries serving at Rs 250 pm.

52 PUBLIC LIBRARIES: HOW FAR PUBLIC?

Public library is a library meant for general public run and administered out of public fund ie. Govt fund. Generally each and every citizen should be benefitted from the public libraries. This is more so in a educationally backward state like Assam. Besides, with the constant rise in prices of books the responsibility to offer library services is rapidly increasing. Keeping this in view let us analyse the present public library scenario in Assam.

521 Benificiaries

Assam, according to 1991 census has a population of 2,22,94,562. Of them 80% are rural and 20% Urban. There are 18DLs, 14 SDLs, 204 Rural Libraries, and 4 sectional libraries. Thus there are 242 libraries run by the Govt. The registered number of readers in the State is 1,25,786. This means that 0.56% of the total population is benefitted by the public library services. Out of the 1,25,786 readers, 86% are male while 14% female. This shows that female readers in PLs is very poor. This may be partly due to poor literacy among the female (37.7) against male literacy rate (62.3%) and inconvenient opening hours (1 pm to 6 pm) of public libraries for the female.

522 Gaps in Service

Again, Assam as on date has 23 declared districts and 23 Sub-Divisions. Accordingly, it should have at least 23 DL and 23 SDL. But, in fact at present, it has only 18 DLs and 14 SDLs. Of this 8 posts of DLs and SDLs are lying vacant. The number of registerd readers in the DLs are also poor. A

study made in this connection reveals that only 1.37% of the entire population is readers of DLs (Table 2)

Table 2
Shows the population of Districts with readers in DLs

District Library	Population in 1991	Readers in 1991	%
Gauhati	1987000	21,307	1.07
Tezpur (Sonitpur Dt)	1418000	18,864	1.3
Nagaon	1892000	19,732	1.04
Jorhat	868000	20,659	2.38
Dibrugarh	1038000	18,561	1.8
Total	7203000	99,143	1.38

6 READER'S SERVICES

Libraries are service oriented institutions. Service should be the motto for the libraries, irrespective of the size of the collection. But in Assam, the siutation is far from satisfactory. Here emphasis is given on `preservation', rather than `use' of documents. The only service available is the lending and reading service. Reference service, xerox service, Fact finding service, Information Service, are still a distant dream for the readers of Assam. DLs & SDLs are yet to have as xerox machine, an essential tool for modern library services. Readers are not informed about the new arrival in the libraries. As a result, many good books purchased at a heavy price remains without any use for years together. In fact everything is done against the five laws of Library Science of SR Ranganathan!

61 ABSENT PUBLIC RELATIONS

Public relations seems to be totally absent in Public libraries. Not to speak of voluntary information service, to advocate for the use of documents (available in the library). Most of the Staff (except a few) do not hesitate to avoid the readers' querry. Even a section of professionally qualified Librarians prefer to remain unapproachable by readers.

7 EXPENDITURE IN PUBLIC LIBRARIES: MARCHING BACKWARDS

Once, Assam could boast of having suitable network of PLs with adequate fund for collection development, staff's training etc. But, the glory

is no more. Now, the financial condition of the PLs are extremely poor. This is clear from the fact that since 1991-92 the libraries have to discontinue the subscription of a good number of local periodicals of Assam. Subscription to the national dailies and periodicals is almost nil. Besides the DLs and SDLs are getting no new books for the last few years. At present the number of documents in the Directorate is only 6,91,059 ie., 31 books for every 10,000 people. The per capita expenditure for library services in Assam is only Rs 0.43 while in Chandigarh it is Rs 2.21. Out of the 43 paise, 7 paise is spent for book purchase, 34 paise in staff salaries, 1 paise in furniture, and 1 paise for other purposes. The following table shows budget expenditure for PL in Assam.

71 EXPANSION BEYOND MEANS

From the Table 3 it is seen that the budget for the PL is increasing. But, the increase is quite insignificant in view of rapid price rise of books and journals; and increase in staff salary. Again, due to opening of new districts and sub-divisions, the Directorate of PL has not been able to establish libraries in all districts and sub-divisions. Also, it is unfortunate to note that the amount of money spent on books & journals is very very small, and every year it is shrinking eg., in 92-93 the expenditure was less than 6% of entire budget for the library services.

Table 3
Budgets for Public Libraries

Year	Total Budget (Rs in lakhs)	Budget for Books & Journals (%)
1989-90	113.11	17 (15.02)
1990-91	128.04	NA
1991-92	140.10	18 (12.84)
1992-93	143.14	5.6 (3.9)

72 LIBRARY PERSONNEL

At present there are about three hundred twenty four library personnel under the Directorate. Of these, fifty nine (18.2%) are professional. Out of these fifty nine posts, eight are lying vacant. Thus, there are fifty one personnel of which thirty four (66.6%) are trained and seventeen (33.4) are untrained. Table 4 shows the break up of different positions.

It may be noted that though there are 204 rural librarians and none of them are professionally qualified. They are of course treated as purely

Table 4
Public Library Personannel (Professional) Position

Organisation	Existing Librarians		Vacant	Total
	Trained	Untrained	Posts	
1 Directorate	5 (Incl Director & Dy Director)	NA	NA	5
2 District	10	4	4	18
3 Sub-Divisional Libraries	9	9	Nil	18
4 Lib Assistants (In 1,2 & 3)	10	4	4	18
Total	34	17	8	59

honorary, and part-time, library workers. Besides, about ten posts are yet to be sanctioned, to man the newly created/upgraded DLs and SDLs.

9 LIBRARY LEGISLATION

The need of a library legislation for Assam has been felt since long. It was Dr SR Ranganathan who for the first time attempted it in Assam by drafting a Public Library Bill for Assam. Not only that, with Prof PN Kaula, and office bearers of ALA, met the Chief Minister and Education Minister, and tried to convince the later, about the social necessity of Library Act.

91 OBSTACLES TO LIBRARY LEGISLATION

Since then, attempts are being made by different organisations at different times. But due to lack of whole-hearted efforts of professionals, and indifferent attitude of the Government, the legislation is yet to be enacted. Besides prolonged difference of opinions among the Library Associations and senior most Library Professionals of the State, has made the work more complex. Already, two different bills has been reportedly submitted to the Govt by two different organisations. Taking the advantage of the situation, the Government is avoiding the matter. Assam Library Association (ALA) formed in 1938 is lying dormant (if not dead) for last twenty three years. As such there is no united professional pressure upon the Govt.

92 NEW HOPE

Recently, Gauhati Library Association (GLA) has been formed. It is expected that GLA would try earnestly to revive the issue and make fresh and sincere attempt for enactment of the library legislation.

93 CONCLUSION

A time was there when Assam could boast of a sound public library system, even without a Library Act. But with the change of time, the attitude of the bureaucrats also been changed. This is happening, since last two decades. As a result, the very existence of present structure of public library system has become doubtful. Due to apathy of the Government and whims of the bureaucrats the department is getting a raw deal (as reported by Staff Reporter in a local English daily 18.5.93). So, there is urgent need of a Library Act, to regulate the public library services. The library professionals forgetting their personal differences, should sincerely attempt to have the legislation as early as possible. The almost dead ALA, should be revived to fight unitedly for the alround development of the library profession.

93 PAY & STATUS

The Government of Assam should re-consider the pay structure of the public library personnel and should maintain the pay parity with the those of College Librarians, as it used to be before 1987. Besides, the Directorate should try to persuade the higher authority to make the posts of District Librarians, a Gazetted one, with corresponding scale of pay, and adequate delegated powers. Promotional avenues, which is at present almost nil, should be created. Training for para professionals and continuing education, for professionally trained librarians should be regularly organised.

94 LIBRARIAN'S ROLE

Librarians, on their part should try to serve the readers with professional zeal. Resource sharing by way of networking and users' study should be given adequate attention to serve the readers' interest. They should give due emphasis on the service aspect rather than preservations. Attempts should be made to notify the documents of the library, to maximise their use. This, we hope will bring a considerable change in the present state of affairs and help the libraries to prepare themselves for the 21st century.

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ROLE OF ACADEMIC LIBRARIES IN HIGHER EDUCATION AND RESEARCH: A CASE STUDY OF JRD TATA MEMORIAL LIBRARY

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0 INTRODUCTION

Higher education in India is a tradition that can be traced back to the ancient times. There are examples such as Taxila and Nalanda widely known as places of higher learning. The establishment of three universities at Calcutta, Bombay, and Madras in 1857 under the British rule is an important landmark in the educational system in India. After independence, the great visionaries and leaders recognised the importance of education and research in the development of the country and a large number of universities, R & D institutions and centres of higher learning were established. In addition, recognising the significance of technical education as a crucial factor for national development, the five Indian Institutes of Technology at Bombay, Delhi, Kanpur, Kharagpur and Madras were set up. These and such other institutes including Indian Institute of Science at Bangalore, have gained recognition as Institutes of National Importance. These National Institutes are mainly responsible for creating large technical manpower in the country. Consequently, India can boast of having the third largest scientific and technical man-power in the world.

01 DEPENDENCE ON LIBRARY

The academic and research institutes largely depend on libraries for their information requirements. Libraries play vital role in supporting the academic and research activities of the respective organizations and provide an important link in their quest for information. Libraries' participation in the educational mission by providing appropriate information services, accelerates the progress of learning and research process.

1 THE INDIAN INSTITUTE OF SCIENCE

The Indian Institute of Science (IISc) established in 1909 is one of the oldest and finest Institute of its kind in the country. The Institute is engaged in the pursuit of excellence in research and education in several fields of science and technology. Research in frontier areas, and education in currently

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technologically important areas are the unique features of this institute. Since its establishment, the IISc has acquired, a pride of place in the scientific horizon of the country. The IISc is a deemed university under the Ministry of Human Resources and Development, Govt of India. It offers ME, ME (Integrated), MSc (Engineering), MTech and PhD degrees.

11 JRD TATA MEMORIAL LIBRARY

The library of the Indian Indian Institue of Science was established in 1911 and was renamed in 1994 as 'JRD Tata Memorial Library'. This library is considered to be one of the best "Science and Technology" libraries in the country. The primary mission of the library is to support the educational and research programmes of the Institute by providing physical and intellectual access to information, consistent with the present and anticipated educational and research functions of the Institute. In accordance with the objectives of the Institute, the library acquires, organises and provides information access, to materials required for the teaching and research activities of the Institute. The secondary mission is, to serve as a resource centre for the scholars and scientific community of the country, by providing access to its requires.

2 THE BUILDING AND LOCATION OF MATERIALS

The library moved into the present spacious and functional premises in 1965. At that time it was considered to be one of the best functionally designed library buildings in the country. It is ideally located to be accessible to all the major departments and laboratories in the Institute. The total area of the building is 50,000 sq ft. The major factors considered for the construction of the building were:

(a) The larger part of the book collection should be available to the readers with open access system.

(b) The construction of the building should allow maximum flexibility of movement of material and staff, for arranging and re-arranging stacks on fucntional basis. Accordingly care was taken to make every floor capable of carrying books and periodicals load throughout the floor area. Provide for natural light and air for the reading areas.

The library material and the operational units such as Acquisition (Books, Serials), Classification & Cataloguing, Periodical subscription, Circulation, Computer unit, Binding & Processing, Bindery are functionally located.

21 THE FUNCTIONS/SERVICES

As an active information supporter to the scientific community in general and Institute faculty & students in particular, the library performs the following functions:

1 As per the user request, the library selects and acquires informational resources relevant to current and anticipated academic & research needs of the Institute. It follows a well defined, objective acquisition policy.

2 Organises (classify & catalogue and arrange) and administer the materials acquired and facilitates access.

3 Provides direct access to materials and extends borrowing facility.

4 Provides inter-library loan services for the needed resources not available in the library. Maintains close relationship with other libraries on co-operative basis to effect the development of a mutually beneficial service and effective use of resources.

5 Provides reference services to all its users.

6 Brings out 'weekly list of additions', and 'weekly list of journal issues', received in the library.

While the above functions reflect the normal functions of any academic and research library, its uniqueness is reflected in the following:

1 The collection built over eight decades.

2 Document supply service.

3 Information access to corporate sector.

4 Extension activities.

5 Usage of materials.

6 Staff Training and motivation.

3 THE COLLECTION AND THE COLLECTION DEVELOPMENT

The collection of the library which includes books, journals, reports, standards and patents is regarded as one of the richest in the country, in the field of science and engineering. This rich and valuable collection built over eight decades has some of the rare reference materials and several important journals. Some of these journals which the library has from Volume number one: issue number one, include:

1 Philosophical Transactions of the Royal Society of London since 1665.

2 Proceedings of the Royal Society, London, since 1854.

3 Competes Rendus Hebdom Adaires Des Seances De L' Academie Des Sciences since 1835.

4 Berchte Der Deutsche Chemischen Gesselschaften (now Chemische Berichte) since 1868.

This vast reservoir of knowledge, on a conservative estimate is worth over Rs 200 crores. The growth of the collection is steady from the beginning. The collection development is systematic and comprehensive in size scope and usefulness. This has been possible because the library works in close collaboration with its faculty, and institute administration. The quality of its collection owes much to the co-ordinated efforts of the library-oriented faculty and service oriented librarians. Since the institute is a Post-graduate research institute, all care is taken to get only scholarly and research oriented publications. The collection development policy of the institute is guided by the following principles:

(a) Information/document should not be collected unless it is useful to and used by, those for whom it is meant.

(b) Information collected should be of use to meet the current and anticipated academic & research information needs of the Institute faculty & researchers.

31 LIBRARY FINANCE

In addition to regular budget, library seeks additional or special grants to meet the growing needs. Whenever some special grants from external agencies such as UGC are available, reference collections are updated to fill in the lacuna in the holdings, like missing volumes of series publications. As far as budgetary sanction for acquiring library materials is concerned, the Institute authorities are pro-library and the library has been able to garner the support of all the concerned. The annual budget of the library for the year 1994-95 is Rs 4 crores. Probably, there are very few libraries in the country which spend more than 4 crores of rupees towards acquisition of journals, books & serial publications, & on other forms of library materials. Also, the library has been recognised as Regional Centre for Higher Mathematics by National Board for Higher Mathematics (NBHM). As such, it is receiving a recurring grant of Rs four lakhs from National Board for Higher Mathematics (NBHM) to procure books and journals in the field of Mathematics and allied subjects.

4 DOCUMENT SUPPLY SERVICE

Majority of scientists and scholars engaged in research in science and technology from all parts of the country, consider the JRD Tata Memorial

library as one of the major resource centre for their information requirements. The library provides document supply service on request to individuals, and on mutual basis to other organizations. Apart from a number of xerox machines in various departments and the campus xerox facility, the library has four xerox machines for this purpose. On an average some 2000 pages of reading materials is xeroxed & supplied every day from the library. Further, the 'Indian National Scientific Documentation', depend heavily on the resources of the library for their document supply services. In fact, the library holdings serve as a backbone of the document supply services, of both INSDOC and NCSI.

41 INFORMATION ACCESS TO CORPORATE SECTOR

A large number of R&D Centers in the corporate sector (Multi-national companies) located in and around the Bangalore city, have access to the library. Reference and xerox facilities are extended to the members from the organizations, which have taken corporate membership. Presently, over 120 such organizations have taken the membership by depositing a returnable deposit of Rs 5000/-.

5 EXTENSION ACTIVITIES

Extension activities such as book exhibitions, demonstration of latest equipments, computer hardware/software relevant for library applications are conducted regularly. Well known publishers/distributors exhibit/display their latest publications. This would enable the institute faculty, research scientists in their field of interest.

51 SOME BASIC STATISTICS

Collection		
Books	:	1,53,674
Bound volume of periodicals	:	1,41,644
Current journals received	:	1556
Users		
Students	:	1589 (92-93)
Faculty	:	500
Others	:	2000
Budget		
Books and series	:	Rs 38,00,000*
Journals	:	Rs 3,08,000,00

*includes Rs 10,000,00/-special grant and Rs 4,000,00/- NBHM grant.

Usage Statics

	Per day	Per month
Average no of user visits	1000	30,000
Average no of documents lent out	700	21,000
Average no of documents consulted	2000	60,000
Average no of pages of reading material provided (xeroxed)	2000	60,000
Average no of books reserved		100

The usage statistics are based on various records, registers, forms, etc, maintained in the library. For example, the issue register, entrance gate register, daily permits issued to outsiders, daily two time replacement statistics from all locations etc. However, the numbers have been rounded to tens.

52 COMPARATIVE STATEMENT OF LIBRARY FACILITIES AT IITs AND IISc.

IITs & IISc	IIT Bombay	IIT Delhi	IIT Kanpur	IIT Kharagpur	IIT Madras	IISc Bangalore
Students & Faculty	8,582	5,779	2,462	5,000	6,015	2,058
Collection	2,34,302	1,98,035	2,90,098	2,74,000	2,57,000	3,84,064
Annual Additions	3,657	4,664	7,831	3,092	6,500	3,000
Book Budget (lakhs)	32.9	29.0	30.0	22.0	20.0	30.5
Bound vol of Jrnls	70,738	61,076	11,20,000	81,000	60,000	1,40,721
Current Journals	1,860	945	1,373	1,250	1,200	1,542
Journal Budget	131.12 lakh (Rs)	93.0 lakh (Rs)	120.0 lakh (Rs)	140.0 lakh (Rs)	75.0 lakh (Rs)	308 lakh (Rs)
No of Depts	30	23	15	25	13	37
Working Days	362	359	359	347	358	360
Working Hrs						
Week Day	9am-11pm	9am-10pm	9am-12pm	8am-10pm	9am-11pm	8am-11pm
Holiday	10am- 5pm	9am-8pm	9am-5pm	8am-1pm	9 am-5pm	10am-4pm

6 STAFF TRAINING AND MOTIVATION

As the library facilities and services and programmes increased, to have increased efficiency in library procedures, the library has always adopted a positive approach. The main steps taken to cope with the changing technological situation are:

a Encouraging the senior professional staff to update their knowledge.

b Training and motivating the semi-professional staff to acquire the basic skills to participate effectively.

Accordingly, senior professional staff of the library are encouraged to attend training programmes/conferences to update their professional knowledge. These programmes are directed to:

(a) create awareness among the staff;

(b) infuse in them a sense of self confidence in rendering their services;

(c) to give a systems approach on overall library functioning;

(d) to emphasise on the quality of services and

(e) encourage to brighten the image of the library.

7 COMPUTERIZATION AND RELATED ACTIVITIES

The Computer Unit in the library has the following objectives:

1 To create a machine readable database of the library's complete holdings (includes retrospective conversion).

2 To create Faculty profile database.

3 To computerise the entire house keeping operations like Catalogue preparation, Acquisition, Periodicals control, maintaing records pertaining to binding, stationary, budget and various statistics.

4 To introduce new facilities/sevices like computerised search and retrieval facility, Current Awareness Service, Article Alert service, Selective Dissemination of Information service, etc.

Presently, the library has two PC-ATs (one upgraded from PC-XT with bare minimum utilities) and a PC-AT 486. The PC-ATs and two Network terminals of the Institute's network are located in the library. The library is using inhouse developed software for the limited library operations such as:

(a) Creation & maintenance of document database added to the library.

(b) Generation and printing of Weekly list of additions.

(c) Processing an printing of Catalogue cards.

(d) Maintenance of Journal database.

(e) Compilation of Weekly list of journal issues received.

71 OTHER RESOURCE FACILITIES

The library is connected to the SIRNET (Scientific and Industrial Research Network of INSDOC) and to the Campus-Wide LAN of the Institute. The following operations are also carried out:

(a) E-mail and Network Operations.

(b) Co-ordinating computerisation activities with other departments in the Institute like SERC, ECE, NCSI and INSDOC.

(c) Assisting the users the SIRNET database search, NCSI's COPSAT search.

(d) Providing the users list of journals on request.

72 DEVELOPMENT ON HAND

A complete integrated library computerization is planned, and work is in progress for acquisition of additional hardware, evaluation of suitable software, creation of LAN of the library, creation of databases of library holdings, etc. The institute has provided some Rs one crore for the modernization of the library.

73 NATIONAL CENTRE FOR SCIENCE INFORMATION

As stated earlier, while the library concentrates in traditional library services, the NCSI located in the institute campus, complements the services of the library and offers a variety of specialised information services. The services are not only to the institute faculty, but extended to all the scientific community throughout the country. The services of NCSI are open to researchers from academic institutions. Govt R&D centres and public and private sector oganizations. The following specialised information services are offered:

1 Current Awareness Services (CAS)

It is a monthly alerting service to registered users. Matched references in the montly updates of leading bibliographic databases against user profiles are mailed regularly.

Coverage : Physics, Chemistry, Mathematics, Geology, Medicine, Elctrical & electronical engg, Computer & Control and Information Tech.

Database used : INSPEC, CURRENT CONTENTS, BIOSIS, MATHSCI GEOREF and MEDLINE.

2 Online Search Service

NCSI has online access to about 500 international databases residing on a host comptuer of DIALOG in USA. These databases provide comprehensive coverage on Science and Tech, business, current events etc.

3 CD-ROM Database Services

It is retrospective search carried out on a few bibliographic databases.

Coverage : Medicine (1984 to present), Engineering (1986 to present) and Chemistry (1992 to present).

4 Document Delivery Service

This service is for obtaining photocopies of papers cited in the above services. Registeration of the request using E-mail is possible.

5 Numeric data Source Service

Databases used: CRD-CODATA Referal Database and Numeric Database Directory, Published by CODATA and ICSTI, constituent units of the Inernational Council of Scientific Unions (ICSU).

6 Content Pages in Science and Technology (COPSAT)

The service is INFLIBNET (Information and Library Network Programme of UGC) sponsored programme, and open to all universities and AICTE affiliated engineering colleges through INFLIBNET. COPSAT is provided online to the IISc faculty and researchers via Campus LAN.

Coverage : Science and technology, Management etc.
Database used : Current Contents.

8 FUTURE PLANS

Planning is an on-going activity. Planning for collection development, user services and new facilities will receive major attention. It has been observed that for a library of this magnitude, there is no way but to use the application of modern devices/tools to meet the growing information needs. This will also facilitate greater access to and utilization of available information. Recognising the importance of automation, the library is geared up for computerisation and has an ambitious plan to go for it in a big way. Action has already been initiated in this regard. Plan to augment computing

facilities and to acquire a suitable library application software package and introduce specialised services based on the library collection are some of the few in process.

CONCLUSION

The JRD Tata Memorial Library of the IISC stands out as an unique example for its combination of traditional (conventional) services with modern outlook and for its invaluable collection which is used by scientists, researchers from all over the country. It functions as an effective academic and research library, follows simple procedures in all its operations so that it is easy to operate and user-friendly. Above all, it serves as an effective resource centre for the scientific fraternity of the country.

STANDARDS FOR LIBRARY AND INFORMATION SERVICES: A PROPOSAL FOR THE TWENTY FIRST CENTURY

PRABHASH NARAYANA RATH*
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0 INTRODUCTION

Seldom we come across any artefact that is not influenced by standards. In fact, standards permeated almost in every sphere of activity as a result of man's pursuance to ensure quality and perfection. In the field of communication the importance of standardisation was realised long back. It is undeniable fact that adherence to standards would bring about efficiency in information services.

01 DEFINITIONS

The International Standards Organisation (ISO) defines standards as "A technical specification or other document available to the public, drawn up with the cooperation and consensus on general approval of all interests affected by it, based on the consolidated results of science, technology and experience, aimed at the promotion of optimum community benefits and approved by a body recognised on the national, regional or international level"[1]. According to Charles D. Sullivan Standard is "A category of documents whose function is to control some aspect of humen endeavour".[2]

011 SUMMING UP

To sum up, a standard is a result of particular stnadardisation effort on activity, which after approval by the competent authority, or by consensus, takes the form of a document, containing a set of conditions, aimed at achieving excellence and bring about uniformity in pattern of practice or process, to be fulfilled by those who use it.

1 BACKGROUND

11 MEASUREMENT & CONSTRUCTION

The phenomenon of standardisation is not new to us. The earliest traces of standardisation can be traced to the Hittites, in Assyria, Babylonia and

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Egypt, to ancient Greece and Rome.[3] Some 5000 years ago, the Egyptians developed a standard of measurement known as the Egyptian Royal Cubit which was based on the length of the Pharaohs forearm.[4] We can also come across several references describing measurement systems of ancient Mid-East Egypt, Phoenicia, and Babylon in KG Erwin's "Romance of Weights and Measures". These systems formed a substantially uniform and rational decimal systems, which are somewhat similar to present metric system. Besides, in Rome the dimensions of the aqueduct pipes, were strictly determined to be about 95 cm.

12 PRINTING, GLAZING AND METRE

The standardisation of writing, galleys and paper sizes owes the existence to the invention of letterpress printing. We can also witness references of adoption of formula for porcelain glazing in as early as 1719. In the year 1790, the French Constituent Assembly approved a unification of the measurement existed during that period. A commission made up of members of the Academy of Sciences instituted the metric as the unit of length.[5]

2 ORGANISATIONS FOR STANDARDS

With the gradual realisation of the importance of standardisation, the International Standards Association (ISA) was set up and it was replaced by International Organisation for Standardisation (ISO) in 1946. At the national level also, most of the countries have established organisations for standardisation. Prominent among them are American National Standards Institute (ANSI) and British Standards Institution (BIS). The Indian Standards Institute was set up in January 1947. Presently, it is known as the Bureau of Indian Standards (BIS).

21 STANDARDISATION ACTIVITIES IN LIBRARY AND INFORMATION SCIENCE

The oldest international standard for libraries seems to be the catalogue card of international format (75 × 125 cm), which came from the US at the beginning of the twentieth century, the intention was to make catalogue cards exchangeable and to make possible central cataloguing by the central printing of title cards to be distributed to a number of other libraries.[6] In 1947, the ISO set up a Technical Committee for Documentation (ISO/TC46). ISO/TC 46 is working on a simpler and stricter standardisation of catalogue cards, in which each element would be in a specific order and position. Even the form of type used would be specified, with a view to automatic reading[7]. Besides, the formulation of ISBN, ISBD, ISSN, ISDS (International Serials Data System) and different cataloguing and their principles also bear testimony to the standardisation efforts at international level. Even standardisation of abstracts also has been done at the national level

(eg. ANSI-239-14-1971). The following are some of the leading existing standards on library and information work and service:

(*i*) Cataloguing–AACR-2; ISO/TC46; ANSI/2392-1971; ISBD and ISO-2709 (1974 revision).

(*ii*) Abstracting–ANSI–239.14-1971; ILO (International Labour Organisation) abstracts.

(*iii*) Transliteration–International System for the Transliteration of Slavic Cyrillic languages: Recommendation of ISO, 1955, revision 1968.

(*iv*) Serials monographs etc–ISSN, ISBN, ISDS.

(*v*) Computers, data processing–ISO/TC97.

(*vi*) Index language/thesauras–UNISIST guidelines for the establishment and development of nonolingual thesauri, SC/WS/555.

(*vii*) Resource sharing–IFLA rules for international library loans, 1954.

3 INDIAN SCENARIO

India serves as an example of the concerted effort that one country can make on standards for information work. Number of standards have been developed by the ISI pertaining to different areas of information work, such as:

–practice for alphabetical arrangement-IS: 382-1952.

–guidelines for presentation of information in technical manuals-IS: 382-1952.

–rules for making periodical indexes-IS: 1275-1976.

–recommendations for bibliographic references: essential and supplementary elements-IS: 2381-1978.

–guide for preparation of bibliographic description on sheet technical reports-IS: 9400-1980.

–specification of the author statements-the title page of a book-IS: 793-1956.

–general structure of preliminary pages of a book-IS: 7400-1974.

–guide for print area margins and type sizes for text books, pt I text books in English-IS: 8310-1977.

–guide for abbreviation of words in the titles of periodicals using Raman alphabet-IS: 18-1970.

–Code of practice for processing of microfilms (silver Halide)-IS: 3083-1966.

–guide for placement of images in roll microfilm-IS: 9430-1980.

–glossary of cataloguing terms-IS: 796-1966.

–glossary of classification-IS: 2550-1963.

–code of practice for handling and storage of transparencies (microfilms and microfiche)-IS: 3130-1972.

–metal shelving racks (adjustable type)-IS: 1883-1975.

–recommendations relating to the primary elements in the design of building archives-IS: 2663-1977.

31 HIGHEST NUMBER FROM BIS

A study conducted by Kumar and Ragavan (1989)[9] reveals that the number of standards for library and information work issued by the Bureau of Indian Standards (BIS) was 51 which is the highest, higher than those issued by ISO, ANSI, and BSI. However, the ratio of standards of library and information work to the total number of standards was 41% which is lower than that of ISD.

4 STANDARDISATION FOR 21ST CENTURY

From the above account, it can be inferred that India is not lagging behind the developed countries as far as standardisation aspect in so far as library and information work and service are concerned. However, various new and emerging areas require standardisation. Some of the areas are as follows:

41 BIBLIOGRAPHIC FORMATS FOR NETWORKING

The later part of 1980s and the 1990s witness emergence of a number of networks at the national, regional and local level. The networking activities in India started with the establishment of NISSAT in 1979. Subsequently, various other networks such as NICNET (under NISSAT programme), INDONET, INFLIBNET, CALIBNET, DELNET, ERNET etc came to the forc. Out of these, INFLIBNET, CALIBNET, DELNET and other envisaged networks are exclusively meant for facilitating exchange of bibliographical information. So standardisation of bibliographic and cataloguing format to be adopted by these networks, is the need of the time. At the international level UNIMARC and CCF formats have been developed for this purpose. However, in our country, we seem to be in a dilemma over the adoption of either rormat, wh ich resulted in adoption of MARC format by CALIBNET and CCF by DELNET which will hinder their coordination. So, a standard

should be developed by BIS which should be compatible either to MARC or CCF format to be followed by different networks in India.

42 TRANSLITERATION

India is a multilingual country. Here, the usual practice is to render the different forms of names in Roman script which is pertinent for indexing, abstracting and cataloguing, which requires transliteration of one script to another. Indian standards have to be formulated for transliteration of Indian language scripts to Roman script and vice versa.

43 SERVICE STANDARDS

Service standards are needed for performance evaluation of libraries. These should be developed to ensure quality service on the part of various libraries so that service to the users will be uniform in all the libraries, and users will be satisfied from the service.

44 STANDARDS FOR NON-CONVENTIONAL DOCUMENT

A few standards exist in India on the non-conventional documents. These are:

- code of practice for processing of microfilms (silver halide)-IS: 3083-1966.
- guide for placement of images in roll films-IS: 9430-1980.
- code of practice for handling and transparencies (microfiche and microfilms)-IS: 3130-1972.

For other non-conventional documents no standard is available. This is a high time to think for standardisation of these documents and treatment of CD-ROMS, computer file, magnetic tapes optical discs, Terminal Screens, Colour pattern, print size, etc.

45 REVISION OF THE STANDARDS

Glossery of cataloguing terms IS: 796-1966 and glossary for classification IS: 2550-1963 requires revision as these tend to be obsolete due to rapid developments in these areas in the last two decades. In general all the LIS standards should be revised in time to time.

5 CONCLUSION

To give quick, prompt and accurate service by saving the time of both the user and the library staff new standards should be set up by the BIS and should be revised and updated regularly under the guidance of subject experts. Attention should be given for standardisation of computerised information system and non-conventional media for storage and retrieval of

information. International standards may be followed in such areas, until Indian standards are developed. Indian standards have to be developed in the areas of Bibliographic Record Format, Programming languages; Data codes; SDI etc.

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4 *Ibid* p 7.

5 *Ibid* p 7-8.

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7 MITRA (A). Library standards: need and application in Library management and services. 35th All India Library Conference, Pune, 1989. p 20.

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THE SHCHOOL LIBRARY AS A MAJOR EDUCATIONAL FACTOR IN THE TWENTYFIRST CENTURY

MARY GEROGE CHACKO

1 'LIVE WORKSHOP'--RANGANATHAN CONCEPT

Ranganathan has rightly termed the school libary as a Live Workshop. The need for providing India with a public system of education as envisaged by him has now become a reality and will be totally achieved in the 21st century.

11 SCHOOL LIBRARIES EXIST--NOT SERVICES

In this area, the school library's role is a much disputed one. Over 18% of school libraries now have the basic infrastructure of a reference section, reading room, maps, globes and other teaching aids. Yet they fail to produce the desired results expected of the library.

12 LIBRARY AS THE NUCLEUS OF THE SCHOOL

The library should be literally and figuratively the hub of every educational institution and more so of the school. This importance has been ignored, but during the next century the library cannot be ignored. Developments in the field of science and technology and rapidly changing ideas, introduction of new disciplines due to the explosion of knowledge, have curtailed the role of the 'teacher' to that of a 'guide'. The teacher will now function only in the nature of a 'student academic guide' and the 'school libary' as the 'data bank'. The growing need for data-visual, audio, micro and print has to be combined into a central repository where retrieval will be efficient, fast and accurate. This brings about a change in the role of the school librarian, as more than mere issuing books, especially story books. This has been brought about by the technology boom and hence the efficiency of the librarian is an essential factor in determining the potential of the library. Hence, as envisaged in the New Education Commission Report, the school librarian's status has been made equal to that of the Senior Teacher. This will have to be implemented to make the Librarian feel useful and dignified, thus providing the necessary incentive for better work output and increased efficiency.

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13 THE FUTURE SCHOOL LIBRARIAN

Apart from knowing the basic library needs, books–classification and cataloguing, the librarian must necessarily have a good knowledge of the school syllabi and curricula and also the use of computers in the library for information retrieval. A knowledge of selection of books for the changing curricula, reference books for teachers and associated printed material is necessary. For this, a background of experience of school teaching will be an added asset, because this leads to a clear vision and perception, which is necessary for the next century.

131 Use of Computers

Introduction of computers to children during the formative years has already begun and an application in the field of information retrieval will be very useful. Encouraging individual searches for documents and for searching out queries will be most useful in their future academic career.

14 THE STATE OF BOOKS IN THE FUTURE SCHOOL LIBRARY

Even with the growth of technology it is not possible to remove books completely, but the best policy would be, not to increase the collection other than the addition of new reference books, and replacing old textbooks with new ones. This is because for children, books will still be the best, cheapest and easy to handle source of information. Also maintainance costs are minimum, storage is less expensive, with least contamination and easy reprography for multiple user requests.

141 Reprographic facilities

Reprography–both photocopying and microfilm for dispatch and exchange for inter school library requests will be very much in demand. Hence a set up inside the library will be useful where expensive reference books, periodicals and other literature need not be carried out, thus preventing loss of documents, mutilation or damage or misuse of the facility.

1411 Projects Linked to Reprography

Preparation of projects by school children have been emphasised and this is a crucial point where the library would be put to maximum use–reprography of photographs, drawings, data extracts, tables (statistical) and this is where abstracting will be made use of. Also the spot use of reference books for detail use, pér reader, would not be possible and the student will not be able to skip his classes for the sake of the project. Hence reprography of located, cited data would be useful for assimilation and compiling, by the student, outside the library at his leisure hours or outside school time. In short class room work and school library work will influence and support

each other reciprocally.

15 PERIODICAL SECTION IN THE SCHOOL LIBRARY

At present the school library periodicals are confined to a newspaper, a general reading magazine, a sports magazine. Also this is kept on a newspaper rack or a wooden display rack. Will this be sufficient for the future?

151 Children periodical on Computers

Since no advanced research is carried out at school level, the necessity of Science Journals at a preliminary level is enough. But there are other and better magazines which can provoke a child's imagination in Science and technology. The new subject 'computer studies'–needs a magazine for general awareness. It also provides more knowledge for the interested student. Hence, a sufficient budget should be set aside, at least one magazine per subject.

2 WILL THERE BE A FUTURE 'LIBRARY HOUR'

In short the answer would be No! The idea of the library hour was useful when the period of time was set apart for extra reading ie. other than school curriculum. The idea of the future would be to introduce and emphasise parallel reading. Extra reading like stories, fairy tales would be sidelined as a hobby, and there will be a strong possibility of no time for non-formal reading.

21 OUT GOES LIBRARY DIARY

Only the idea of maintaining the 'Library Diary' is a disputable one. Some school, of library science are of the vew that the Library diary concept is out-dated, based on the view that few students refer the diary again. The other half are of the opinion that since the students are not educated in the 'Key Word' selection system, they would not know how to make entries, and often irrelevant data would be entered. Also there would be no similarity in the pattern of recording and maintaining the diary. However the exchange facility should be included in the Library Hour only.

22 TEACHER-LIBRARIAN COMBINATION

This idea would be most beneficial to the students, if the teacher and the librarian work hand in hand. Such attitudes must be encouraged.

3 INTER-SCHOOL LIBRARY LOAN SYSTEM

It will provide a more meaningful purpose to the schools libraries, teachers, students and users in general. This will enable the library to provide reading material. This may be implemented at first by a few school libraries

and later include all the school libraries.

This will be an important future contribution to the present set up, and will make follow up work more useful and productive.

4 RECREATIONAL READING AUTOMATED SLANT

With all the advanced tools of information technology available in the 21st century, few students would be interested in reading a whole book for recreation. The diversion of video laser disc, PC's especially stories, history and geography available on CD-ROM, the student would be more tempted to use these tools to retrieve more information, visual and audio, which are easily available on fingertips. This would be more convenient than searching a book, locating the needed part, after scanning pages of printed matter.

41 EXAMPLE

Let us consider an example:- The whole of Greek Mythology is now available on CD-ROM. Everything is available in microform. So who will now read the 'Illiad' and 'Oddessey'. Then it will only be weekends and holidays that the students will use the facility for recreational reading. In short with CD-ROM, recreational reading would be more a pleasure, than reading the book from both the audio and video angle. Apart from this, students should be allowed to use the library for a few hours during the vacation.

5 CONCLUSION

Though it is very true that the use and layout of the future school library will vary according to the school policy, budget and the new system of education, the changing nature will definitely force a certain amount of basic change in the now existing structure.

The best mode of utilisation is partial conversion and addition of advanced facilities to the already existing library.

As in the UK the Librarian of the school library should undergo a course in 'Child Psychology' which will make the librarian better aware of the problems faced by children as a whole.

Networking at school level has not been dealth with as it will become a reality only by the end of the 21st century. However the possibility exists and applications have a far reaching significance.

6 MODEL OF CONVERSION: LOYOLA HIGH SCHOOL LIBRARY

The problem of conversion is not an easy task. The idea would be maximum utilization of the present infrastructure and the idea is to implement the

conversion in three stages. The budget provisions would also suit the conversion. The use of computers is emphasised as an absolute necessity–use of reprography, at the third stage and information storage and retreival to be introduced as part of the education curriculum.

This conversion has been studied on the basis of the new curriculum to be introduced in schools, the utilisation of books and periodicals and on the basis of discussion with Principals of various schools in Pune, and on the basis lastly of a questionnaire and personal discussion with students regarding their expectations of the librarian and the Library.

61 PHASE I

611 'Hands on' Experience

The introduction of the computer, initially as 4 XTS and 1 AT for storage of data and author and subject classification for tracing books and periodicals. The XTS would be used by students for locating word search and subject references and sources. The students are already conversent with primary computer knowledge.

612 Library Volunteers

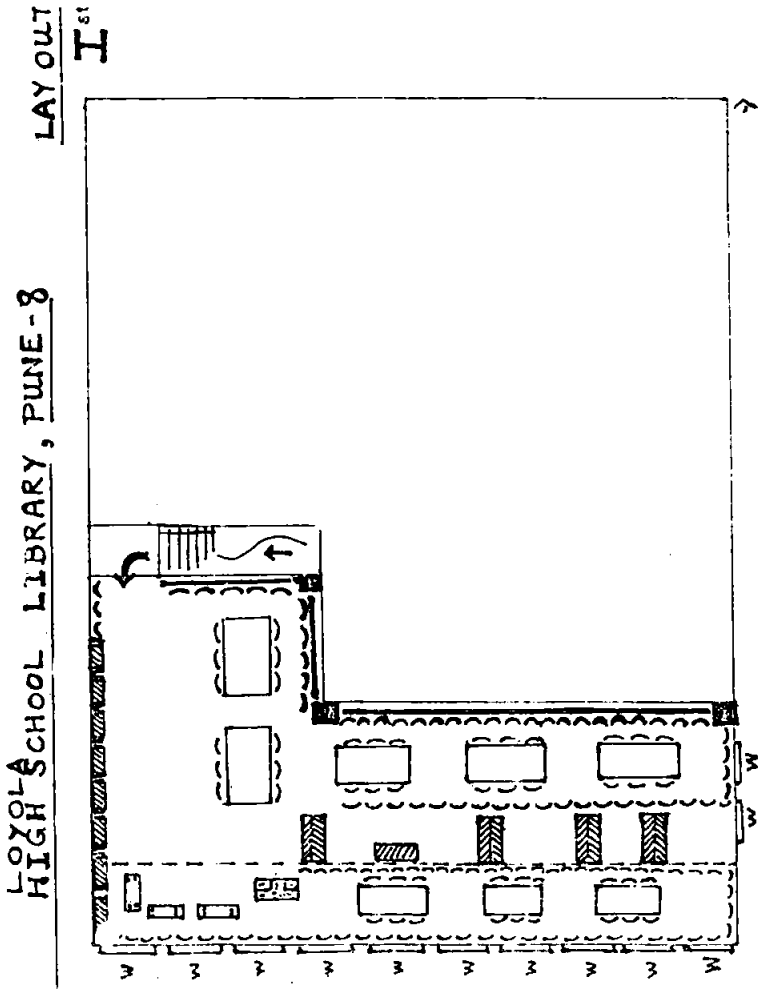
Using student help in classification of books has been attempted and has proved successful. The entering of this data on the computers can be implemented. Some students who are interested in Library work have volunteered for this work and this is in the experimental stage at present. The school authorities have also welcomed this step of using student help. The idea of making the students aware that the library is more than a mere repository of books should be inculcated.

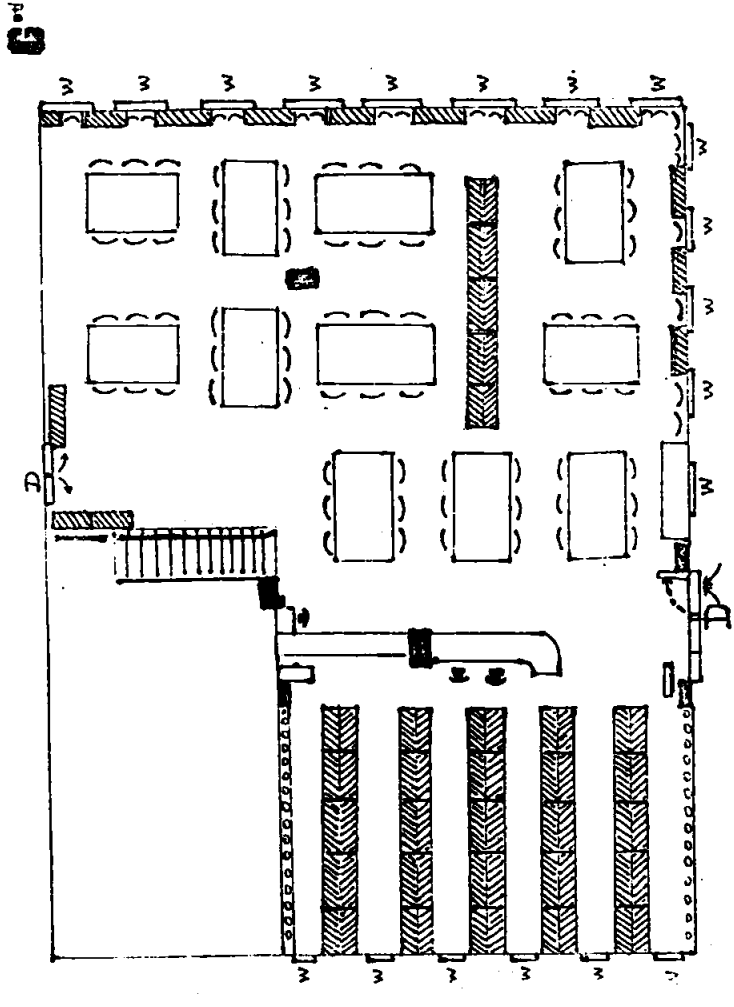
613 Weeding outdated books

The Librarian should begin the much needed work of wedding out the outdated books curriculum wise. Already the work has begun but help in the form of an assistant librarian is needed.

Selection and purchase of supplementary books needs, for the new text books has to be done. This also includes the reference books. This will help the students to prepare their answers and also a full answer on the skeletal outline of the teachers' explanation in class on a specific topic.

The search for better illustrations to supplement answers was one of the main items of interest to students as evinced from the questionnaire. It is not possible to illustrate the topic by a teacher in the space of a period of 30 minutes in the class even with the help of all modern audio-visual aids. The idea is to build up in the Library a repository of plastic sheet illustrations of


LOYOLA HIGH SCHOOL LIBRARY, PUNE-8
LAY OUT
I st

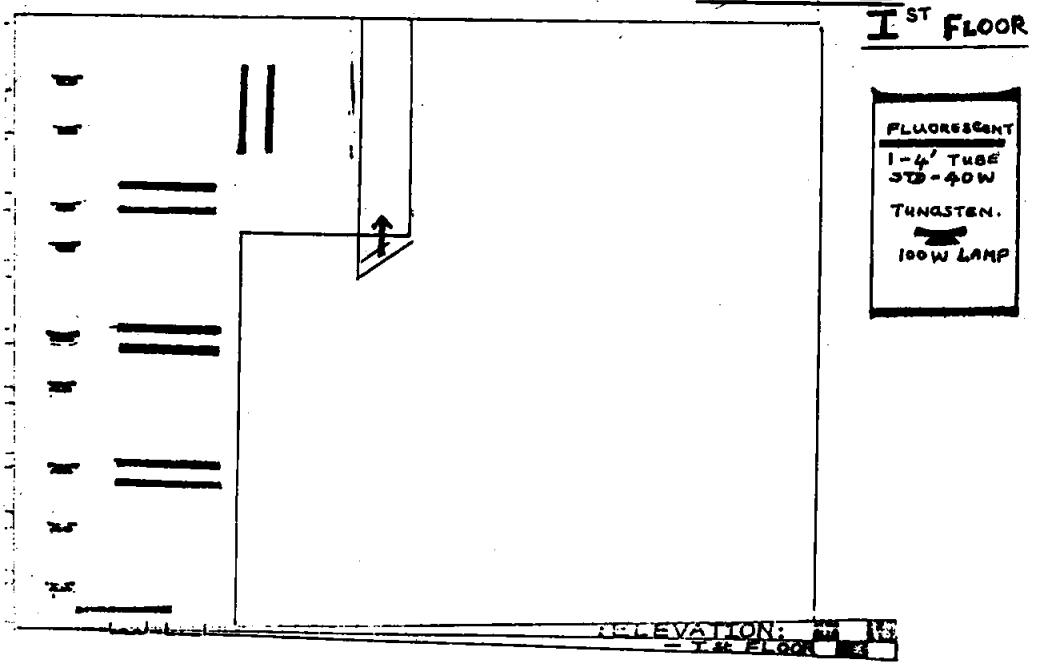


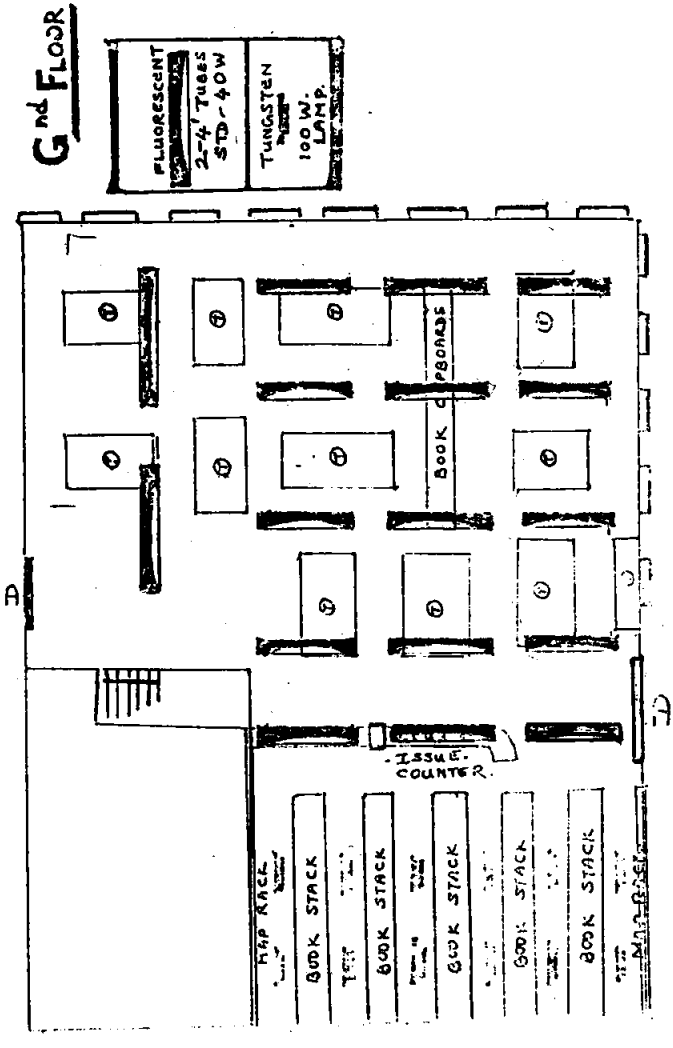
LOYOLA HIGH SCHOOL LIBRARY, PUNE-8

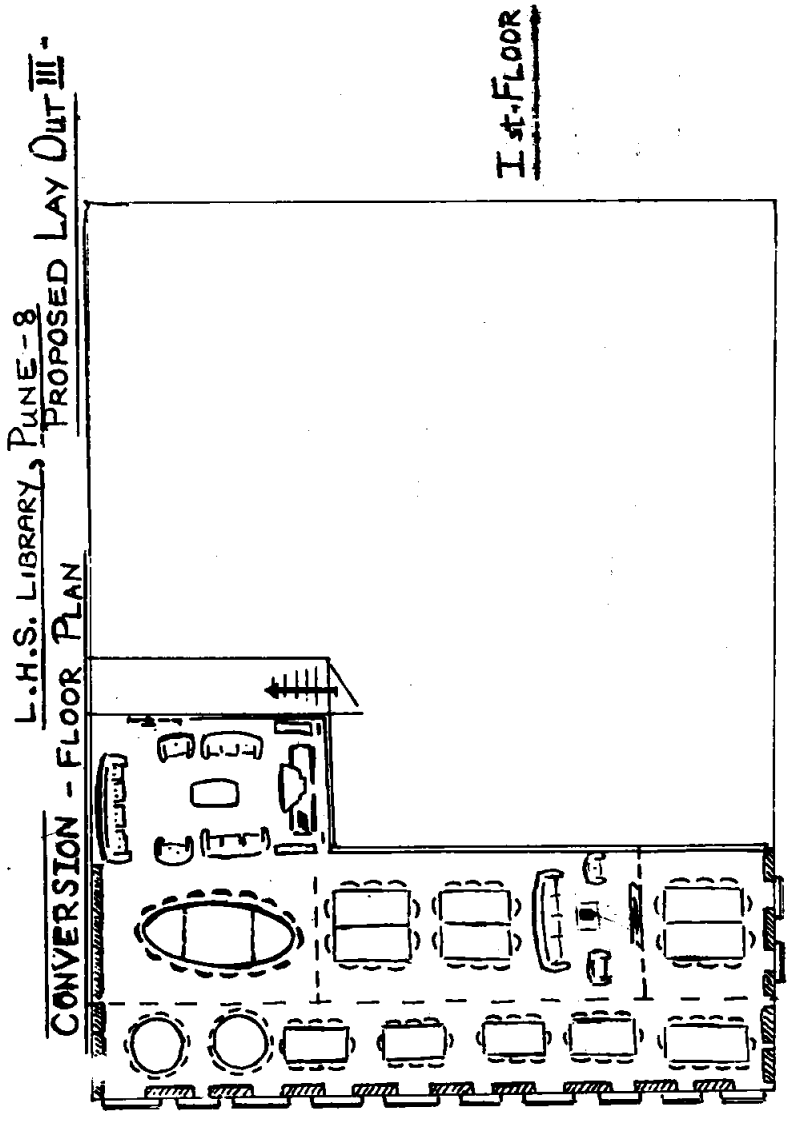
LIGHTING ARRANGEMENT

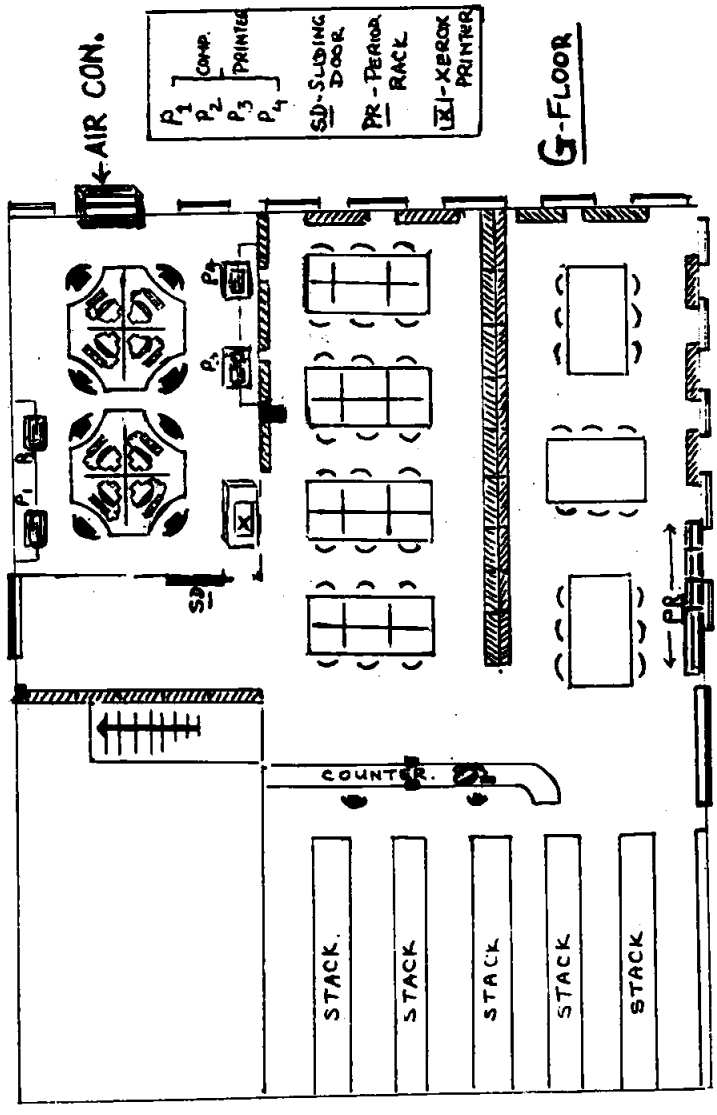
LAY OUT - II

I ST FLOOR




G nd FLOOR
FLUORESCENT
2-4' TUBES
STD-40W
TUNGSTEN
100 W.
LAMP
BOOK BOARDS
ISSUE COUNTER
MAP RACK
BOOK STACK
BOOK STACK
BOOK STACK
BOOK STACK
BOOK STACK


I st. Floor
L.H.S. Library, Pune-8
Proposed Lay Out III
Conversion - Floor Plan


AIR CON.
P1 P2 P3 P4 COMP. PRINTER
SD-SLIDING DOOR
PR-PERIOD. RACK
XEROX PRINTER
G-FLOOR
COUNTER
STACK
STACK
STACK
STACK
STACK
SD
PR

various topics in various subjects for projection, using an overhead projector. This is a necessity for the science subjects. This has been welcomed by the teaching community in the school. To make this feasible especially for selection a part of the upper floor of the Library has been set aside for projection. This is shown in the Floor Plan II. This space is multipurpose for use of 35 mm slide projection facility and also for camera lucida drawings. File cabinets are to be used for storing 8" × 9" sheets and classification is to be done for the same. A register of subject listing index is to be maintained. This is also to be extended for flow charts and block diagrams. Xerox facility to be introduced in the final stage will aid this facility by enhancing quick preparations.

62 PHASE II

621 Air Condition-Indirect Lighting-Round Tables

The construction of a separate chamber to house the PC's is to be undertaken. The needed accessories are such as air conditioning and provision of indirect lighting. The design of the table as shown in the floor plan is according to the idea of a circular turn table type. This phase would complete the installation of 4 more PC's AT type, making the total 4 PC's XT type and 4 PC's AT type.

The frontal area is to be retained as it is. There should be two round tables added. This would be useful in group discussions and person to person communication as it offers frontal view for effective communication. Group library activities and reference search and compiling of bibliography and data compiliation would be speeded up.

63 PHASE III

631 Updating Reference Collection

The updating of the reference section especially with emphasis on Science and Technology and Mathematics, Social Science and Information technology.

632 Cubicles INRR

The present reading room is of the open type and this is to be replaced by the partial cubicle type. This is shown in the New Floor Plan and is designed with respect to full utilization of Floor Space. A modification of lighting is to be designed, accordingly.

633 Input to Computer

The transfer of book indexing and if possible a primary bibliographic index using thesaurus could be attempted. This would be done keeping a

widest possible search in mind. This should aquaint the students with search and word patterns.

64 PHASE IV

641 Reprography equipment

Reprographic facility is to be completed. A xerox machine is to be added in the computer room. As per the budget at that stage, 2 or 4 printers could be installed so that printouts could be obtained. Probably educational pattern in this stage will rely on printed matter to a large extent as is now being practised in the West. Since text books would provide only structural outline and library time would be limited as is library facility, the student could use this material for taking home assignment work and completion of project reports, etc.

642 Secondary Students Separated

Budget facility needs to be drafted out and the school would have to bear a major share. The upper level is to be used exclusively for students of the lower and middle school. This would eliminate library background noise at the main lower level.

7 USE OF THE CONVERSION

This method of implementation is the best method of adaptation making full and best use of the existing facility without much loss of the present infrastructure. Other than a few weeded out books nothing else is wasted. There is no need to change the existing lighting pattern, except in the Computer room and the cubicles, where some table lamps have to be provided.

A new periodical shelf is necessary as there will be an increase in magazines, newspapers and scientific journals. A separate lighting will be useful for this. This will give current references, information and pictures.

The role of the librarian will be elevated to a new status. Though recommended by the Education commission, this has not yet come into effect and the Librarian's role has been equated to an unimportant one. This would also lead to be a revision in pay scale which would be recommended by the school authorities to the Education Department.

There is no need to change the traditional library tools of card indexing and cataloguing and can be maintained as a stand-by facility for multiple users or in times of power breakdown or system collapse.

The support to new and innovational teaching aids can only be implemented successfully by the Library using the reprographic facility. This will be an absolute necessity.

Minor structural changes and adaptations aside to this basic infrastructure can be implemented from time to time as specialised need arises.

Without this conversion it would not be possible to supply support to the teachers for their teaching and practical work.

This now explains the necessity of adaptation according to the change in the educational pattern, in the 21st century.

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UNIVERSITY LIBRARY INFORMATION SERVICES: SAME OR DIFFERENT?

MRS NAVJOT KAUR*

0 CHANGING WINDS

We are now however entering a different age. In the introduction of on–line catalogues and even more the effect of CD-ROMS has created quite a different learning environment for the students. However in a less industrialized country, Information services must be integrated as a part of the total library.

01 LIS IN PARALLEL TO COMPUTERS

In 1971 the first UNISIST conference was held in Paris, and the synopsis of the full report had two interesting Paragraphs firstly–"However, most experienced observers would agree that computer technology cannot provide a solution for all the problems of scientific advanced countries, which will be operating conventional and computer based scientific, information systems in parallel for a long time to come". This statement is 95% valid today.

1 WHERE IS PROGRESS?

The second paragraph under reference is slightly of different nature and in fact was "Recommendation of Library Infrastructure. We don't seem to have made much headway in the last 23 years, that's what I think. if I am wrong, I beg to be corrected.

11 COMPUTER BY ITSELF IS NO CHANGE

My university was established in 1969 (and incidentally this year 1994 we are celebrating its silver jubilee), and as is the case today, we are still in the formative stages of providing traditional services, except couple of years back, computer was introduced in the library, but–still not at service points. Information problem still remains where it was, though it was thought that with the installation of computers we had solved all our information problems. the situation is similar to what was 20 years before, when microfilm was said to be the answer to all our storage problems.

12 INFORMATION ABOUT INFORMATION

As already said we are now however in an entirely different age, the

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introduction of on-line catalogues and even more the effect of CD-ROMS has created a quite different learning environment for students. But, we are still only providing Information about information.

2 RESEARCH RESULT TO RESEARCHER

What we are actually trying to do is transfer of information? In general and in university in particular, we are trying to provide the means for a scholar to add in some way or other to the sum total of human knowledge–it sound a little pretentious. What happens in very simplistic terms is that a scientist thinks–reads around the subject–carries out some research–writes down the result–published it, till another scientist comes across it. We are essentially dealing with that list of mechanics of the whole communication process, from the time the researcher actually writes his result down–to the time next researcher picks it up, from one or the other. However when the researcher does more searching, they recognize that more of their time is being taken up with information searching and retrieval activities. Once the complexity of Information searching is recognized, then they begin to return to the Library Professional.

21 CONSCIOUS LEADERSHIP

Development implies change and a most significant part of change requires the imposition of a visionary leadership. The world view of developing countries is embodied in the ideas and values that underlie the concept of development and those ideas and values, stress social justice and independence.

22 MACHINES HAVE HUMAN FACTOR

Modern libraries can be described as open systems–which interact in a large scale with external organizations like professional bodies, book publishers, manufacturers and various other groups, in contrast to the traditional libraries which existed in isolation as closed systems–with less interactions with the external and encourage the technological developments to be adopted in libraries. No technology can perform its function independent of human beings. If this fact is not taken into consideration, human beings who will be effected by these technological innovations will show a kind of hostility towards them, and will consequently develop defence mechanism like absenteeism, slow work rate, postponement of duties, avoidance, and even rebellion at the end.

23 PERSONALISED SERVICE-GREATER EMPHASIS

With the introduction of new technological products, the role which librarian has to play as an educator is intensified, it is not underestimated

here the role of traditional librarian plays as an educator, but the modern librarian who introduced products of information technology, especially the computers in their libraries, will have to go to the user group, in a more personalised or individual manner.

3 TECHNOLOGICAL BRISKNESS

Later part of the 20th century is experiencing a brisk advancement of technology which has been felt by the librarians as well as the library users. Computer technology in India will go further to spread computer systems into local areas (LAN) and wide area networks (WAN) by which communication between distant libraries is made possible. In addition, laser technology, is revolutionizing the information storage by means of CD ROMS.

31 VARIEGATED ROLE NEEDS TIME

Hence the present day librarian is confronted with the task of fulfilling two inversely proportional objectives-handy to provide a better and modern library facilities to user, and to keep house with a cut Budget, without letting the quality drop at the same time. The modern librarians of developing countries have to step into a variegated role, which embraees additional as well as non traditional areas of librarianship. To deal with these two contradictory objectives–which has three major factors in addition to the professional facet–namely the management facet, social facet, and the technological facet–to play this new role successfully, the librarian needs preparation.

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AUTOMATION OF PUBLIC LIBRARY SERVICES IN INDIA: MYTH OR REALITY

DR B RAMESH BABU

1 INTRODUCTION

Public library is one that serves the entire population of a community. It is an agency for Information Transfer (IT), established under the clear mandate of law, maintained wholly from public funds, offering services free of cost, and open for free and equal use by all members of the community irrespective of their age, sex, religion, language, status and level of education etc. The UNESCO manifesto has envisaged four major functions for a public libary; namely (a) promoting education; (b) fostering cutlure; (c) disseminating information; and (d) providing recreation. Moreover it stresses the need for library services to children and to the disadvantaged sections of the society.

2 DEVELOPMENT OF PUBLIC LIBRARY SERVICE IN INDIA

It has been often lamented that inspite of much concern and efforts of the UNESCO, very little progress has been made in the developing countries like India, towards the development of Public Library Service.

21 UNESCO SEMINAR ON THE DEVELOPMENT OF PUBLIC LIBRARIES IN ASIA (DELHI)

The UNESCO Seminar on the Development of Public Libraries in Asia held in Delhi as early as in 1955 recommended the following:-

(1) Development of adequate public library service for the use of all people on a free and equal basis, supported by National Public Library Legislation; improvement of training facilities, status and salaries of librarians, adequate production and supply of reading materials through the establishment of national production centres; and

(2) Provision of services for the children by all public libraries.

After four decades, the very state of the development of public library services in Asian countries, especially in India, has sufficiently proved the superficiality of the recommendations. The one reason being the lack of library legislation and its effective implementation.

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22 LIBRARY LEGISLATION IN INDIA

The seed for library legislation in India was sown in the early 1930's in the form of Model Act, drafted by Dr SR Ranganathan. Since then many attempts were made till 1948 for passing library legislation for the state of Madras (Presently Tamilnadu). Library Legislation is a *sine qua non* for the development of Public Library Services in any country. At present only 9 states out of 25 states and 7 Union Territories have succeeded in having library legislation.

23 PRESENT STATUS OF PUBLIC LIBRARIES IN INDIA: AN OVER VIEW

India is a vast country with a population of more than 84 crores (1991 census), of this nearly 70% live in rural areas and 65% live mainly on agriculture and associated occupation. To portrait the existing structure of public libraries, it is appropriate to quote, Ekbote, who said in the following words:

"There are big, medium and small size libraries. Some are efficiently managed and other are badly run; some have enough finances while the rest have inadequate finances. An overwhelming large number of libraries have no trained librarians. They are mostly managed by poorly paid clerks working quite often on a part-time basis. The book stock of many libraries is insufficient. Books are neither properly selected nor purchased in any sufficient number. They are not classified and catalogued-Generally, books of fiction form of hulk of the librry collection and those on science and technology are rarely stocked. Most of the libraries are housed in unsuitable buildings with poor lighting and other arrangements. Most of them are subscription libraries taking deposits and collecting fines from defaulting readers. Many of these libraries do not provide free and open access to the members".

On the analysis of the above paragraph, one can say without hesitation that public libraries development in India is not progressive.

3 ROLE OF COMUPTERS IN LIBRARIES

There is a visible impact of computers on the functiong of our library and information centres. During the recent five years more and more library and Information centres (especially special and university libraries) have started applying this new technology. They are being used for a number of routine and house keeping operations/jobs. The prediction that, "computers will spell a total end of library professoin" seems to be proved false. On the other hand, their application has enhanced the utility and efficiency level of libraries. In other words, the use of computers have elevated the ibrary to a very high pedestal, improving and altering its image, functions and services to a revolutionary extent.

4 ADVANTAGES OF COMPUTER APPLICATIONS IN LIBRARIES

Computer technology has undergone a tremendous changes both in its hardware and processing capabilities. Computers are not only used for house keeping repetitive functions, but also being used to process, correlate, and provide information of varied nature, quickly, efficiently and effectively which may be sometimes difficult or not possible by manual means.

The following advantages can be enumerated by using computers in a library.

(1) Speeds up the routine and repetitive jobs, which results in the fast rate of service, thus satisfies the Fourth law of Library Science, "Save the time of the reader".

(2) Increase productivity in terms of quality;

(3) Contributes to the efficiency in terms of recall and precision parameters;

(4) Provides better room for library network;

(5) Ensures better utilisation of personnel in libraries;

(6) Offers a flexible range of satisfactory services;

(7) Facilitiates the Universal Bibliographical Control (UBC) of recorded information through machine readable bibliographical formats;

(8) Relieves the pressure of workload in libraries.

5 CONSTRAINTS IN THE USE OF COMPUTERS

Presently, we are caught in the flux of the new 'Information Age'. A library needs to play an active role and be a partner to the information seeker. The revolution of Information Technology will keep the library movement very active. There is bound to be a great impact on the structure and functioning of the libraries in the years to come. How far this situation will be suitable for Indian Public Libraries? Cortainly, it would be difficult task to think of in the near future. In fact we are still struggling with the automation in academic libraries and the effective implementation of the proposed INFLIBNET, and other networks. While viewing the possible benefits of computer applications and situation in public libraries in India, the following can be identified.

51 NO PLANNED GROWTH OF LIBRARIES

The development of public libraries in India seems to be not on an

approved pattern, causing in the haphazard growth. Library legislation, which is a *sine qua non* for the development of an effective Public Library System, is prevailing in only 9 states. Even in those states which enacted library laws, the situation is far from satisfactory. Eminent authorities in the library movement are repeatedly stressing for the legislation to be enacted. The document on 'National Policy on Library and Information System' which is pending with the Government for approval, also laid more emphasis on the need for library legislation as follows:

"Realising that public library services have not yet reached all corners of the country, the Central and State Governments should resolve to extend public library facilities in co-operation with official agencies and voluntary organisations, to urban and rural areas, so as to cover all sections of the people by the end of the century. With that end in view, the Central Government should encourage the establishment of efficient administrative machinery in all states and union territories on the basis of legislation".

52 ATTITUDE OF LIBRARY STAFF

Most of the library personnel working in public libraries are qualified in LIS at the basic level. They are not mentally prepared to accept any change in library routine works, may be due to lack of knowledge of the latest trends in the field. Moreover, their promotional avenues are also minimum, when compared to other professions or in other types of libraries. Unless librarians with initiative, in the handling and dissemination of information come forward, many opportunities to gain from the benefits of Information Technology will be lost.

53 LACK OF TRAINED STAFF

Most of the public libraries are badly staffed. No definite staff formula is adopted in Public libraies based on Dr SR Ranganathan's Staff Formula. In countries like India, there is a distinct lack of trained staff to operate new systems and technology. The idea of computer applications would influence on manpower requirements in a significant quantitative and qualitative way. Demand for skilled personnel, trained in computer and electronic technology would be more.

54 NEGATIVE ATTITUDE OF USERS

Majority of user population for the public libraries are from rural areas. The users are also unaware of the possible benefits of the application of new technology, reacts negatively to any system which alters the existing order of a library. Moreover, users may not be willing to pay "service charges" for specialised services through the exploitation of computer technology.

55 ECONOMIC CONSTRAINTS

The financial limitations will prevent library authorities from thinking about to introduce innovative measures in the libraries. Public libraries are to be financed out of public funds, which is collected by way of library cess. The cess collection will be made possible in the states where library acts are passed. But unfortunately only 9 states had enacted library laws. There are many problems being faced by the authorities concerned for the proper collection of cess and subsequent remittence to the government funds. And running of the libraries is costing heavily on government. Consequently, introduction of new technology in the public libraries becomes a difficult task for the time being.

6 MYTH OR REALITY

61 PESSIMISM

The fundamental obstacles that has held back the quick progress of developing countries like India, in the field of library automation is attributed to the phenemenon called, "Technological Dependence". In India the institution of public libraries is plagued by many ills, due to prevailing unsatisfactory socio-economic, political and technological conditions. This is seen in the previous section on constraints in the use of computers for libraries. Viewed from this angle, the automation of public library services in India is MYTH. Ofcourse, this may be a pessimistic view also.

62 OPTIMISM

While viewing optimistically, one can see a kind of science fiction scenario; the vision of a fully automated library and of a new breed of library professionals. This kind of scenario already materialised in practice in the technologically developed countries. Today, we are witnessing new trends in library and information services, due to technological revolution. Sooner or later, these developments are bound to affect the developing countries like India. To meet the challenges of present day, there should be a due change in National, State and Regional Library System in India, to ensure effective and far reaching library services to the clientele in Urban and especially rural areas. It is hoped that the use of computers in Indian Public Libraires would effect in the years to come, though not at a rapid speed, because of our socio-economic conditions, and the cost of installation and maintenance and manpower planning etc.

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BIBLIOMETRIC STUDY OF SERIAL PUBLICATIONS PROJECTIONS FOR RESOURCE SHARING

DR V VENKATARAMANA*
C PRADEEP**

0 INTRODUCTION

Serials constitute the core information in all the disciplines of learning. This serves as the forum for the intellectual thought and generate vivid contributions by different authors and enrich current information in the concerned subject fields. The innovations of current research and new vistas of findings etc are reflected in the publication of literature through serials/journals media. Most of the fundamental research in the areas of basic sciences, applied sciences, technology and social sciences, are widely published in the serials. Thus journals are considered as the vital sources of information and the subscriptions of these serials reflect the image and standing of an institution. The strength of an institution's research potential and the ongoing scientific endeavours, would be judged by means of the current journal subscriptions. The national level discipline-wise committees, constituted from time to time by the University Grants Commission and other organizations like-Council of Scientific and Industrial Research (CSIR), Indian Council of Agricultural Research (ICAR), Indian Council of Medical Research (ICMR), Indian Council of Social Sciences Research (ICSSR), usually reviews the potential of an institution on the basis of acquisition of current journals, besides the teaching faculty, laboratories etc. Thus journals constitute an important criteria for the assessment of qualitative and productive research.

01 RESOURCE SHARING TO BALANCE BUDGETARY CUTS

The management of serial publications through uninterrupted annual subscription by the institutional libraries, became an uphill task in the wake of phenomenal rise in the subscription prices, and the relative increase in the foreign exchange conversion rates. India, being a developing country has to apply financial squeeze from time to time, due to changes in priorities and

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the adverse effects on the Indian economy, pressures exercised by global monetary fluctuations. The reflections of any financial squeeze is ultimately transmitted on to the Educational institutions and the first target is the library. It is imperative to find ways and means to ensure the availability of required information for the ongoing research programmes through effective resource sharing. The budgetary constraints may be overcome through the cooperation of participative libraries, by sharing subscription responsibilities, and also utilization of resources. The tendency of price escalations and increase of conversion rates, and other related factors are analyzed by means of bibliometric study of journal prices over a period of four years 1991-1994 and projected for close cooperation and resource sharing. Thus it would be possible to spend about 20% of the library budget and derive the benefits to an extent of over 90% satisfaction, in getting the required information and literature through resource sharing with the local, as well as distant associating institutional libraries.

1 FINANCIAL PERSPECTIVES OF SERIALS

Institutional libraries of higher learning, research organizations and some R&D industries, generally allocate more than 50% of their budgets for subscribing to current journals in the respective disciplines. The costs of journals are ever increasing and the inflationary trends constinue to effect the budgets very much. Most of the institutions of Higher Learning and Research Organizations in India experienced drastic budgetary cuts varying from 20% to 30% during the financial year 1990-91, and the axe has also fallen on the library allocations. This has led to the deletion of journal subscriptions for the calender year 1991 and the same status continued for 1992, 1993 and 1994, necessitating large scale pruning. The financial crisis in the wake of grants-freeze, imposed by the University Grants Commission, involved protests from the Vice-Chancellors of Central Universities. Similar financial squeeze was experienced by all the universities in India, run with the funds of state governments, research organisations, institutes of national importance. The high rate of inflation (nearly 10%), devaluation of the rupee (nearly 35%) has resulted in enormous increase in journals subscription expenditure. The educational policy of the Indian national government does not permit any viability for self financing of institutions of higher learning. Unless there is a shift in the policy and alternative sources of funding are identified, the old pattern of financial support should necessarily be continued by the union government, as well as state governments. The concept of maintenance (recurring) grants from the funding sources, has been impoverished with 90% being spent on salaries and essential administrative expenditure, and the remaining 10% grants, going into buying and replacing scientific equipment in the laboratories, buying journals for libraries, organizing

seminars and inviting scholars, which are essential inputs for academic institutions.

11 PRICE ESCALATION TENDENCY

The tendency of price escalation of journals is unabated as was the problem in the past. The commercial publishers like Elsevier, Pergamon, Kluwer, Oxford University Press, Blackwel Scientific, Springer Verlag etc resort to annual escalation in original foreign prices, and these increases vary from 5% to 15%. Though the society publishers do not resort to rapid increase in prices, they too are raising the subscription rates many fold. The journal price increases are attributed to the steep hike in the postal rates, cost of the publication, handling expenses etc. A sample survey of price escalations is presented hereunder.

12 INCREASES--ANNUAL & CUMULATIVE

A random sample of 5 journal titles each of retputed commercial publishers and learned socieites are presented in Table 1 and Table 2 respectively, and correspondingly escalation of prices are graphically presented in barchart Figure 1 and Figure 2. The commercial publishers viz, Kluwer Academic increased journal original foreign prices to a maximum of 148.89% over a period of four years and the annual decease/increase varied from (-)1.03% to 115.71%. The corresponding cumulative increase in rupee price for the four year period was 256.64% while the annual decrease/ increase being (-)47.91% to 156.61%. Similarly, Elsevier Science Publishers increased journal original foreign prices to a maximum of 99.25% for a four year span 1991-94 and the annual increase varied from 4.97% to 71.55%. The corresponding cumulative increase in rupee price for the same four year period was 185.35%, while the annual increase being 2.05% to 70.76%. The relative price escalations are presented in the figurative representation.

13 LEARNED SOCIETIES

The learned society publishers are no exception to the annual increase of journal subscription prices. The American Institute of Physics (AIP) enhanced journal subscription prices varying from 7.69% to 19.35%, over a period of four years, and the cumulative percentage being 53.75%. The relative enhanced prices paid to these random sample of five journals varies from 15.89% to 56.57% and the cumulative increase being 144.99%. No journal price of this AIP publisher has decreased during the same four year period. Another learned society, having rich reputation in the discipline of Chemistry, American Chemical Society (ACS) also enhanced the original foreign price from 2.20% to 25.42% while the Indian Rupee Payments increase being 10.30% to 70.02%. The cumulative enhancement for the same

Table 1
Escalation of Journal Prices 1991-94: Original Prices vis-a-vis Rupee Prices

KLUWER ACADEMIC PUBLISHERS

Journal Title	1991 Prices		1992 Prices		% of Incr. in Foreign & Indian Price	1993 Prices		% of INCR in Foreign & Indian Price	1994 Prices		% of Incr. in Foreign & Indian Price	Cumulative % of Incr. in Foreign & Prices for 4 yrs
Applied Scientific Research	DFL	360.00	DFL	382.00	6.1111	DFL	824.00	115.7068	DFL	896.00	8.7379	148.8889
	Rs	4158.00	Rs	5546.00	33.3814	Rs	14172.00	155.5355	Rs	14829.00	4.6359	256.6378
Biochemistry International	$	598.50	$	659.50	10.1921	$	695.00	5.3829	$	695.00	0.0000	16.1236
	Rs	11970.00	Rs	19923.00	66.4411	Rs	21899.00	9.9182	Rs	21906.00	0.0320	83.0075
Compositio Mathematica	DFL	1104.00	DFL	1164.00	5.4348	DFL	1565.00	34.4502	DFL	1690.00	7.9872	53.0797
	Rs	12751.00	Rs	16901.00	32.5465	Rs	26918.00	59.2687	Rs	28493.00	5.8511	123.4570
Journal of Engg Maths	DFL	360.00	DFL	382.00	6.1111	DFL	412.00	7.8534	DFL	566.00	37.3786	57.2222
	Rs	4158.00	Rs	5546.00	33.3814	Rs	7258.00	30.8691	Rs	9174.00	26.3985	120.6349
Photosynthetica	DFL	368.00	DFL	400.00	8.6957	DFL	484.00	21.0000	DFL	479.00	-1.0331	30.1630
	Rs	4044.00	Rs	5808.00	43.6202	Rs	14904.00	156.6116	Rs	7764.00	-47.9066	91.9881

ELSEVIER SCIENCE PUBLISHERS

Journal Title	1991 Prices		1992 Prices		% of Incr. in Foreign & Indian Price	1993 Prices		% of INCR in Foreign & Indian Price	1994 Prices		% of Incr. in Foreign & Indian Price	Cumulative % of Incr. in Foreign & Prices for 4 yrs
Analytical Chemistry	$	389.00	$	490.00	25.9640	$	489.21	-0.1612	$	561.00	14.6747	44.2159
	Rs	7453.00	Rs	12727.00	70.7635	Rs	14779.00	16.1232	Rs	17685.00	19.6630	137.2870
Biochemica ET Biophysica	DFL	1610.00	DFL	1690.00	4.9689	DFL	1870.00	10.6509	DFL	3208.00	71.5508	99.2547
Acta-bioenergetics	Rs	18595.00	Rs	24217.00	30.2339	Rs	32164.00	32.8158	Rs	53060.00	64.9670	185.3455
Chemical Physics Letters	DFL	5335.00	DFL	6084.00	14.0394	DFL	7392.00	21.4990	DFL	9367.00	26.7181	75.5764
	Rs	61619.00	Rs	87183.00	41.4872	Rs	127142.00	45.8335	Rs	154930.00	21.8559	151.4322
Coordination Chemistry	DFL	2320.00	DFL	2212.00	-4.6552	DFL	2532.27	14.4788	DFL	3349.14	32.2584	44.3595
Reviews	Rs	26796.00	Rs	31697.00	18.2900	Rs	43555.00	37.4105	Rs	54658.00	25.4919	103.9782
Journal of Magnetism &	DFL	3915.00	DFL	4961.00	26.7178	DFL	5736.00	15.6219	DFL	6192.00	7.9498	58.1609
Magnetic Materials	Rs	45218.00	Rs	71091.00	57.2184	Rs	98659.00	38.7785	Rs100681.002.0495		122.6569	

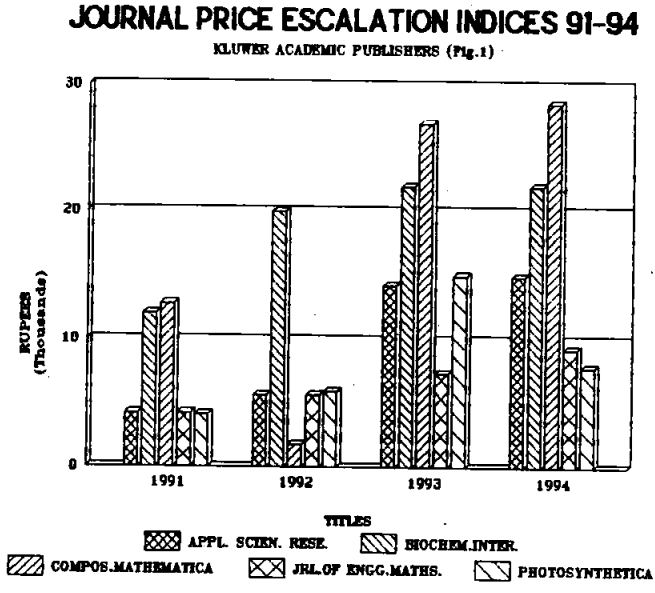
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Escalation of Journal Prices 1991-1994: Original Prices vis-a-vis Rupee Prices

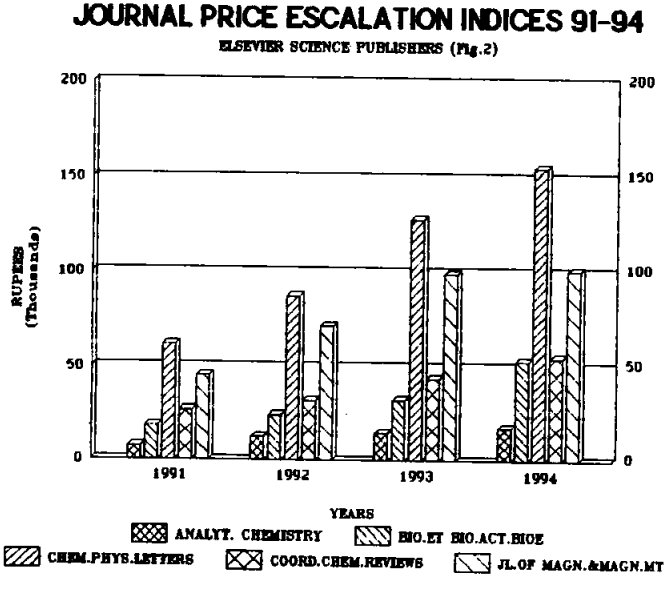
AMERICAN INSTITUTE OF PHYSICS

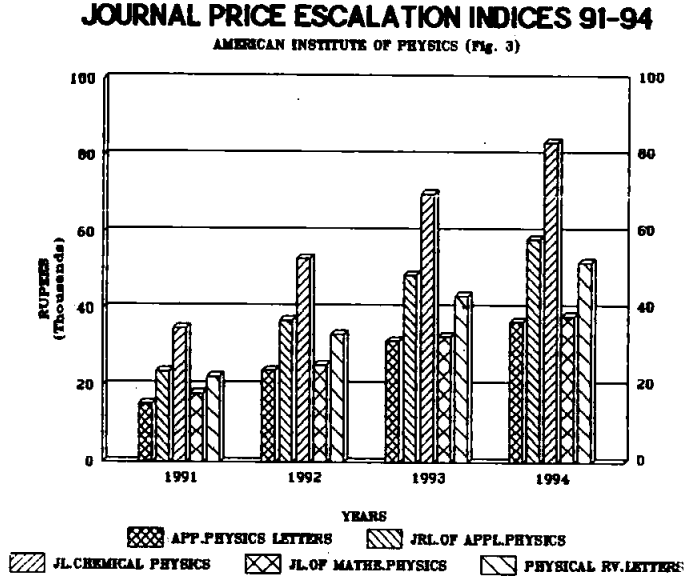
Journal Title	1991 Prices		1992 Prices		% of Incr. in Foreign & Indian Price	1993 Prices		% of INCR in Foreign & Indian Price	1994 Prices		% of Incr. in Foreign & Indian Price	Cumulative % of Incr. in Foreign & Prices for 4 yrs
Applied Physics Letters	$	775.00	$	925.00	19.3548	$	1050.00	13.5135	$	1165.00	10.9524	50.3226
	Rs	15345.00	Rs	24025.00	56.5657	Rs	31720.00	32.0291	Rs	36755.00	15.8733	139.5243
Journal of Applied Physics	$	1200.00	$	1430.00	19.1667	$	1615.00	12.9371	$	1845.00	14.2415	53.7500
	Rs	23760.00	Rs	37142.00	56.3215	Rs	48789.00	31.3580	Rs	58209.00	19.3076	144.9874
Journal Chemical Physics	$	1770.00	$	2045.00	15.5367	$	2315.00	13.2029	$	2650.00	14.4708	49.7175
	Rs	35046.00	Rs	53116.00	51.5608	Rs	69936.00	31.6665	Rs	83607.00	19.5479	138.5636
Journal of Mathematical Physics	$	910.00	$	980.00	7.6923	$	1090.00	11.2245	$	1215.00	11.4679	33.5165
	Rs	18018.00	Rs	25454.00	41.2698	Rs	32928.00	29.3628	Rs	38333.00	16.4146	112.7484
Physical Review Letters	$	1129.00	$	129.00	14.2604	$	1440.00	11.6279	$	1660.00	15.2778	47.0328
	Rs	22354.00	Rs	33506.00	49.8882	Rs	43502.00	29.8335	Rs	522273.00	20.1623	133.8418

AMERICAN CHEMICAL SOCIETY

Journal Title	1991 Prices		1992 Prices		% of Incr. in Foreign & Indian Price	1993 Prices		% of INCR in Foreign & Indian Price	1994 Prices		% of Incr. in Foreign & Indian Price	Cumulative % of Incr. in Foreign & Prices for 4 yrs
Biochemistry	$	1116.80	$	1368.00	22.4928	$	1398.00	2.1988	$	1547.60	10.6947	38.5745
	Rs	21382.00	Rs	35532.00	66.1772	Rs	4235.00	18.8647	Rs	48826.00	15.6055	128.3509
Chemical Revieews	$	308.00	$	371.00	20.4545	$	407.87	9.9380	$	435.84	6.8576	41.5065
	Rs	5901.00	Rs	9736.00	64.9890	Rs	12321.00	26.5509	Rs	13750.00	11.5981	133.0114
Chemistry of Materials	$	322.00	$	386.00	19.8758	$	442.06	14.5233	$	489.45	10.7203	52.0031
	Rs	6169.00	Rs	10025.00	62.5061	Rs	13354.00	33.2070	Rs	15442.00	15.6358	150.3161
Inorganic Chemistry	$	804.80	$	981.00	21.8936	$	1118.70	14.0367	$	1094.49	-2.1641	35.9953
	Rs	15404.00	Rs	25480.00	65.4116	Rs	33795.00	32.6334	Rs	37686.00	11.5135	144.6507
Journal of Organic Chemistry	$	657.00	$	824.00	25.4186	$	965.16	17.1311	$	1019.68	5.6488	55.2024
	Rs	12588.00	Rs	21402.00	70.0191	Rs	29166.00	36.2770	Rs	32170.00	10.2997	155.5609


JOURNAL PRICE ESCALATION INDICES 91-94
KLUWER ACADEMIC PUBLISHERS (Fig.1)
RUPEES (Thousands)
30
20
10
0
1991
1992
1993
1994
TITLES
APPL. SCIEN. RESE.
BIOCHEM.INTER.
COMPOS.MATHEMATICA
JRL.OF ENGG.MATHS.
PHOTOSYNTHETICA


JOURNAL PRICE ESCALATION INDICES 91-94
ELSEVIER SCIENCE PUBLISHERS (Fig.2)
RUPEES (Thousands)
200
150
100
50
0
1991
1992
1993
1994
YEARS
ANALYT. CHEMISTRY
BIO.ET BIO.ACT.BIOE
CHEM.PHYS.LETTERS
COORD.CHEM.REVIEWS
JL.OF MAGN.&MAGN.MT


JOURNAL PRICE ESCALATION INDICES 91-94
AMERICAN INSTITUTE OF PHYSICS (Fig. 3)
RUPEES (Thousands)
100
80
60
40
20
0
1991
1992
1993
1994
YEARS
APP.PHYSICS LETTERS
JRL.OF APPL.PHYSICS
JL.CHEMICAL PHYSICS
JL.OF MATHE.PHYSICS
PHYSICAL RV.LETTERS

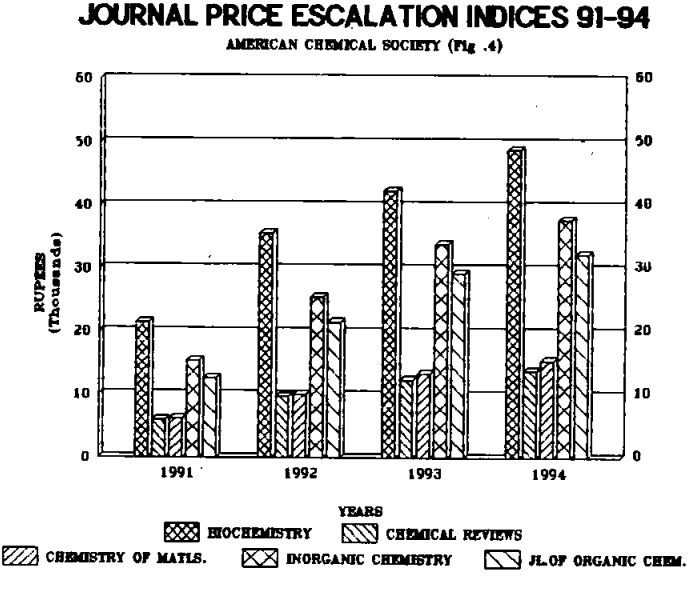

JOURNAL PRICE ESCALATION INDICES 91-94
AMERICAN CHEMICAL SOCIETY (Fig .4)
RUPEES (Thousands)
60
50
40
30
20
10
0
1991
1992
1993
1994
YEARS
BIOCHEMISTRY
CHEMICAL REVIEWS
CHEMISTRY OF MATLS.
INORGANIC CHEMISTRY
JL.OF ORGANIC CHEM.

Table 3
Escalation of Journal Prices 1991-1994
SPRINGER VERLAG

Journal Title	1991 Prices in foreign & Indian rupees	1992 Prices in foreign & Indian rupees	% of Incr in foreign & Indian price	1993 prices in foreign & Indian rupees	% of INCR in foreign & Indian price	1994 Prices in foreign & Indian rupees	% of INCR in foreign & Indian price	Cumulative % of incr in foreign & Indian prices for 4 yrs
Archives of environmental	$ 528.80	$ 541.55	2.411	$ 506.86	-6.4057	$ 523.00	3.1843	-1.0968
Contamination Toxicology	Rs 10.628.00	Rs 17058.00	60.5006	Rs 16878.00	-1.0552	Rs 17393.00	3.0513	63.6526
Archives of Microbiology	$ 1722.50	$ 1750.00	1.5965	$ 1895.48	8.3131	$ 1881.91	-0.7159	9.2546
	Rs 34622.00	Rs 45535.00	31.5204	Rs 58722.00	28.9601	Rs 59299.00	0.9826	71.2755
Chromosoma	$ 758.15	$ 1160.57	53.0792	$ 1035.93	-10.7396	$ 1028.82	-0.6863	35.7014
	Rs 15238.00	Rs 30198.00	98.1756	Rs 32093.00	6.2753	Rs 32418.00	1.0127	112.7445

PERGAMON PRESS

Journal Title	1991 Prices in foreign & Indian rupees	1992 Prices in foreign & Indian rupees	% of Incr in foreign & Indian price	1993 prices in foreign & Indian rupees	% of INCR in foreign & Indian price	1994 Prices in foreign & Indian rupees	% of INCR in foreign & Indian price	Cumulative % of incr in foreign & Indian prices for 4 yrs
Environmental and	UKP 204.82	UKP 230.00	12.2937	UKP 265.00	15.2174	UKP 306.00	15.4717	49.3995
Experimental Botany	Rs 7050.00	Rs 10747.00	52.4397	Rs 12227.00	13.7713	Rs 14351.00	17.3714	103.5603
Expert Systems with	UKP 85.94	UKP 85.00	-1.0938	UKP 230.00	170.5882	UKP 272.00	18.2609	216.4999
Applications	Rs 2958.00	Rs 3972.00	34.2799	Rs 10612.00	167.1702	Rs 12756.00	20.2035	331.2373
Journal of Physics and	UKP 640.00	UKP 730.00	14.0625	UKP 950.00	30.1370	UKP 1080.00	13.6842	68.7500
Chemistry of solids	Rs 23616.00	Rs 34112.00	44.4444	Rs 43833.00	28.4973	Rs 51118.00	16.6199	116.4549

ROYAL SOCIETY OF CHEMISTRY

Journal Title	1991 Prices in foreign & Indian rupees	1992 Prices in foreign & Indian rupees	% of Incr in foreign & Indian price	1993 prices in foreign & Indian rupees	% of INCR in foreign & Indian price	1994 Prices in foreign & Indian rupees	% of INCR in foreign & Indian price	Cumulative % of incr in foreign & Indian prices for 4 yrs
Chemical Communications	UKP 358.00	UKP 392.00	9.4972	UKP 418.00	6.6327	UKP 461.00	10.2871	28.7709
	Rs 12322.00	Rs 18592.00	50.8846	Rs 20231.00	8.8156	Rs 21501.00	6.2775	74.4928
Chemistry and Industry	UKP 184.00	UKP 194.00	5.4348	UKP 200.00	3.0928	UKP 210.00	5.0000	14.1304
	Rs 6333.00	Rs 9191.00	45.1287	Rs 9680.00	5.3204	Rs 9794.00	1.1777	54.6502
Dalton Transations (Inorganic	UKP 658.00	UKP 734.00	11.5502	UKP 781.00	6.4033	UKP 862.00	10.3713	31.0030
Chemistry)	Rs 22648.00	Rs 34776.00	53.5500	Rs 37800.00	8.6957	Rs 40203.00	6.3571	77.5124

four year period in original foreign price, was 55.20% and the Rupee Payment increase was 255.56%.

14 PRICE RISE UNIVERSAL

Further sample of some more journals of reputed publishers presented in Table 3 also indicates escalation of prices over 35.7% by Springer Verlag in a span of four years. The relative cumulative price increase in Rupee payment to the Indian institutional libraries is 112.74%. Similarly, Pergaman Press also enhanced journal prices over 68.75% in the same period of four years 1991-1994 and the subscription burden on Indian institutions is 116.45%. While this is the trend with the commercial publishers, the non-profit learned societies also enhanced their original prices over 31% in a span of fours years and the cumulative index of Rupee price rise being 77.5%. The original price rise percentage between commercial publishers and learned societies is double in a four year period. Comparatively, Rupee price percentage paid by Indian institutions is also double even for the learned society journal publications.

15 ENFORCED RESOURCE SHARING

The annual price rise for the journals seems to be a continuous process and there is hardly any measure that can be contemplated to contain the escalation tendency. Even the wealthy institutions could not withstand the price escalations, and necessarily restricted subscriptions by resorting to deletions, inspite of the displeasure of the information seeking community. Thus the viable alternative being the exploration of cooperation among the institutional libraries. The price rise phenomenon has practically enforced the library environment, to adopt cooperation for resource sharing. This method of resource sharing would minimise the individualized heavy expenditure by the libraries, and helps the user community with wider exposure to the information and literature.

16 COSTS BEHIND PRICE ESCALATION

The pattern of enhancement of foreign prices of journals published by commercial publishers as well as learned societies during the four year span 1991-94 is identical in all respects. The annual enhancement of subscription prices may be attributed to the operative costs and also publication production price.

2 FOREIGN EXCHANGE CONVERSION RATES

Many journals subscribed by the universities and other institutes of higher learning, technology etc are published from United States of America and some European countries. A tentative estimate shows that over 90% of

the science journals are obtained from abroad, and these necessiate remittances in the respective currencies of the publishing countries. The journal subscription period is usually a calender year, from January to December. The fluctuation of foreign exchange conversion rates, prevailing during December month of four consecutive years 1990 to 1993, as presented in Table 4, illustrate a cumulative increase, varying from 35% to 74% for the random sample of four popular foreign currencies. The international currency fluctuations had multiplier effect on the Indian foreign exchange conversion rate, during the year 1991, and the increased rates varied from 32% to 43% on bank rates, and 35% to 51% on UGC/GOC conversion rates. Whereas, the annual increase is less than 10% for both types of conversion applications.

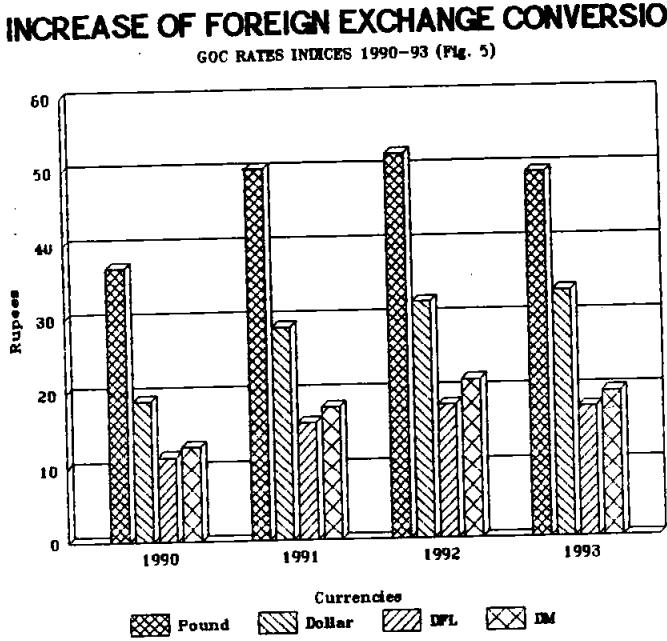
Table 4
Fluctuations in Foreign Exchange Conversion Rates 1990-1993

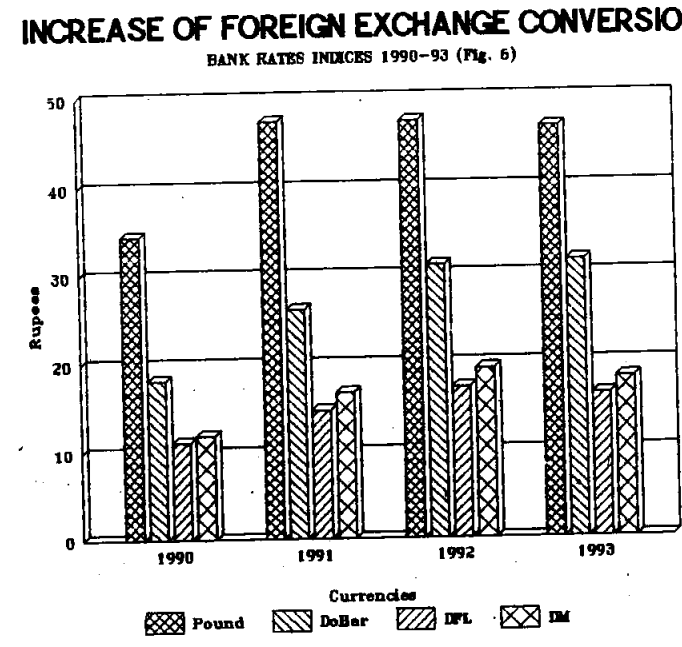
Currency	1990		1991		1992		1993	
	GOC	Bank	GOC	Bank	GOC	Bank	GOC	Bank
British Pound (£)	36.90	34.42	50.00	47.38	51.80	48.40	49.10	46.63
USA Dollar ($)	18.90	18.12	28.60	26.02	31.80	30.98	33.20	31.51
Dutch Guilder (DFL)	11.40	11.10	15.80	14.72	17.90	17.20	17.40	16.32
Deutch Mark (DM)	12.80	11.89	17.80	16.67	21.30	19.31	19.50	18.23

PS: 1 Conversions prevailing in December month of the respective year is taken.
2 Four currencies are taken as random sample.

21 DEVALUATION OF THE RUPEE

The sudden increase of over 32% in foreign exchange conversion prices during the year 1991 had very serious effect on the serials acquisition management of libraries. The libraries suffered severe setback with the freezing funds position and the steep increase in foreign exchange conversion rates, which practically crippled the serials subscription process. The bar charts presented in Figures 5 and 6 illustrate the rapid increase in foreign currency rates, converted at bank rates, and UGC/GOC rates. Most interestingly, 1993 year witnessed a stable foreign exchange conversion price structure, compared to the previous year, and thus adverse effects on library finances are minimised.


INCREASE OF FOREIGN EXCHANGE CONVERSION
GOC RATES INDICES 1990-93 (Fig. 5)
60
50
40
30
20
10
0
Rupees
1990
1991
1992
1993
Currencies
Pound
DoBar
DFL
DM


INCREASE OF FOREIGN EXCHANGE CONVERSION
BANK RATES INDICES 1990-93 (Fig. 6)
50
40
30
20
10
0
Rupees
1990
1991
1992
1993
Currencies
Pound
DoBar
DFL
DM

3 MORE JOURNALS AT LESS COST

The funding pattern of universities, deemed universities Indian Institutes of Technology and research laboratories etc are all the time different, and no uniformity has ever been noticed. Except ten central universities, all the accredited universities are funded by the state governments. Paucity of funds in the respective state government's funding agencies play havoc with the ongoing research endeavour in the universities/institutions. Most of the Indian universities and other institutions of higher learning, usually adopt the following methods for subscribing current journals:

1 Journal subscriptions are remitted through identified subscription agencies and also pay handling charges.

2 Some institutions remit the subscriptions directly to the publishers.

3 A few institutions adopt the method of remittances through subscription agencies, and also pay directly to publishers.

31 FOREIGN CURRENTY PAYMENTS

Many journals subscribed by the institutions of higher learning are published from countries other than India, and require payments in foreign currencies, acceptable by the respective publishers. The accredited subscription agencies usually charges UGC/GOC conversion rates for all foreign currencies, which are mostly 5% higher than the prevailing bank conversion prices. A few accredited subscription agencies, charge bank conversion rates prevailing on the date of subscription remittances, depending on the terms of understanding and agreements executed by the respective libraries and agencies. The ways and means of monetary advantage to the institution, while subscribing journals is presented in the Tables 5 to 7. Two commercial publishers viz, Kluwer Academic Publishers and Elsevier Science Publishers' journals representing random selection are presented in Table 5 and 6. Similarly, the availability of financial benefit to the subscribing institution is illustrated in Table 7 where the non-profit and non-commercial learned society viz, American Chemical Society journals payment process is detailed.

32 DISCOUNT TO INSTITUTIONS

The authorized and preferential subscription agencies normally avail 10% discount from Kluwer Academic Publishers and 7.5% discount from Elsevier Science Publishers, towards journal subscriptions. Some of the authorized distributors and subscription agencies allow 2% to 5% discount to the subscribers, and also take total responsibility for the safe supply/delivery of journals. The rate of discount allowed to the institution would be very much beneficial when the original subscription prices are converted at bank

Table 5
Random Sample of 1994 Publishers-wise Journal Titles presenting price variations
KLUWER ACADEMIC PUBLISHERS, NETHERLANDS

Journal Title	Orig Price		Conversion		Cost in Rupees		5% discount		Nett Price	% of Diff in prices		
			GOC	Bank	GOC	Bank	GOC	Bank	GOC	Bank	GOC	Bank
Applied Scientific Research	DFL	896.00	17.40	16.54	15590.40	14819.84	779.52	740.99	14810.88	14078.85	9.70	5.00
Biochemistry International	$	695.00	33.20	31.50	2307.00	21892.50	1153.70	1094.63	21920.30	20797.88	9.86	5.00
Compositio Mathematica	DFL	1690.00	17.40	16.54	29406.00	27952.60	1470.30	1397.63	27935.70	26554.97	9.70	5.00
Journal of Engineering Mathematics	DFL	566.00	17.40	16.54	9848.40	9361.64	492.42	468.08	9355.98	8893.56	9.70	5.00
Photosynthetica	DFL	479.00	17.40	8334.60	7922.66	416.73	396.13	7917.87	7526.53	9.70	5.00	

Table 6
Random Sample of 1994 Publishers-wise Journal Titles presenting price variations
ELSEVIER SCIENCE PUBLISHRS, USA

Journal Title	Orig Price		Conversion		Cost in Rupees		5% discount		Nett Price		% of Diff in prices	
			GOC	Bank	GOC	Bank	GOC	Bank	GOC	Bank	GOC	Bank
Analytical Chemistry	$	561.00	33.20	31.50	18625.20	17671.50	558.76	530.15	18066.44	17141.36	7.97	3.00
Biochemica et biophysica Acta-Bioenergentics	DFL	3208.00	17.40	16.54	55819.20	53060.32	1674.58	1591.81	54144.62	51468.51	7.79	3.00
Chemical Physics Letters	DFL	9367.00	17.40	16.54	162985.80	154930.18	4889.57	4647.91	158096.23	150282.27	7.79	3.00
Journal of Magnetism & Magnetic Materials	DFL	6192.00	17.40	16.54	107740.80	102415.68	3232.22	3072.47	104508.58	99343.21	7.79	3.00
Journal of Computational and applied mathematics	DFL	2457.00	17.40	16.54	42751.80	40638.78	1282.55	1219.16	41469.25	39419.62	7.79	3.00

Table 7
Random Sample of 1994 Publishers-wise Journal Titles presenting price variations
AMERICAN CHEMICAL SOCIETY, USA

Journal Title	Orig Price	Conversion		Cost in Rupees		5% discount		Nett Price	% of Diff in prices		
		GOC	Bank	GOC	Bank	GOC	Bank	GOC	Bank	GOC	Bank
Biochemistry	$ 1547.60	33.20	31.50	51380.32	484749.40	0.00	0.00	51380.32	48749.40	5.12	0.00
Chemical Reviews	$ 435.84	33.20	31.50	14469.89	13728.96	0.00	0.00	14469.89	13628.96	5.12	0.00
Chemistry of Materials	$ 489.45	33.20	31.50	16249.74	15417.68	0.00	0.00	16249.74	15417.68	5.12	0.00
Inorganic Chemistry	$ 1094.49	33.20	31.50	36337.07	34476.44	0.00	0.00	36337.07	34476.44	5.12	0.00
Journal of organic chemistry	$ 1019.68	33.20	31.50	33853.38	32119.92	0.00	0.00	33853.38	32119.92	5.12	0.00

rates. The monetary advantage to the institution would be substantial when the volume of subscription order is higher. Some of the institutions are already availing the monetary benefit and serving the user community through more number of serials subscription.

321 Monetary Benefit

The monetary benefit to the institution is illustrated with the following two examples.

3211 Example I

Title: FEBS Letters *Publishers:* Elsevier

1994 subscription price : DFL 5859
Bank conversion rate : Rs 16.54 Instituional Discount
UGC/GOC conversion rate : 17.40 on Bank rate : 3%

BANK RATE CALCULATION

DFL 5859 × Rs 16.54 = Rs 96907.86
3% discount = Rs 96907.86 × 3/100 = Rs 2907.23
Nett Price = Rs 96907.86-2907.23 = Rs 94000.63

UGC/GOC RATE CALCULATION

DFL 5859 × Rs 17.40 = Rs 1,09,946.60
3% Discount = Rs 109946.60 × 3/100 = Rs 3058.39
Nett Price = Rs 1,06,888.21

Price at GOC rate = Rs 1,06,888.21

Price at Bank rate with 3% discount = Rs 94,000.63

Savings to the instituion = Rs 12,887.58

3212 Example II

Title: Plant Molecular Biology *Publishers:* Kluwer

1994 subscription price : DFL 2448.00
Bank conversion rate : Rs 16.54 Instituional Discount
UGC/GOC conversion rate : 17.40 on Bank rate : 5%

BANK RATE CALCULATION

DFL 2448 × Rs 16.54: Rs 40,489.92
3% Discount = Rs 40,489 × x/100 = Rs 1,214.69
Nett Price =
Rs 40,489.92 (–) Rs 1,214.69 = Rs 39,275.23

UGC/GOC RATE CALCULATION

DFL 2,448 × RS 17.40 = Rs 42,595.20
3% Discount = Rs 42,595.20 × 3.100 = Rs 1277.85

Nett Price = Rs 42595.20 (–) Rs 1277.85 = Rs 41,317.35

Price at GOC rate = Rs 42,595.20

Price at Bank rate with 5% discount = Rs 39,275.23

Savings to the instituion = Rs 3,319.97

33 AVAIL DISCOUNT TO INSTITUTIONS

Most of the library managers are aware that the subscription agencies are remitting the subscription prices to the publishers at bank conversion rates but not GOC rates. Apart from this, most of the commercial publishers offer discounts varying from 5% to 10% to the subscription agencies. In view of the financial constraints being experienced by the institutional libraries, it is essential to contemplate economic measures by the libraries which may opt for bank conversion rates, for all foreign journal subscription remittances. The depleting budgetary provisions may be compensated moderately, through the adoption of saving measures, such as the difference between bank conversion rates and GOC/UGC rates, besides availing discounts offered by the subscription agencies. This procedure is definitely a deviation from the existing pattern of journal subscriptions being practiced by many institutions, and also invite some administrative and audit problems, which ultimately may not cause any hindrance as the institutions secure the advantages.

331 Policy Revision Needed

The much awaited automated resource sharing is already on the anvil which may comprehend and be effective in these days of electronic publishing. Such of those institutional libraries which have initiated automation of their library activities on a moderate scale, may eventually cooperate with the associating libraries for collective responsibility of identified journal subscriptions, with due understanding of sharing the resource for the optimum utilization, and to the satisfaction of the user community. The price-rise phenomenon of journal subscriptions would be circumvented by exercising option to prefer the electronic publication. The scientific and the technological innovations applicable to the library and information area would minimise the efforts of the library management and also helps to save expenditure substantially, and pave way for the availability of information extensively in a record time. The 21st century would witness remarkable speed and improvement in the collection and dissemination of information and brings in changes in the librarianship scenario.

4 CONCLUSION

The paucity of funds and the financial squeeze by the resource agencies, are compelling the library managers to reorient their approach to subscribe current journals through better evaluation of payment terms to minimize the expenditure. Annual pruning of serial subscriptions and the consequent deletions would ultimately drive the library and the consequent deletions would ultimately drive the library and information centres to an environment where

the user community would disrespect the system as a whole. It is, therefore, the prime duty of the library mangers to adopt themselves to the ever changing scenario and ensure the continuity of serials subscription despite the financial constraints to the extent of viability.

41 RESOURCE SHARING

The phenomenal annual increase in journal prices and adverse cuts could be overcome through effective cooperation and resource sharing. The electronic publishing has been revolutionising the pace of inforamtion storage and retrieval process, which would prove a boon to the library environment. The cost escalation and consequential effects may be minimised in the long run through the adoption of resource sharing and opting for electronic publishing mode.

CD-ROM NETWORKING: STATE OF THE ART RISKS/OPPORTUNITIES TO INDIA

DR CK RAMAIAH*

0 INTRODUCTION

Today CD-ROMs are one of the largest data memories available for a commercial PC applications. They are unlike 'hard disks' very light, small in size, and easy to transport. Previously all the PCs were restricted to only one medium, that is text, whereas the latest ones are able to handle other media elements such as sound, graphics, pictures, colours etc. Presently, most of the CD-ROMs are available, as large size textual databases such as reference books, trade directories, catalogues, bibliographies, indexing and abstracting periodicals, full text journals, bibliographical databases etc. Moreover, the present version CD-ROMs, have integrated the text with graphics, sound and pictures; with the result they become more interactive information systems than the earlier ones. Networks allow people to share resources throughout an organisation. When CD-ROM marry with networks, the resulting CD-ROM Networking would be much more effective, than working on them individually. The basic task of CD-ROMs networking is to share the existing information resources with the users of that network. CD-ROM networking offers an opportunity to make vast amounts of data/information available simultaneously and provides greater speed and independence. The technology is increasingly popular with more and more people, having to make decisions about how best to go about the task. This paper will provide some help and guidance in deciding, on how to implement the CD-ROM networking task, and addressed to the planning and management stages, and issues involved.

1 WHAT IS CD-ROM?

CD-ROM is the one of the derivatives of compact audio disk, which was introduced first time in 1985. According to the Optical Publishing Association report, in 1988 the CD-ROM application's revenue was gone up to $280 millions. But in the next year it self, the revenue growth went up to approximately 237% ie $665 millions, which is an amazing leap in CD-ROM applications' marketing in the libraries. In the publishing industry history, no other media developed this much quickly as the CD-ROM, in a very short span of time. The disk is normally made out of polycarbonate, in between

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two layers there will be a metallic film on which the actual data will be recorded in a 'pitted language'. For the present, all the CD-ROMs are single side recorded disks and the efforts for both sides recording are still going on. Data/information is retrieved by the position of 'pits' and 'lands' into a time dependent signal. Reading is done by a non-contact method which is free of wear. The information can be protected against dust and damage by single coating with a transparent lacquer layer.

11 ADDITIONAL STORAGE SYSTEM

Moreover, non-contact allows the fast random access, which is of great importance in data storage and retrieval. So CD-ROM has become one of the best, powerful and economical tool for storing and retrieving of huge amount of information in libraries and information centres. Presently CD-ROM is an inexpensive medium (compared to others) available, through which large amount of data could be distributed to many people very easily. This medium is not a replacement to any existing media such as print, microforms, online; rather it supplements all these media. Since distribution of data on magnetic media uses drives, which are already included in computer systems for other purposes, for reading the information on the CD-ROM, except a CD-ROM disc drive, no additional equipment is required.

12 ADVANTAGES OF CD-ROM

–exceptionally high storage capacity,

–fast and random access of information,

–very low publishing cost (about $10 when large number of copies of a disk are published),

–easy to distribute,

–high data integrity,

–more durability,

–high data protectability,

–effective way of information presentation ie with multimedia applications,

–high archival life,

–more reliable,

–effective standardisation,

–more resistance to damage, and

–easy to use.

13 LIMITATIONS OF CD-ROM

* Since it is read only memory, one can not write, store or alter the data after mastering (the process of making an original plate which is subsequently used for making multiple copies) the disk,
* access time is relatively slower than the online media, because of its constant linear velocity (CLV) format,
* at a time, a CD-ROM workstation could run only one application,
* the equipment is too expensive,
* careless use of disks causes, not only damage to disks, but also incorrect reading of data,
* production of single CD-ROM is too expensive,
* even through it is user-friendly, a minimum basic training or knowledge is required to use, and
* lack of market stability.

14 WHY CD-ROM IS REQUIRED FOR LIBRARIES ONLY?

Primarily there are five reasons

(*i*) save high cost building and shelf storage space, especially in urban areas,

(*ii*) unlike online databases, the users themselves can do their information searches, which gives more satisfaction,

(*iii*) when compared with hard copies, least (ie. all most nil) maintenance cost, and

(*v*) information can be provided instantaneously, where there is lot of pressure from the top management.

2 APPLICATIONS OF CD-ROMS TO LIBRARIES AND INFORMATION SERVICES

CD-ROM are a boon, especially for the libraries to provide instantaneous reference service to their users. All the prominent libraries in the developed countries had already started using them effectively, in providing various types of services to their users. Today largest number of CD-ROM products on the market are aimed to library uses only. Broadly there are five categories of CD-ROMs for use in libraries and information services[5]

(*i*) *Tools for Library Automation:* There are a number of commercial cataloguing tools available on CD-ROM in the market which are useful both for retrospective and new cataloguing. There are a few CD-

ROM based serial control and cataloguing tools, is which have also come into the market.

(*ii*) *Library Catalogues:* The bigger libraries like British Library, Library of Congress, OCLC, etc have already started distributing their catalogue on CD-ROMs.

(*iii*) *Books and Serials Acquisition Tools:* Almost all the international publishers who are publishing various books and serials selection tools in print version, have also started publishing on CD-ROMs, eg., RR Bowkers' Books-in-print Plus, Ulrich Plus, Whitakers' British books in print, etc on CD-ROM.

(*iv*) *Reference Tools:* There are so many reference tools like encyclopaedias, dictionaries, directories, mapping services, technical reference manuals, year books, etc.

(*v*) *Databases*: There are two types of databases that are available on CD-ROMs. One is full text databases, such as 'Computer Library' published by 'Computer Press' which covers 120 publications and presently having 43000 articles on CD-ROM. IEEE/IEE also started to publish all of their publications on CD-ROM. The second and more popularly available databases on CD-ROM are indexing and abstracting publications. And a number of online database publishers have also started publishing their databases in science and technology, engineering, computing, earth sciences, health and safety, medicine, agriculture, food sciences, education, library science, etc on CD-ROM. eg Dialog on disc in various subjects, NTIS discs, LISA, Engineering Index, etc.

3 NETWORKING OF CD-ROM DRIVES

Initially CD-ROM was distributed on a single workstation configuration, which was too expensive for the small libraries and information centers. The cost and sharing of information, led the introduction of multi-user and multi-disk CD-ROM systems, which are more economical for most of the organisations. Especially they are very much economical and useful in any organisation where the same data or database or program is required by a number of users. Linking of several workstations in a LAN is made possible to all the users, to access the information from all other systems in that network. It also makes possible to link multiple CD-ROM drives to a single workstation, which is again connected to LAN for the access of number of users. There is an important practical distinction between multi-user system and LAN. In the case of multi-user system, a central processor will be linked to a number of terminals, through which all the users will access the infor-

mation simultaneously. Whereas in the case of LAN, a number of independent CD-ROM systems, will be connected together through a LAN, and all the users of that LAN will access the information from all the systems connected to that LAN.

31 TYPES

Basically networking CD-ROM drives are three types. They are: (1) Peer-to-peer networking, (2) Client-server-networking, and (3) Operating System-based networking.

311 Peer-to-peer CD-ROM Drives Networking

In peer-to-peer networking CD-ROM drives are connected to one of the computers on the network (Fig 1). After connecting, the CD-ROM drive will be given a letter (eg., E: or F:) through which the other computers can be used to scan all the attached drives. Once this has been done, the user can access the CD-ROM drive, as if that drive is directly connected to their computer.

3111 The Advantages of peer-to-peer Networking CD-ROM Drives are

* inexpensive and easy to install the drives,
* one CD-ROM drive will serve the requirements of several users.

3112 Disadvantages

* access to the CD-ROM is slower (time depends up on the cabling and network interface card),
* 10 users is the maximum limit to get satisfactory results in this network.

312 Client-server-networking

The CD-ROM drive can be attached to the network in two ways: (*i*) to the file server, and (*ii*) dedicated CD-ROM server. In this, first approach is simplest, the drive would be attached to the server with a SCSI host adaptor. Second way is to create a totally dedicated CD-ROM server (Fig 2) with attached CD-ROM drive(s). For example, Online System's OPTI-NET, Mędrdian Data's CD Net, CBIS's CD Connection and Lotus's CD Networker (discontinued now) are some of the client-server-networking environments. All these systems work with Novell Netware, MS Lan Manager, Banayan Vines, DEC Path Works and Artisoft's LANtastic networking software.

3121 The advantages of client-server-networking CD-ROM drives are:

* allows the users to connect to CD-ROM at the same time,
* allows to combine CD-ROM 'Juke box' servers
* file server is dedicated to the function of sharing data

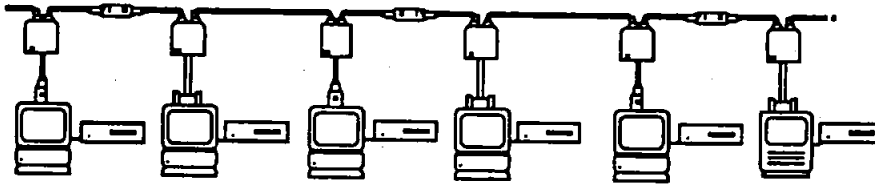


Fig. 1. Peer-to-peer CD-ROM drives Network

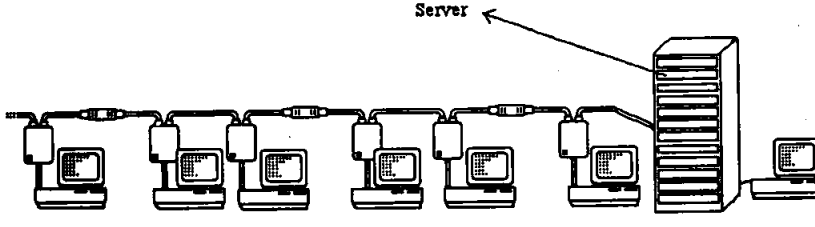


Fig. 2. Client Server CD-ROM Network

3122 Disadvantages

* individual system need to have the CD-ROM device drivers to access the CD-ROM,
* it is expensive, some times not justifiable, if resources are limited.

313 Operating System-based networking

Many of the operating systems (OS) includes DOS, Windows and LAN OS were not written with CD-ROM drives. However, several companies such as Microsoft has written an extension to DOS users, a super set of commands to enable a CD-ROM unit to be arrested as another hard disk. Microsoft also introduced Windows NT (New Technology) which has the ability to read CD-ROMs directly if they are attached to the computer via a drive. After the introduction of Novell's Netware 4.0, the Netware users were able to access CD-ROM drives. Now the new Netware has got Netware Loadable Modules (NLMs) which allows a CD-ROM drive to work successfully. Some of the other successful NLMs are CD Net and OPTI-Net.

3131 The Advantages and Disadvantages of Operating System-based CD-ROM Drives in Networking are:

* very fast and better performance over the peer-to-peer method,
* does not require any additional software, other than networking software,
* most effective way of attaching CD-ROM to a network.

3132 Disadvantage

* due to extra burden of on the file server, the time spent on core function, may be reduced.

4 TOOLS FOR SEARCHING CD-ROMS NETWORKING

There are huge number and variety of networking products available to network CD-ROMs with the result, it is becoming difficult to select a suitable product for networking CD-ROMs. However, the CD-ROM Network Support Encyclopaedia, produced by Novell and the Support On Site produced by Computer Library contains information from all the leading vendors.

41 STRENGTH & WEAKNESS

Network Support Encyclopaedia contains vendor information collected by Novell and its subsidiaries. Whereas 'Support On Site' gives access to data from a variety of vendors. The Computer Library CD-ROM has less

Novell-specific data, but does have a lot of information from sources such as IBM, Microsoft, Lotus, WordPerfect and 3Com.

42 FOR VENDORS

If any one is looking for a product of Novell networks, the Network Support Encyclopaedia is worth looking at, and carries the advantages of being produced by Novell itself. If one wants to see a variety of vendors, 'Support On Site', is better tool and provides invaluable information. The annual subscription of Network Support Encyclopaedia, is $ 440, whereas the professional volume is $ 1,030. The 'Support OnSite's single user's annual subscription is $ 1055 and five-user network annual subscription is $ 3,550.

5 CD-ROM NETWORKING SYSTEMS

Presently there are five commercial options for running a CD-ROM network: (*i*) CD Net, (*ii*) LAN tastic, (*iii*) Opti-Net, (*iv*) Multi-Platter, and (*v*) Novell Netware.

51 CD NET SYSTEM

Meridian Data, Inc USA introduced the first CD-ROM networking systems for standard Local Area Networks (LANs) in 1987. CD Net is primarily developed for a small to medium sized LANs and is available for $ 2,995. This will provide a lot of facilities such as duplicate disk capabilities, making use of CD-ROMs on a network, as fast as, or even faster than, if they have their own CD-ROM disk drive. This system can be configured for Token Ring, Ethernet, Novell Netware Banayan VINES, NetBios LANs, WANs and ARCNET topologies. Each CE Net accommodates up to 28 CD-ROM drives (16 gigabytes) per system and there is no limit of CD Net units to be placed on a single network.

52 LANTASTIC SYSTEM

Artisoft's LANtastic is an inexpensive, easy-to-install and use, CD-ROM LAN system, which was installed at University of Iowa in Ames, and it hardly took 20 minutes for installation (HERNEY, JM 1989). It is an ideal network solution for a small library or if one wants to start a small CD-ROM network. The big advantage of using LANtastic for CD-ROM sharing, is its ability to share Microsoft MS-DOS Extensions. The extension need not be installed on each workstation. However, only on 'the server' the extension will work. It allows a maximum of 120 users, and is available for $ 300-500.

53 OPTI-NET SYSTEM

Online Computer Systems Incs' OPTI-Net is another CD-ROM LAN system which provides software and hardware options that give high perfor-

mance access to CD-ROM database over any NetBIOS compatible network. With this system, there are three options for providing multiple access to a CD-ROM system such as (*i*) attaching dumb terminals to a host PC via Multi-DOS, (*ii*) adding CD-ROM to an existing network via OPTI-Net, and (*iii*) setting an independent and dedicated CD-ROM network such as CD Net. By installing 'PC Anywhere III' on the host computer and loading 'Aterm' program on his computer,[4] NICKERSON, G, has succeeded in contacting the host CD-ROM system remotely, in which a number of CD-ROM databases were housed. The products in which Microsoft's CD-ROM extensions was not used,'PC Anywhere III' may not work, but for WILSON DISC and others it will work perfectly. OPTI-Net can be configured for Novell's IPX/SPX and NFS (Network File System) users. This system comes as a package which includes a four-drive CD-ROM Jukebox unit, the OPTI-Net drive sharing software, adaptor card and cable. This system was rated as the best by server reviewers of the magazines including PC Magazine. OPTI-Net for DOS, MS CDEX, 8-workstations license is $795 and 100-workstations license is $1,495. OPTI-Net VAP, with SCSI adapter, MSCDEX, 100-workstation license is $1,795. OPTI-Net NLM, MSCDEX 100-workstations license is $1,495.

54 EZ-NET

EZ-Net offers total CD-ROM Network solutions. EZ-Net is a turnkey CD-ROM Network that is designed to be installed and operated by the average person, with little or no computer knowledge. It is shipped preconfigured and tested, so that it can be straight away plugged in and instal the CDs. The access time to any CD file ranges from 6-15 seconds. EZ-Net software provides fast access to CDs library, simultaneously by multiple users. Its operating system support DOS, OS/2, Windows NT, Novell Netware, SCO UNIX, PowerLAN, SunSoft Solaries, UNIX DEC Pathworks, Banyan, IBM LAN server, LAN Manager, Lantastic and others including ODI, TCP/IP, NDIB. It has high security, CD Stations prohibits user access to the operating system and network software. EZ-Net has full compatibility to multimedia and meets the MPC2 standards. Moreover, it is an inexpensive system, and is available for $ 2,995. It includes EZ-Station 1 (comprising of 486DX-33 Processor, 4 MB RAM, 128 K cache, 245 MB HDD, 3 1/2" FDD, 2 Serial and parallel ports, 16 Bit 1 MB Video Windows Accelator, Ethernet 10 Base-T, 16 Bit PIO SCSI Interface, 16 Bit Sound Blaster Card, 14" SVGA Monitor, Pioneer 6 Disc Jukebox with 307 KB/Sec sustained transfer rate, 20/80 W Stereo Speakers, MS Dos 6.2 and EZ-MENU 4.5 SW, LAN drivers for multiple networks and Video drivers). However, the same with 6 disc Jukebox with 614 KB/Sec transfer rate is $ 3,295; 18 disk jukebox is $ 4,295. A CD server is costing about $ 11,995.

55 MULTI-PLATTER SYSTEM

After Meridian Data, Inc's CD Net system, SilverPlatter, a database vendor has developed the multi-user system called 'Multi-Platter' which can allow maximum 20 terminals within a distance of 600 feet distance from the workstation. It was brought out in mid 1988 and the first test system was installed at Boston college (USA) in Sept 1989. It has got the facility of searching the same disk simultaneously by different users and also eliminates the waiting time in a LAN. Presently it is having a dial-in capability[2] for remote users and a bridging module which links Multi-Platter to a campus wide or other general network.

551 Advantages

* Since it is a modular system, one can add more drive towers to increase the storage capacity according to their requirement.
* It provides a usage statistics package, to help the management for monitoring which CD-ROM and workstation is used how long etc. Usage statistical reports can be made daily, weekly, monthly or any block of time, for finding out the usage of CD-ROMs and workstation also.
* One can save lot of budget, because one disk is shared by so many users.
* more user satisfaction.

56 NOVELL NETWARE SYSTEMS

Phillips Interactive Media Systems also recently introduced 'Novell Netware', another CD-ROM networking system to enable the sharing of single CD-ROM disk amongst multiple users. By adding a Networking Interface Card (NIC) and a driver software to the working station, all the workstations in the network will function as dedicated CD-ROM system, however, they will be sharing a single CD-ROM. The server software in the workstations on the network, not only queues the requests but also identifies the drive to be accessed and retrieves the informatoin and passes back. A server can support a maximum of 100 concurrent users and eight CD-ROM drives. The data/information of eight user searches from the CD-ROM can be stored on the server's hard disk. The server has got multi-user and multitasking capabilities and performs many operations of different users simultaneously. By using with Ethernet, this system will accept the users within a distance of 2.5 Kms. It also allows access by telephone/modem link within a distance of few hundred kms from the server.

6 OTHER CD-ROM SHARING PRODUCTS

(A) NLM-Based Products: Novel Netware is the commonest network-

ing Operating System for networking CD-ROM drives. There are a number of third party vendors who have designed a lot of products for networking CD drives on Netware such as SCSI Express, Corel Driver, NLM versions of OPTI-NET and CD Net. Now Novell brought out Netware 4.0 and 3.12 versions, with buit-in support to CD-ROM networking.

(B) Server-Independent Attachment Hardware

(i) Microtest Discport: Technocom has brought out a plug-in-and-play print CD-ROM print servers for Netware(3.11 and above) users. Discport is supported with Windows and DOS-based software, for installing and managing from a PC on the network. It supports both Netware 3.11/3.12 and 4.0, and does not require any redirector or TSR to load it at the client workstation and is available for $ 595.

(ii) Digital Solutions CD Share: CD-Share is a very inexpensive software tool for sharing CD-ROM drive access on any NetBIOS LAN. It works with any mainstream peer-to-peer networks, as well as LAN Manager and Netware (under NetBIOS not IPX). Up to 32 MP of EMS Cache memory is supported on each server running CD-Share, and upto CD-ROM drives are supported on a single server, with unlimited servers on a single network. It's LAN-wide licence is $350.

(iii) Corel SCSI Network Manager: Corel's SCSI is an inexpensive software used for providing CD-ROM access across a network. It works under Netware 386 as an NLM program at the server, and supports all the usual SCSI controllers. Up to 28 CD-ROM drives per server are supported with an unlimited number of servers. Up to 100 concurrent users can attach to the CD-ROM drive. For DOS or NetBIOS users, Corel has provided its own CDEX extension software. It is available for $ 595.

(iv) Map Assist: Microtest's Map Assist is a software for sharing CD-ROM drives on a Netware or NetBIOS LAN. Under Novell operating systems, OS/2 LAN Manager, and DOS-based peer-to-peer networks alike, Map Assist works providing workstation-based TSRs, which allow an attached CD-ROM drive to be accessed as across the network. For Novell users, this is like using R Printer and capture to send a print job to a workstation-based printer. It supports up to 26 attached drives and 99 users availabe for $ 395.

(C) LAN Software

(i) CD Net LAN Software: Meridian Data's CD-Net supports a variety of CD-ROM devices on LANs including Netware 3.11 (using a NLM) and on most NetBIOS LANs using a dedicated CD-ROM server. CD Net is licensed on a concurrent user basis to grow with application needs. NLM

Version for Netware 3.11 is $1160 (100 concurrent users), NetBIOS version for dedicated CD-ROM server is available for $1161 for 100 concurrent users.

(ii) CD Connection: CD connection is a software that allows CD-ROM users to access multiple drives simultaneously over a LAN. It runs on Ethernet, ARCNET, Token Ring and other networking systems and provides networking capabilities to CD-ROM drives.

(iii) SCSI Express 600 CDX: SCSI Express is a software-based CD-ROM, sharing solution which enables multiple devices to be integrated on a single SCSI host adopter. It runs on a shared file server but performs better from a dedicated system. It consists of several modules including support for WORM and CD-ROM. The latest module support ISO 9660 standard CD-ROM formats. The most popular version of SCSI Express is, the one that runs as an NLM on Netware 3.11 or 3.12 file server. Up to 28 CD-ROMs are supported on a single server. This is available for $ 259 (DOS version); $ 599 (Netware 286 version) and $ 795 (Netware 3.11/4.9 version).

(D) CD-ROM Network Servers

(i) CD-Server: CD-Server is an hardware system developed by the Meridian Data for medium to large size LANs and is available for $ 5,300, which includes a 286-based PC, a Toshiba CD-ROM drive, and software. CD Server provides a DOS Machine and therefore acts a standalone PC whenever it is not using as CD-ROM server. It can connect as many as 14 drives to one dedicated server. It has not only the capabilities of CD Net, but also got some additional capabilities including the functionality of a file server. These systems are configured and integrated in an IBM with Token Ring, Ethernet and ARCNet in which remote users could access the CD-ROM drives.

Advantages:

(*a*) can be developed in-house online systems,

(*b*) more economical than an individual single user systems in terms of hardware and software,

(*c*) a number of databases could be accessed at any time by may users,

(*d*) more user satisfaction,

(*e*) it has audio diagnostics capability.

(ii) NetScribe 1000 Server: Meridian Data's NetScribe 1000 Server supports write-once CD-Recordable (CD-R) media. It has built-in Ethernet and uses redirection to communicate with clients. NetScribe offers a viable

solution for anyone who wants achieve data for ready retrieval on a network. Its' 5-user software license is $ 9,995.

(iii) CD Works 1000: The CD Works 1000 is a symmetrical server Architecture (SSA) which utilises multiple CPUs to provide redundant, high-performance solution with the flexibility to handle complex configurations, serving hundreds of network users.

(E) CD-ROM Integrated Networking Systems

(i) Virtual Microsystems: Virtual Microsystems provides all the hardware, software and servers required to networked CD-ROM. The 'CD Works 800 system' is useful for CD-ROM retrieval needs of Novell sites with PCs distributed on both Local and Wide Area Networks.

7 OPTICAL DISK LIBRARIES

Optical disk technology solved some of the problems of storing and retrieving of huge amounts of data on a very small optical disk, but they are meant for single user only. CD-ROM system allows the user could manipulate a vast amount of data according to his needs. Nowadays a few CD-ROM systems could be networked and shared by several users in the network, with the result the cost of information searches have gone down. The users in that network, are able to keep vast amounts of information at their fingertips which is very much cost-effective to any organisation. It is one of the amazing developments in the field of CD-ROM technology, which is economical than online systems. By connecting all the optical disk systems together, the retrieving time can also be reduced enormously, say to a fraction of a second. But here we need to connect a disk drive for each disk, and then all of them should be connected in a network, which is again an expensive process where lot of hardware and software is required. Moreover all the disks may not be used by the users all the time in that network. Eventually Jukebox concept of optical disk library came into the market and solved most of these problems. In this, lot of disks, say few hundreds, will be stacked in the disk library and for retrieving of information, a few disk drives will also be there. The number of disks and disk drives depend upon the requirement of the user, loading and unloading of disks will be done by a picker (robot) automatically within a few seconds.

71 BASIC STRUCTURE OF OPTICAL DISC LIBRARY

Normally all the optical disk libraries will have four basic units: (1) Storage matrix: in which all the optical disks will be stacked in rows either horizontally or vertically, the number of stacks and the disks in a stack, will depend upon the size of the library which is a variable, (2) disk drives domain: in which all the disk drives will be fitted at one place, (3) Robotic Picker:

which will be used to pick up the disk according to the computer instructions, through the Controller, from the stack and puts into the drive; after searching is over, automatically it will put the disk back in the stack from where it was picked. By and large it resembles a human hand, in which a clipper will be used for holding the disk, and will be moving on the rails, and (4) the Controller: the main unit which will accept the commands from the computer and user, and gets the searching done in the library. It is the central controlling unit which will be controlling rest of the three units in the library (Fig 3: Basic Diagram of Optical Disk Library).

72 JUKEBOX SYSTEMS

721 Pioneer's DRM-604x

Uses a removable magazine with 6 CD-ROMs to provide up to 3 Gigabytes of data online. It has high performance features, with 300 ms average access time, 610 KB/s data transfer rate (fastest in the industry) and less than 5 seconds, disc change time. This is having compability with MAP Assist, CD-Share, SCSI Express, Corel SCSI & SCSI Pro, OPTI NET, Mac Networks and CD Net software. Its price is $ 1280.

722 Technology Corporation Ltd, UK

Has introduced a new optical disk library called 'VOYAGER' CD-ROM library whose maximum capacity is 175 Gigabytes. However, they have these systems with different storage capacities, depend upon the users' requirement, such as the number of CD-ROMs 90, 180, 270 CD-ROMs and also having the maximum facility for 8 half-height CD-ROM disk drives. It has option to the user, to choose the number of disks and drives. The Voyager disk library will be able to access the information within 300 milliseconds and its average disk transfer time is 5 seconds. It is like a big library, the disks and their information, can be shared amongst groups of users in a network. The acceptance of distance, depends on the networking software and the type of network in which this system is connected. So it is most powerful system from which a remote user will be able to access the information quickly. Even though there are about 12 different makes of Jukeboxes, Voyager is the first CD-ROM optical disk library, which is particularly suitable for library applications. It is very much useful and cost effective for a bigger organisation, where hundreds or thousands of searches could be conducted everyday, otherwise it will be an expensive system to the Indian organisations. Moreover it is meant for a few disks, however, if a large number like in hundreds are there, the cost will be better met with the usage. It also eliminates the damages, which normally occur by human handling, but also saves lot of time in loading and unloading the disks. Some of the examples are given below:

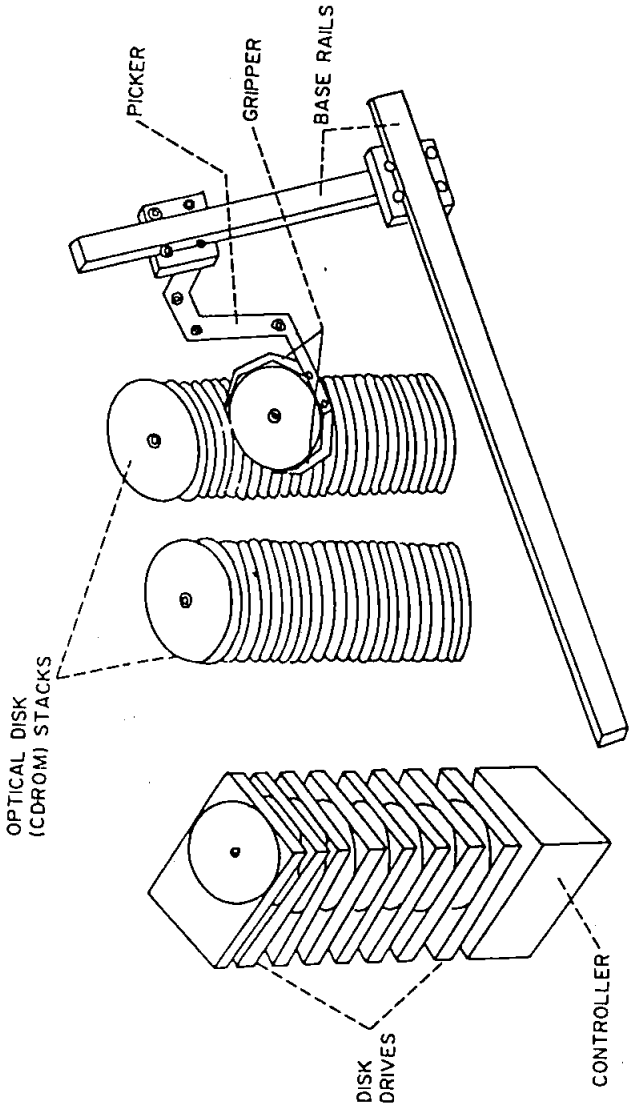


Fig 3 BASIC DIAGRAM OF OPTICAL DISK LIBRARY

Company	Systems & Model no	No of drives	Price in US $
Todd Enterprises	Total Access	64 drives	NA
Next Technology	Voyager	270 discs	NA
TAC Systems	Tower Drives	34 drives	1,895
Reflection Systems	RF10J Optical		
	Jukebox	47 GB	12,500
FlexSys Coporation	EZ-Station I	18 discs	
		Jukebox	4,295
Virtual Micro Systems	CD Works 1021	21 drives	49,990
Meridian Data Inc	CD-Net 428 M	28 drives	NA
Cygnet	Model	5 drives (102 disks of 1 Terabyte)	NA

8 COST-BENEFIT ANALYSIS

Normally it is not possible for an organisation to design a system which requires for their day-to-day information needs. For example, designing a multi-user system or networking of CD-ROMs, is not possible to any library or organisation, because their main objective is to provide information rather than designing the systems. So they have to purcahse an appropriate and latest system which suits their requirements. In general it is very difficult, rather impossible, to find out a system which meets cent percent needs of any organisation, but we can always find out a system which meets maximum needs of the people, with a reasonable cost. In early days of any new technology or system, everybody will be tempted to purcahse them, but one should study the potential of the product and compare with cost, before a decision is made. The advantages should then be balanced against the costs, and the disadvantages should be very minimum, rather negligible. Before choosing a suitable CD-ROM system for an organisation, one should look into the following factors: (*i*) single or multi-user system, (*ii*) maintenance support, (*iii*) obsolescent equipment, (*iv*) reliability, (*v*) user satisfaction, and (*vi*) warranty period. In India normally any equipment is purchased from abroad directly from the manufacturer, afterwards most of the people are facing a number of maintenance problems. So while importing these equipments, one of the most important points to be considered is after sales support. In that, the most and likely to be needed is, annual hardware maintenance contract and some initial training. Afterwards one should also think, whether the engineers are specially trained for that equipment or not;

whether they are locally based or not; how much waiting time for response is needed for a call on the service, etc. Since the amount of investment is fairly large on this equipment, considerable support in terms of continuing advise, as well as dependable maintenance should be required. So one should find them out before purchasing these systems.

81 CD-ROM VS ONLINE SEARCHING

	CD-ROM	Online shearching
(*i*)	Menu-driven, user fiendly, slow software	Command driven
(*ii*)	Diagrams, charts, maps, illustrations, etc possible	Graphs, charts, maps, illustrations, etc are not possible, textual information only (for the time being)
(*iii*)	One time cost	Cost proportional to usage of the databases
(*iv*)	Updation takes time and costs lot of money	Frequent updation of databases

82 USAGE COST OF CD-ROM VS ONLINE DATABASES

	Annual Subscription in US $	Per Hour Charges in US $	
		CD-ROM	Online
ASTI	1334.00	2.91	90
NTIS	2764.0-0	6.03	84
INSPEC	7087.00	15.47	132
GDI	4356.00	9.51	NA
CTI	850.00	1.86	NA

These calculations are based on an average 2 hours usage time per day, in a year ie., 2 hours for 229 working days = 458 hours total usage time.

9 FUTURE

Apple's new CD-ROM drive has tremendous impact on the future of CD-ROM. Now CD-ROM drive prices have come down, because of the latest technological changes, for example today the disk drive minimum cost is $ 150 (internal) and $ 200 (external), double-speed drive is $ 400 (Sony's CDU-33A) and triple-speed drive (NEC MultiSpin 3Xi) is $ 399, quadraspin

drive is $ 1095 (Poineer DRM604X) whereas the same was $ 1400 just five years ago. So the new Pentium (Chipbased systems have just come out) and 80686 (chip-based systems are expected to be available by 1995) chips based computers with buitl-in CD-ROM drives, may cost even less than the present price, whereas the applications ie the information value on the disk may remain the same. On the other hand Alphatronix, Inc, has announced its latest Erasable Optical Storage Systems, with jukebox configuration, having 16 Gigabytes storage capacity. It has 25 5.25" cartridges, with each cartridge having 650 Megabytes storage capacity. This system works with all AT compatible computers and prices at $ 49,000. At present in Optical disk Technology mainly, the research is going on very fast in the following four areas: (*i*) Multi-user systems/Networking of CD-ROM systems/CD-ROM jukeboxes, (*ii*) Developing of Erasable Optical disks, (*iii*) Adding of Hypermedia technology to the contents on the Optical disks, (*iv*) Portable CD-ROM systems. Future CD-ROM will be able to take the advatnage of Hypermedia capabilities like nonlinear reading and nonchalant writing of information, integrating the sound with text, animated graphics accompanied by text, etc. Research and developments are underway on optical computers and the future computers could utilise optical memory in place of, or in addition to, the present magnetic storage. These machines could alter to some extent the present library automation seen. if the efficacy of adding these and similar features in the future computers come true, there could be lot of savings in terms of space, equipment, budget and manpower in the libraries and information centres.

10 NEED OF CD-ROM LANSS IN INDIA

The important factors that may be considered for networking CD-ROMs in India are: (*i*) Price escalation of periodicals, about 20% for S&T publications annually, (*ii*) Literature explosion doubling every 5 years, in some cases 2-3 years only eg., Chemistry; (*iii*) Budget cuts for libraries (an average of 20% reduction for Government libraries); (*iv*) Restriction on staffing; (*v*) Availability of powerful micros and minis; (*vi*) Availability of better telecom facilities, eg., fibre optical lines, satellite communications, etc, and (*vii*) Local and national networks.

101 INDIAN NETWORKS

India's first data communications and computer network (INDONET) was commissioned in 1986 by CMC Ltd. In the first phase, mainly they have networked Bombay, Calcutta and Madras; after some time New Delhi and Hyderabad was also linked as additional stations. INDONET is presently having an International Gateway which is providing access to worldwide packet switched networks like USA's Global Network Systems (GNS),

TELENET and INTERNET Singapore's TELEPAC and Germany's DATEX-P (ROY, A. 1989). With the present network one can access the information from the world major databases such as NTIS, INSPEC, ERIC, COMPENDEX, MEDLINE and CLAMS, however, these searches will cost enormously and requires a lot of foreign currency which is an acute problem to INDIA. This problem is solved by the present CD-ROM LAN systems. They not only save the foreign currency, but also the cost per search is very minimum. Once the system is installed and connected to a network, such a INDONET or ERNET, any user of this network will access the information easily and saves lot of their budget. Since lot of organisations are already planned to have their networks such as BTISNET, CALIBNET, SIRNET, DESINET, ERNET, INFLIBNET, VIDYANNET, etc, it is better to develop the CD-ROM collections in their own fields first, afterwards install a CD-ROM LAN system, so that all the users of these networks will access other's databases. This encourages sharing others resources, and saves lot of budget of many participating libraries. Perhaps this is the right time for INDIA to think seriously about this problem and go foreword to choose the appropriate and latest technology, which suits its requirements, CD-ROM networks not only save money, but also have influence on education, research and industrial output which is required in India right now.

11 CONCLUSIONS

Systems like Multi-Platter may be used for sharing and retrieving a few latest and heavily used CD-ROMs, whereas, optical disk library could be used for storing all the older databases, which are also used regularly but not often by the users. Optical disk library is the best for the any big organisation, with so many branches at different places, which saves lot of manpower, time, money and also delivers the information quickly to the users. Since all these systems are still in their infant stage, slurring is not at all advisable to all the developing countries like India. Perhaps it may be better to wait a year, and in the mean while, the bigger departments and the import controlling authority, Department of Electronics, could get one or two systems immediately, and study their ins and outs, strengths and weaknesses in detail, in the Indian context and advise to the rest of country.

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CHANGING MEDIA OF CONCEPT RECORDING AND HANDLING

RC GUPTA*
RC SATIYA*

0 INTRODUCTION

Since the dawn of civilisation, exchange of ideas was effected face to face, and its transfer from man to man, through memorising the concepts. Concept recording was started initially on stone slates. With the advancement of technology, it moved to skins, leaves like 'Bhoj patra', cloth and paper. During recent past, it moved to celluloid based tapes, strips, plates, discs, and now on computer based electronic media, like floppies, magnetic tapes, compact discs etc.

01 AIM

The main aim of the information recording has always been to convey and disseminete the new views to other concerned people of the present age, and so also for the future generations. Information handling is an essential component of human persuit-Information collection from its generating points, packaging in the most usable and effective form, storage and organisation for prompt retrieval and dissemination and physical presentation in convenient manner.

1 PRESENT INFORMATION SCENARIO

This is a transition period of information handling. The conventional method of recording covers: printing on paper and publishing information in hard copies, in the form of books, monographs, periodicals, pamphlets, news bulletins, updates, suppliments, and so on. Information handling includes the activities in libraries or information centres: selection and collection development, organisation and indexing for prompt searching; circulation for utilisation; brining out various alerting, condensation, repackaging, reprographic and reviewing services; mainly handled manually. The efforts are evident of switching over manual work to mechanical or more specific to electronic media. The publishing industry has already adopted successfully computerised composition, styling, and publishing like DTP (Desk Top Publishing) system. The increasing use of 'computer stationery' like floppies, tapes discs, is reducing the burden on paper consumption. The electronic

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stationary can be used many times, without recyling process. The Electronic Mail and the 'On Line' system of communication are also gaining popularity, among frontline users of latest information.

11 FACTORS INVOLVED IN SWITCHING OVER

(*a*) *Speed:* Incomparable speed of information recording, handling and transfer even to a remote destinations.

(*b*) *Accuracy:* In place of man to man or man to machine interaction, a machine to machine interaction yields more accurate results.

(*c*) *Data storage capacity:* It has huge capacity of recording. For example, a compact disc (CD) can contain 2,70,000 A-4 size printed pages. Efforts are still on, to increase the storage capacity of textual matter on a single disc.

(*d*) *Durability:* The life of material recorded on an electronic media is certainly higher than paper.

(*e*) *Security:* Data can be kept secured against malpractices, keeping backup, and access check mechanism. Autocheck can easily point out additions, modifications or alterations.

(*f*) *Interchangeability:* Data manipulation, editing, transfer, download, printing, can be done without any extra input.

(*g*) *Economical:* Over all cost comes considerably low, on electronic based information recording and handling.

2 FUTURE INFORMATION SCENE

In place of cramming mathematical tables, today the use of calculators, even at a grocers shop, can be seen replacing manual calculations. Similarly the general public and the organisations, schools, factories, shops, trade and transport, hospitals and alike, will have their 'personal computers', a very small handy equipment like a remote control device, with an integrated network system, at several link levels. The morning newspaper will be distributed either in small floppies or downloaded through E-Mail, to each subscriber's PC. People can view/read at leisure, can carry with many other readings/audio or vedeo tapes to a picnic spot or to their place of duty. The use can be monitored in various possible and speedy retrieval points. The weekly, monthly or yearly consolidates with indexes and searching softwares in the form of floppies or CDs will be made available to have any reference of passed events.

Publications of books, journals and other documents will take the shape of even small floppies, tapes or CDs depending upon the volume of informa-

tion recorded and will be distributed as books are sent today. Publication will be faster, easier and cheaper and transfer will be safe and accurate. There will be very low input of manual labour and the involvement of machine in most of the repetitive nature of activities will result early delivery of products with precision.

21 CHANGE IN WORK STYLE

Information processing, repackaging service production agencies would mainly involve in inputting, indexing, and refining various techniques of information handling in place of physically doing those. Hyper text, full text, abstract or only bibliographical details can be retrieved from any database available anywhere at any time. Copies can be taken using integrated fax, teletext or any other improved media.

22 EARLY INFORMATION GENERATION

The information experts, authors, would generate new information through research, experiments and mutual discussions, conferences, seminars, workshops, using teleconferencing techniques and computerised auto recording method through established networks.

23 SPACE SAVING

The library and information centres will not occupy such a huge buildings as of today. Only a small cabinet will do for storing millions of volumes. Even a personalised library of an advocate or a medical expert or a stock exchange broker or a sales executive can be accomodated in a small purse or even in one's pocket.

24 SEARCHING IN LESS TIME

The users will not have to consume time in searching a specific piece of information by looking large catalogues or book shelves or going from page to page of a document. This can be easily found out with the help of searching techniques of the applied softwares.

25 EASY DEVELOPMENT OF PERSONAL COLLECTION

Taking a copy of choiced reading will be easy and economical by downloading the matter on a floppy and indexing it for further use.

3 CONCLUSIONS

Computerisation has shown its value and worth in railway Reservations, ON LINE search and Document delivery systems through E-Mail, and integrated fax facility. This would cover almost all activities of information storage, organisation, processing, dissemination and retrieval services for the human comforts, reliability and posterity. Human activities, will be more

information based, as the recorded facts will be available to all, in the days to come. The whole world will utilise the universe of knowledge, as a family, through free flow of information.

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CONTINUING EDUCATION IN LIBRARY AND INFORMATION SCIENCE

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0 INTRODUCTION

From the time we are born and our senses begin to react to the world around us, to the moment we die, we are constantly absorbing information-learning. We cannot say, on completion of a professional training course in librarianship, that we have nothing more to learn about library work. Each day in a library brings new experiences which add to our own personal education. A change in job requires the learning of new skills or adaption of existing skills to new subject areas, eg., Medicine.[1]

Education in itself is a continuing process, whether it be formalised or an unconscious reaction to ordinary events. The effectiveness of continuing education must depend however on the way in which it is perceived.

1 WHAT IS CONTINUING EDUCATION?

The process through which an individual updates and upgrades his or her already acquired knowledge in any particular field of specialisation, profession or vocation, so as to improve efficiency in one's profession, is called continuing education.

Rapid development in new knowledge and accelerated changes in the methods of library services, have made continuing education an issue of critical importance. Academic and education activity primarily designed to make a qualified librarian engage himself in keeping abreast of advanced information, particularly in the field of interest and practice, is termed as continuing education. Such an education starts immediately after graduation and is intended both to keep him informed of latest development, changing theories and application of knowledge in specific areas.

The attainment of this knowledge can be formal or informal, full time or part time, in the teaching institutions or in community situations, of short duration extended to weeks and months, given by teachers and other knowledgeable persons or self acquired.

Continuing education in Library and Information Science may be

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imparted by using many methods and techniques which will suit the teachers as well as the learners.

2 AIMS OF CONTINUING EDUCATION

The ultimate aim is to equip the librarians and other professionals with improved quality of information and management through use in their regular practice the modern knowledge that is continuously available and can be acquired by them. In fact continuing education aims at augmenting and modifying initial education through acquiring new skills and techniques, thereby enabling the professionals to maintain competence and standard in providing information to the readers.

In brief continuing education aims at:

(*a*) Strengthening the habit of critical enquiry and balanced judgement through programmed self assessment.

(*b*) Enabling library professionals to update thier obsolete knowledge.

(*c*) Helping the library professionals in applying the new techniques/media, in providing nascent micro thought to the readers.

(*d*) Helping the library professionals to get acquainted with new information technologies.

(*e*) Making the library professionals to carry out changes in the attitude to the solution of library problems.

(*f*) Providing the library professionals opportunities to a systematised and planned methodology of self-education.

3 INFORMATION EXPLOSION

The third quarter of the current century has witnessed an immense change in the field of knowledge particularly in Science and Technology. There has also been vertiable explosion of knowledge during this period. There is an information explosion taking place around us. There are about 3 to 4 million articles appearing each year in some 30,000 significant journals with a growth rate of 8 to 10% per year.[2] So far as the generation of periodicals is concerned, 62,000[3] periodicals published through out the world in 1980 and the growth rate of periodicals within a span of 10 years has been reached to almost double ie., 1,16,000 in the year 1990.[4] It is true that the rate of growth of scientific and other literature has been increasing tremendously day in and day out. A situation can well be imagined by 2000 AD, when there will be approximately 24 million of publications, and if each paper runs for approximately 10 pages, and for each such paper 10 copies are maintained, there will be more than 2 billion sheets of paper for storage.[5]

Such huge production of publications make information explosion a reality and some experts call it the 'Information Deluge'. It is, therefore, very difficult for any agency to have most of the literature that is being produced, from different parts of the world, due to the limitations of funds, storage capacity and the methods of processing and retrieval of documents. However, it is imperative on the part of the libraries, Information Agencies and Information Networks to keep a watch and control, over the information flood, process and channelise it for proper utilisation of the society.

4 EMERGENCE OF INFORMATION TECHNOLOGY

41 AUTOMATION

The information revolution of today indisputably caused by the unprecedented advances in information technology comprising computers, telecommunications, micrographics and reprographics. The advancement in technology has made the accessibility to world information and knowledge possible from any part of the globe.

Until the advent of automation, the most significant previous technological innovation in libraries was the introduction of photocopiers. In 1936 Ralph Parker installed a punched card system for circulation control at the University of Texas.[6] The application of automation achieves, the economic goal of increasing productivity, rather than use of computers to effect economics. Since early 1960, in USA, computer application for library operation has been considered for processing information which resulted in achieving more information production. The introduction of third and fourth generation computer systems, increased speed and memory size, alongwith a shift in unit record concepts, to files stored on disk for 'on-line' access. As the results of computer processing became available to the people using the system, in a matter of seconds rather than in hours or days.

Realising the need to access information available at any corner of the world and to face the challenges posed by the 'information age' in the 21st century, most of the institutions in India are also getting themselves equipped with the modern technology.

42 FACSIMILE

In India, the facsimile transmission exists, through which information can be communicated over the telephone wire employing arrowband facsimile technique. Facsimile transreceivers were also developed under Technology Development Council Project in 1981.[7] On 16th march 1984, the Post and Telegraph Department in India has come out with an indigenous system on the lines of teletext which will provide a variety of information from film programmes, reviews, music information about theatre, food

prices, farm prices, recipes, science news, financial news, special information on education, etc.

43 MICROFORMS

New members of information storage and retrieval are discovered. The conventional books and newspapers are being replaced by microfilms and microfiches. Although it has not become very popular in developing countries like India, it has made quite a headway in the west. One may be surprised to know that compared to paper, microfilms and microfiches are cheaper and easier to handle and distribute. The greatest benefit of course is saving of space. The microforms come to rescue in this matter as the microforms take 70 to 90% less space than books. Thus microfilms increase the storage capacity of the stock space. It is estimated that a library of 60,000 volumes can be easily stored in a single drawer of a filing cabinet. Due to the growth in literature, we will be constrained to store the thought contents of these docunemts in microforms.[8]

431 Micrographics

Thousands of years ago, people recognised the necessity of keeping records of their daily activities. The carving of painting and graphic figures on the walls of caves evolved, over the centuries, into a more complex form of languages and written alphets. Paper was invented and the art of writing and record keeping came to be defined. As more and more records on papers developed complex storage methods were devised to house these records. But they took more and more room and finally, people began to run out of space. Something was needed to be done, and in 1800s an English Photographer and John Benjamin Dancer, experimented and developed process of microphotography, whic is today known as "Micrographics". In the 1800s, Rene Dagron, a Frenchman realised the possibilities of this new process, for record keeping, and is credited with being the first to use micrographics on a commercial scale.[9]

4311 Professional Forum

Micrography is an important branch of reprography. According to Gerrysts "during the siege of Paris in the Pranco-Prussian War of 1870, micro reproduction had been used to put messages into microforms, which could be conveyed out of the besieged city by carrier-pigeon."[10] But the regular use of micrography as an aid to documentation started in 1906.[11] The computer output of microfilm is greatly influencing the information system. This technique of photochromics enables the record of information in a grainless way. Holography and laser recording are also beginning to play a great role in micrographics. The rapid growth of microforms is due to the

serious space problem created in the libraries by information deluge and deterioration of cellulose in paper. Certain technological developments in the field of micrographs have led to the library scientists to control all the situations. Although, no serious effort has been to provide a professional forum to establish closer liaison between the users and the dealers of micrographic systems, still during the last few years, the evolution of micrographics and its applications has been quite significant in India. With the objective of encouraging the use of micrographic technology in this country, the Micrographic Congress of India (MCI) was founded on 20th February 1982. MCI aims at developing closer links between manufacturers/suppliers of micrographic equipment and systems in this country.[12] In this regard, it may be mentioned that Resource centre on the micrographics should be built in India comprising informative literature, to improve the information flow among the members of MCI.

44 ELECTRONIC SEARCH

The developing countries have also reached a stage where technology particularly the communication technology threatens the very existence of traditional libraries. In a forecast of telecommunications in the 2000 AD, Martino visualises that "rather than visiting a library any individual might be able to search the library files electronically and receive a print out of specific information or a facsimile copy of a desired document. In the electronic world, the libraries still may have a role to play in giving training to the scientists and general users, in the use of machine-readable resources. In fact training would become a major activity of the librarian by 2000 AD. Computer has started replacing all documentation work including letter writing, cheque writing, etc. Electronic Mail is another development which is rapidly getting popular with the Indian scientists.[13]

5 NEED FOR CONTINUING EDUCATION

In order to keep abreast of new developments and the ever increasing demands from the users of library/Documentation Centres, continuing education is a must for equipping the personnel with the necessary coping up of skills and strategies, at both sub-professional and professional levels, or else it will be impossible to adhere to professional norms.

The inadequacy of the library services is a constant cry of students, especially in institutions of higher learning. This is rather frustrating to the staff who are eager to serve their clientele, as well as in maintaining the good name of the profession and the practical justification of its existence. The generally of the public has to be convinced that the services of the library are unique, hence for continuing education that can cope with the economic relativities and clienteles expectations.

The areas that need for continuing education include records management, interlibrary loan, reference work, exchange of materials, public relations for libraries, cataloguing, classification and management of serials.

6 HOW TO ADMINISTER CONTINUING EDUCATION?

The programme of continuing education has to be administered by responsible persons who could maintain a continuity, establish close liaison with teaching in the Department of Library and Information Science and plan out academic activity in the best interest of the library profession, laying stress on:

(*a*) Specific needs, requirements and desires of the library professionals in the area about the content of the courses etc.

(*b*) Encourage the teaching facitlities to prepare well in advance, the core content of Refresher Courses etc., keeping the main objectives in view.

(*c*) Arranging adequate funds to meet expenses on education programmes undertaken.

The Library Association in Great Britain is the latest in a series of national library associations to present its membrs with a code of professional conduct.[14] One of its clauses states that members of the Library Association must "keep abreast of developments in librarianship in those branches of professional practice in qualifications and experience entitle them to engage." The Library Association seeks to help its members fulfil this clause by maintaining a continuing education department to run the courses and offer advice.

61 ASSOCIATIONS & CONFERENCES

Here the question arises how to organise this learning? The most obvious way may be through attending short courses and workshops, often organised by professional associations. Such courses and workshops generally offer a combination of formal training sessions, discussion, and practical work. Conferences provide an opportunity to hear about current research or recent developments in librarianship, to listen other librarians talking about their work and the problems they face. The educational value of conferences goes far beyond the formal proceedings. More is often learned during the breaks for refreshment and the social gatherings, when problems are aired and possible solutions discussed. The importance of these informal exchanges should not be underestimated. They play a significant role in the professional development of the individual and often lead to future inter-library co-operation. Inter-library co-operation, or even establishing an information network of libraries, again allows for the free exchange of ideas. Additionally, it provides a means of staff training, through visits and exchanges.

62 PROFESSIONAL PERIODICALS

Reading professional journals, exchanging views through correspondence columns, cultivating an open attitude to new demands on the library, are all part of continuing education. The publications of national and regional library associations, are especially useful as a forum for new ideas, eg., ILA Bulletin, Lucknow Librarian, and from outside India, Health Libraries Review (Blackwells) and Bulletin of the Medical Library Association (US). New technologies are entering the information field: computer systems, microform, etc. The Librarian must become familiar with these developments and learn not to fear them. Information technologies exist to help cope with the ever increasing flood of literature, retrieval and storage.

Learning to be part of library science discipline can even help to open the mind to new developments in librarianship. Literature is moving so fast, demands on the library changing so often that the active librarian learns to be flexible and to accept that a successful library is one which adapts to meet those demands. The continuing education lies not only in ones own hands, but in the attitude to himself and his work.[15]

61 LEARNING FROM OTHER COUNTRIES

611 Training

Analysis of the economic realities in relation to facilities available in the country and possibility of sending people abroad for training, measured against the national demand for both the Professional and Semi-professionals indicates that there is need for having well planned non-conventional continuing education programmes, run concurrently with conventional ones.

612 Attending International Conferences

The continuing education needed for sharing of knowledge in terms of how different institutions/centres handle their problems within the context of an institution and a nation, at a localised level, and in terms that go beyond the national boundries. Seminars/workshops and conferences are some of the highlighted methods for putting these approach into reality. Other methods include exchange of staff, attachments to institutions and arrangement for well tailored educational visits. These arrangements are to run concurrently with self-directed education programmes. There is an expressed need for establishing correspondence courses along the lines of other professions like Accountancy, Education etc to cater for the interest of those who cannot study through full time programme.[16]

62 INSERVICE TRAINING FOR LIBRARY PROFESSIONALS AND TEACHERS

Students respond well if only the teacher loves the subject. A teacher can

be a good teacher if one develops a keen interest in the subject tought and can impact that enthusiasm and love for the subject in the student. The present day teaching programme has become stereotyped and drab with the teacher also not taking much interest to improve and update his knowledge. That is the reasons why these days Continuing Library & Information Science Education Programmes have gained importance and attained relevance in the field of library education.

621 Teachers' Continuing Education in LIS

There is as yet no teacher training programme in any college in India. Like the teacher training programme in USA, for continuing Library and Information Science Education, we should also go on improving upon the same in India by experience. Though continuing education should be an integral part of library science education, no such regular and organised programmes are being run in teaching departments of library science.

622 Education & Training Courses

Technological advancements, competition restructuring, and globalization point to the need for continuing education. Technology is changing rapidly. To keep pace, the professionals of the libraries/information centres as well as teachers of the teaching department must stay on top of a growing pile of information. Some of the following training courses on various subjects of Library & Information Science Education have been organised/conducted in the country by various organisations/associations to make aware of the new knowledge for professionals as well as teachers.

6221 Continuing Education Programme of ILA

Since 1986, Indian Library Association (ILA) in collaboration with NISSAT and similar other bodies have been organising Training Courses/ Workshops, of one to two weeks duration, for the benefit of the members of the profession, in different parts of India. So far 16 workshops/training courses have been organised under this programme, which are financially supported by NISSAT (DSIR), Govt of India.

6222 By Other Institutions

In addition, the following training courses/workshops have been organised/conducted by various reputed organisations/Documentation Centres/Institutes for the continuous augmentation of knowledge education of professionals in various aspects of Library & Information Science; they are,

(1) SENDOC training courses on "The Information Storage & Retrieval System (ISRS) in January 1991 and on intensive programme on Abstracting and Indexing (A&T) conducted in July 1991.

(2) Conducted Gandhigram Rural Institute Archives and Documentation Course was in 1991 (Deemed University), in Tamilnadu which is a first of its kind in India as an inter-disciplinary courses.

(3) The UGC sponsored a refresher course in the field of Library & Information Science (LIS) for the teachers of LIS and college librarians on the theme "Computer Application to Library & Information Activities" during February 1992.

(4) USIS, Bombay, conducted a two day workshop on "Curriculum Development", during November 1991, wherein the librarians and the teachers of LIS were the resource persons.

(5) Under NISSAT Manpower Development Programme, a course in Computer-aided Library & Information System and Use of CDS/ISIS Retrieval System was held during May 1992 in the Department of Library & Information Science, Vidyasagar University, Midnapore (WB).

(6) A workshop on "Use of Audio-Visual Materials for Library & Information Services and their promotion" was sponsored by Raja Ram Mohan Roy Library Foundation at Technical Teachers Training institute, Calcutta in July 1992.

(7) Mr subrata Dutta, Scientist, INSDOC Regional Centre, Jadavpur, Calcutta, spoke on the subject "Salient features of CDS/ISIS & dBase III Plus Packages" at 207th IASLIC Study Circle.[17]

There should be consortium for organising programmes for continuing education for practising professionals.

63 CURRICULUM

Curriculum should lay stress on planned rotation of courses with a view to discussing all subjects in details at regular intervals of two to three or even four years, so that attendance could begin on its own, by the value-added.

This advance planning should include selection of general subjects, specific objectives of the course, the detailed discussion of various topics.

Stress should be laid on encouraging participation techniques of education, when the learners also get involved both in listening to lectures and giving their own experience in the field, citing their own problems through which they have undergone.

This should be achieved through panel discussion, seminars, open question and answer session, study of clienteles under group discussion or review of published papers. This courses shall coordinate the prevalence information problems.

The courses should also deal with individual disciplines or with interested disciplines, or will be problems oriented especially designed programmes.

7 EVALUATION

Method of evaluation of the effectiveness of the continuing education programme should be developed and it should have relation with the aim and objectives defined in the beginning for each specific course.

Evaluation can be helped by formal tests taken of the Learner Information Officers at the teaching centre where such courses are carried out.

Thus the objectives of a continuing library science education programme should take into account the national priorities and needs of the information services.

8 SUGGESTION

Code of conduct is essential concomittant of any developed profession. Hence, the Indian Library Association should frame such a code for Indian Librarians/Professionals working in the country to keep themselves updated with the latest information and increase their professional competence/concepts in the field through various programmes of continuing education (CE). It is high time that such a Code should be devised in India making CE as an integral part of the professional career.

9 CONCLUSION

For the efficient performance of current operations or planning for the future, there is no doubt that an organisations greatest asset is its human resources. The one common factor on which all wealth creation depends, irrespective of the form it may take, is the effective use of human intelligence, effort and skill. Hence, it is but natural that to an open mind, a preparedness to consider new ideas is vital. As Ranganthan's one of the Five Laws of Librarianship state: "The library is a growing organism"– and the librarian has to be prepared to grow with it.

Every one must expect constant change and with it new goals are to be achieved and new outstanding and skills to be mastered. The major lesson of continuing education is to expect that the unexpected will continue to occur.

In conclusion proper stress on continuing education of all professionals of service team is very much important, if the information services are to be of the highest quality, generally acceptable, with efficient organisation and economically delivered.

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COST ESCALATION AND REPRINT ACQUISITION IN FUTURE LIBRARIES

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0 INTRODUCTION

The universe has been experiencing a radical change. This change is a composition of a favourable trend towards growth and an increase of undesirable factors. In the end of eighties, people have never predicted a radical growth in nineties. In economy and industry, India has recorded an unbelievable growth in the last five year. The prosperity seems to be promising. At the same time we also experience alarm bells ringing–population growth, ecological imbalance, reduction of natural resources, increasing prices, inflation and so on. Can we succeed in overcoming the above negative trend.

01 LIBRARIES

When the above situation stands as a fact, we could find a same type of analogy in libraries. As a positive factor, we may specify the following: automation in libraries, increasing efficiency in information retrieval, introduction of multimedia resources, electronic as well as quick access to information and so on. On the other hand we also face unaffordable increase of information cost, polluted information, low buying capacity of libraries and many more. Now the challenge posed to us is–how we could manage and solve effectively.

1 STATEMENT OF THE PROBLEM

Keeping up with the critical research published in an area and access to it, is the most crucial factor in scientific research. As budget dwindles demand on part of the users falls fast. Up-do-date scientific information has been increasing rapidly. The alarming rise in the cost of serials is hazardous to scientific health. This denies the libraries the chance of buying all the

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required resources. Hence the authors have to show concern for the way to improve acess to scientific serial information.

2 SCIENTIFIC SERIAL

A scientific serial is the ingredient of several unrelated papers, whereas an individual scientist or a team, need only a few. One has to pay much for a few needed papers. Garvey and Griffth[1] in an earlier study estimated that the immediate audience for most articles is very small. Following them, others also observed the highly specialised scientists need. The result is that most part of a journal, is unrelated to scientists. Thus the effective acquisition seems to be, to buy only the required part of a serial. It is evident that part of a serial is available as reprints.

Table 1

	Agriculture Science %	Biological Science %	Chemistry %	Marine Science %
(1) Percentage of information access through reprim	12	27	22	30
(2) Mode of reprint collection				
(a) Writing to authors	52	60	54	55
(b) Library/Information centres	12	8	8	9
(c) Commercial services	0	0	1	1
(d) Other sources like colleagues	36	32	37	35
(3) Source to know the reprint availability				
(a) Index/abstract	56	51	64	62
(b) Collegaues	17	16	10	11
(c) References	20	28	20	23
(d) Bibliography	5	2	3	2
(e) Others	2	3	2	2
(4) Time is less in reprint information access Percentage of scientists who agree	92	97	95	96

3 DISCUSSION

Through this brief study Table I we intend to analyse the nature and extent of reprint, dissemination. We did identify 45 scientists at random who belong to Agriculture, Biological Science, Chemistry and Marine Science disciplines. In order to unearth the intrinsic nature of reprint information, we have posed questions relating to the following factors. (*i*) percentage of information access through reprints, (*ii*) mode of reprint collection; (*iii*) source of knowledge about the reprint availability; and (*iv*) time taken in reprint use. The results are presented in the table.

31 REPRINT USE

We did convert the responses into percentages so that this interpretation would lead to a better comparison and to gauge the relative value of reprint and other modes. The first factor we notice from the table is the extent of reprint use. Barring Agriculture, other discipline scientists tend to use reprints substantially. The major mode of reprint collection is by writing to authors. The reasons for taking resort to this method may be due to (*a*) quick access; and (*b*) least cost in collecting reprints. In this respect no variation exists between disciplines. It is true that scientific world relies heavily on references in searching information. Even long back, according to Herner[2], the major source of information to scientists was through the reference cited in scientific papers. This tradition continues to increase in a large scale, as many studies support the theory. The contribution of bibliographies, in reprint identification, is notably low.

32 TIME FACTOR

Most of the surveyed scientists agree that time delay in information access is low in reprint. A vital and crucial fact that supports for increasing reprint service is the great reduction of time in noticing scientific articles. Other major reference is the low cost in accessing scientific information through reprints.

4 CONCLUSION

A major fact we unearth in this brief survey is that the library or information centre at present does not have an important role in reprint service. It is true that libraries so far did not pay much attention in reprint collection. National and international agreement in exchange of reprints, establishing a national pool for reprints and wider publicity of reprint collection are some of the requirements that lie on cards. We need to initiate an effort to achieve the twin advantages of serial cost savinga nd rapid access to scientific information.

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EMERGENCE OF OPAC'S IN THE TWENTY FIRST CENTURY

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1 INTRODUCTION

The OPAC (Online Public Access Catalogue) have recently proliferated world wide, especially in North America, Australia, UK and other European countries. Over the period of a decade OPAC's have developed into a rather crude finding list, often with only one or two access points, into a sophisticated retrieval system, perhaps providing a mix of techniques, including multiple access points. Most librarians working in these countries today are involved in the installation, introduction, training and use of OPAC. But in India, it is slowly emerging in the major R&D and special libraries.

2 LIBRARY CATALOG

A library catalogue is a list of a collection of books, and other documents in a library.

Cutter defined the objectives of library catalog as follows:

(*i*) To enable a person to find a document of which;

(a) the author or

(b) the title or is known

(c) the subject

(*ii*) To show what the library has

(a) by a given author

(b) on a given subject (and related subject)

(c) in a given kind (or form) of literature

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(*iii*) To assist in the choice of a document

(a) as to its edition (bibliographically)

(b) as to its character (literary or topical)

3 OPAC

31 FERDERICK KILGOUR[1]

Defined OPAC as a systematic record of the holdings of a collection, its purpose is to enable a user of the collection to find the physical location of information in the collection.'

32 DAVID R MCDONALD AND SUSAN E SEARING[1]

Defined the OPAC as `An online catalog at the minimum, fulfils the objectives outlined by Cutter. Equally important, it does so in such a way that library patrons can use the catalog without the assistance of library staff.

33 PIERRE LE LOARER[2]

Defined as "A database describing documents via bibliographic entries, composed of fields, some of which may be queried (essentially the author, title and subject fields, for querying by the public);

–A querry function providing access to the data base indexes: the user specifies the field (ie. the criterion) via which he or she wishes to query the catalogue. Either that or the system implicitly chooses several creteria (access to a general index) and then Suggests the entries found under the different criteria, according to the result of search.

–and (in some cases) a set of referentials or authority lists that allow a given item (a document's author, subject or language) to be constantly expressed in the same way, in the database, and consequently retrieved in the same form."

4 ADVANTAGES OF OPAC

'Karen Markey'[3] lists the following advantages of the OPAC

* To enable a person to find a book of which the author, the title or the subject is known.
* The library patrons need not wander from one place to other to follow see and see also references.
* The patrons need not wear out pencils copying the bibliographic information; printers or down loading software provide convenience and ensure accuracy in the transfer of information.
* It is no longer necessary for a person to come to the library to use the

catalog. The catalog can be wherever they are, and they can use it whether or not the library itself is open.

* In addition to that, the catalog can be as uptodate, as the holdings it represents.
* The contents of the catalog, are no longer restricted to the holdings of the particular library. Theoretically, there is no limit to the number of libraries the online catalog can represent.

41 OTHER ASPECTS

Apart from those advantages, it may also provide information on the:

* Holdings of periodical contents.
* A variety of data bases, including full text files.
* Acquisition and circulation information, which tells whether the material required is on order, or if it is lent out when it is due.
* Advice as to how to search the catalog effectively.
* Information about the library and community events.

5 DIFFERENCE BETWEEN OPAC AND CARD CATALOG

To understand more of the advantages of OPAC, it will be pertinent to list here the different between OPAC and card catalog.

OPAC	Card Catalog
The OPAC screen offers no visual clues to indicate the size of the collection and data base being searched	The card catalog–its size provides the visual clues to understand the size of collection of the data base being searched.
If a user calls to the attention of a staff member a filing problem in the online catalog, there is a good chance that neither one will understand why it happened or how to correct it.	A user who detects a filing error in a card catalog will bring the drawer to service desk and watch the staff members to refile the card
Sometime an OPAC user gets zero result, but not know what caused it.	The card catalog never produces zero result without offering some clues that the search strategy may have caused the failure; those same clues point to alternative strategies.
Most online catalogs offer a	The user familiar with only

choice of record display, depending on the amount or type of information the user needs.	the card catalog with its single display.
OPAC's (except for those using touch terminals) require that the searcher know how to type	Card catalog do not require the searcher to know how to type

6 DIFFERENCE BETWEEN OPAC AND IRS

Both Information Retrieval System and OPAC resemble in same manner, but there are few important distinctions must be noted.

IRS	OPAC
Users of IRS are specialised	Users are diverse for eg., student, staff, public, etc.
Data are mostly serial based	Data are monograph based
Users are more experienced with the search techniques	Users are less experienced with the search techniques
Systematic and planned search	Unsystematic search
Usually represents a large commerical system. For eg. Dialogue, PHARMLINE, etc.	Usually represents the collection of a library/or information centre
Cost factor is considered	Cost is not much important
Evaluation of IR system is based on relevance, precision and other parameters.	Evaluation of OPAC based on user behavioiur
Search is intermediary	End user searching

7 RESEARCH ON OPAC AND THEIR UTILITY

Since the introduction of OPAC in the early 1980's numerous 'users survey' and 'use studies' have been conducted, principal among these have been the federated studies conducted under the aegis of the Council on Library Resources (CLR) using questionnaire, transaction log analysis, and focus group interviews to determine patterns of catalog use. Substantial research work is being carried on both concerning the implementation of OPAC and in assessing their impact on libraries and their users in the European countries.

71 Borgman's (1986)[4] findings says IR users are more experienced searchers. End user of OPAC's, lack familiarity with the latest technology, Boolean logic, search teachniques etc.

Hence the measurement parameters such as recall and precision may be used to examine the OPAC, however it should be measured under the larger umbrella of information seeking behaviour, which as to include psychological motivation of end users.

72 Michline Hancock-Beaulieu et al,[4] classified the studies into two groups:

* Studies on the overall measurement of the system performance, include retrieval test, comparative studies and controlled experiments.
* The other includes more user oreinted diagnostic analytical methods: For example use of transaction log analysis, other methods of eliciting information from user (that is, questionnaire and focussed group interview).

73 HILDRETH, CHARLEE. R[5] LISTED THE MAJOR FINDINGS OF THE STUDIES

* Most catalog users want materials on a topic.
* Subject searching is the predominant mode of searching.
* Most of the users wants includes other information such as campus news, community news, employment news, telephone directories.
* Catalog users report that most problems are with the subject searching.
* One third to one half of all searches, result in no items retrieved.
* Most of the new users required proper guidance and teaching to how to use the OPAC.
* Catalog users place the highest priority for improvements on various subject search enhancement.

Most of online catalog use studies indicate an overwhelming acceptance by users including higher user satisfaction.

74 BELKINE AND VICKERY[5]

In the evaluation and improvement of OPAC, the user should be considered. This implies the assessment of system performance, depended upon user behaviour and performance.

75 DERVIN AND NILAN[6](1986)

Hopes that future research into online library catalogs, will take up the call, for user driven paradigm.

8 GUIDENINES FOR THE DEISGN OF OPAC

At this crucial juncture of transition of society from 20th century to 21st Century, it is very difficult to predicare how the OPAC will be. But, however, based on research findings David R.McDonald and Susan E. Searing[1] offer the following guidelines to the future designers of OPAC.

81 USERS

Who uses the catalog Eg: Students, faculty, staff, the general public. They exhibit different needs, pattern of use and levels of skills? Should the catalog be aimed at a specific user group or varied users.

82 INTERFACE

What is the best way of mediating between the computers and its users? How can elements of software design, such as choice of language and the sequence of logical steps, increase the case and efficiency of consulting catalog.

83 FILES

Which files or records should be available to users.

84 TECHNOLOGY

What machine configuration will best support an OPAC, what level of computer resource will be required. The database design should be easily changeable in accordance with the technological development.

85 MANAGEMENT

How much will it cost to develop and operate an online catalog? What are the staffing implications for both technical and public services.

86 REFINEMENT

Constraint a prototype system, test it, make refinement. and implement it, based on feed back for the users, the system, can be further refined.

9 CONCLUSION

The discussion about OPAC, and the earlier studies on OPAC certainly reveal that library patrons and staff would like this new form of library catalog in the coming years. Of course they may confront with some problems, but certainly would envisage the ways to overcome them. Libraries in the near future, to capture the user enthusiasm in Libraries, will use OPAC as a power base to provide improved access to information retrieval systems. The perfect system will not result over night. However, it will not result without

making `librarians' and `users' as part of the development process. This will be an exiciting but complex experience for the users and the librarians, while looking for OPAC's in 21st century.

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GULNET
A Study for Guwahati Library Network

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1 LIBRARY NETWORK IN INDIA

India is also trying to achieve objectives of library networking by proposing/establishing library networking at different levels. At the national level, we must cite the INFLIBNET programmes, the major library networking to cover the University, College and research and development institutions.

11 CITY NETWORKS

In 1988, the UGC constituted a committee under the chairmanship of Prof. Yash Pal for suggesting measures to set up the national network system for INFLIBNET (Information and Library Network) so as to share the literature resources towards optimum utilization. Apart from these effort, now metropolitan city based library networkings are being planned for promoting effective utilization of resources of different libraries. They are DELNET, CALIBNET, PUNNET, MALNET, BONET, GUNET etc. NISSAT is taking initiatives for the establishment of those networks and stepping into city based networking technology for exchange of informaiton among local libraries. VIDYANET is a proposed dedicated communication network to meet the needs of scientist and research workers in the laboratories/institutions of excellence scattered all over the country. The first phase of VIDYANET has linked about 10 institutions like All India Institute of Medical Sciences, Indian Agricultural Research Institute, Indian Institute of Technology and so on. It aims to link up institutional computers via telecommunication line and provide its user facilities like transfer of files of any type data, programmes and documents database and libraries.

12 TELECOMMUNICATION

The development of computer communication network is an important technological advancement of the modern age, which uses the telecommunication facilities for data transmission. The scenario of the telecommunication of India is expected to change radically in 21st century.

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13 SUBJECT ORIENTED

In India computer communication networks are launched successfully in various disciplines eg., NICNET for Govt. information, INDONET for commercial network, VIKRAM for packed-switched public data network of India, SBRTN for satellite based rural telegraph network for North East India.

2 LIBRARY NETWORK FOR GUWAHATI: A PROPOSAL

Guwahati is the only city of N.E. India. It is the gateway of the region with a good number of educational and research and development institutions. To march ahead and to cope with the other parts of the country, libraries of this region are greatly felt for using computer to perform their jobs. Libraries of NEIBM (North East Institute of Bank management), Administrative staff college, Gauhati University etc. are planning to introduce computers in their libraries shortly. Other libraries like NIRD, NISIET, Cotton College, AAU, are also in the queue. The city is having a good tele-communication network, connecting at both national and international levels.

21 CONCERNED LIBRARIES

Considering for a library network in the city, following libraries are worth-mentioning in the city, having proper library establishment.

1. KKHL, Gauhati University.
2. AAU Library, Khanapara Campus.
3. RRS, Directorate of Library Services.
4. Cotton College Library.
5. Assam Engineering College Library.
6. NEIBM (NER) Library.
7. NISIET (NER) Library.
8. NIRD (NER) Library.
9. NIPCCD (NER) Library.
10. DHAS Library.
11. Assembly Library.
12. Guwahati Medical College LIbrary.
13. AIR & DD Library.

22 COLLEGES

Besides these, there are many colleges conducting general degree and master degree courses as well as specialized courses and also R&D

organisations. All the institutions have their standard collection of resources with proper scope for resource sharing.

3 GULNET

Considering various aspects it is advisable for establishing a computerized library network in Guwahati may be named as Guwahati Library Network or GULNET.

31 OBJECTIVES

The objectives of this proposed GULNET can be cited as:

1. Optimum utilization of information resources.
2. Smooth and speedy exchange of information through telecommunication.
3. Avoiding duplication of work.
4. Developing the standard of library services.
5. Minimizing the time and cost of correspondance in the flow of information.
6. Improving of the search strategy.
7. Motivate non-membered institutions towards network.
8. Providing facility of direct communication with other national and international networking centre through GULNET.

4 SUGGESTIONS

Application of computer to perform library jobs is must, to go for computerised library network. Till date, though no library at Guwahati is using computer to perform library jobs, some show their intention to go for computerization. Libraries like KK, HL, NISIET, Administrative staff college, have purchased their computer PC/AT and initiated the process of computerization. Some other have also plan for taking computer at the earliest. As to be a member of GULNET, the basic requirements will be to have individual computerized library system. Those libraries which are yet to initiate the process of computerization have to do it at the earliest.

41 FEASIBILITY STUY

As in the other metropolitan cities, organization like NISSAT should take initiative for a feasibility study at Guwahati for establishing GULNET. NEC can also take the responsibility for the study.

42 BUDGET PROVISION

Individual library budget should be made with the provision of atleast 50% expenditure at the initial state of computerization and remaining

percentage should be born by either NEC or UGC or some public/private organisations. The trend is quite healthy to ask for financial assistance for such a noble cause from the public/private bodies.

43 TRAINING

The region is far behind in respect of trained computer personnel in library and information area. It is quite important to train library personnel to make them well equippped to handle computer.

431 University Has Taken Up

It is a healthy sign that the Department of Library and Information Science, Gauhati University has taken the initiative to train library personnels to work in computer environment with the sponsorship of NISSAT/ILA. Till now, the dept. has successfully completed two training programme on application of CDS/ISIS in Library and information services. The Department should also organise few advanced level courses in this area. The individual library's response is expected to be positive.

432 Deputation

One or two library personnal should be deputed from each library to gather 'hands-on' experience by working for few weeks/months in a computerised library system, located in other parts of the country.

5 CONCLUSION

Considering the multifaceted development of library and information activities, it is essential for the libraries of this remote area of the country to go for computerisation, thereby initiating computerised library network such as GULNET at the earliest. The responses from the professionals are quite encouraging. It is hoped respective organisations like NISSAT, UGC, NEC would come forward to extend help financially and otherways to have the networking programme in Guwahati within a short time.

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KREC CAMPUS NETWORKING PROJECT
A Case Study

MK MOHANDAS*
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1 INTRODUCTION

Karnataka Regional Engineering College (KREC) Surathkal, has been recognised as one of the renowned institutions in the filed of higher education in the country. Basic aims and objectifes are to provide technical education of high standards, and to act as a pace setting institution and to provide academic leadership to other technical institutions in the region. It has also helped in fostering an integration of the various streams of Indian culture from different states.

11 UP TO PHD LEVEL

The college, founded in 1960, as the second REC in the chain of eight RECs set up by the Govt of India in the first phase, is a joint venture of the Govt of India and Govt of Karnataka. Now there are seventeen REC in the country. At present, this college is offering eight undergraduate engineering coureses and fifteen post graduate programmes. The first PG courses were started during 1967-68. The college is also a recognised centre for PhD degrees in all engineering disciplines and basic sciences. Over 7,600 students have pased out from the college during the last three decades.

12 FACULTY

A highly qualified and dedicated faculty numbering over 190 and the academic support staff (over 600) are behind this success and achievement of the institution. A good number of faculty members were deputed to undergo their advanced training and education in UK, USA and Canada. The college has a very good campus accommodates institutional complex, residential housing for faculty, staff and hostels for students numbering around 1800.

The college has established a few centres/cells in specific areas such as 'continuing education and training', 'entrepreneurship development', 'Industry-Institute interaction', 'Nodel Centre for Technical Manpower

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Assessment','Centre for transfer of technology to rural areas' and 'NRDMS' (National Resources Data Management System) Dakshina Kannada District. 'Nirmithi Kendra' is'also established in the campus. R & D centre for 'roofing tiles', 'bricks' and 'ceramic products' has been recently set up in the college.

13 FUNDS

Under the World Bank aid this college recieved Rs 1.25 crore for Manpower Development in Electronics and Computers, & ODA (Overseas Development Agency) assistance of 0.785 Million Pounds and Rs 2.70 crores as matching grant from Central Government. The college started a Central Computer Centre at a cost of Rs 2.15 crores in hardware & software and building worth of Rs 1.00 crore. The computer centre will have over 200 terminals and this will be one of the biggest Computer Centres among engineering colleges.

14 LIBRARY

This college has a well developed library having 75,000 volumes and fully automated computer facility. CD-ROM data base. ON-LINE facilities, and E-Mail, FAX and DTP services. It caters to the information needs of 1800 resident engineering students, faculty members in various engineering disciplines and as well as the neighbouring industrial organisations and engineering colleges.

141 Library Facilities

This library is also recognised as 'Depository Centre' for UNESCO and UNIDO publications. The facilities available in this library are as follows:

1 Computerised Information Retrieval system,
2 CD-ROM data base (Compendex),
3 Video cassettes library with TV/VCR etc,
4 Microfilm/Microfiche reader,
5 Photocoping,
6 On-Line (DIALOG), INSPEC etc,
7 Training to Library & Information Science students and Apprenticeship training,
8 Book Bank books lending.

1411 LAN

In Library, computers are installed under LAN system using Nowell Netware Ver. 3.11, with a file server and several nodes with the following

configuration

PC/AT 386 CPU @ 33 MHZ
8 MB RAM, 300 MB Hard Disk with
DOS Ver 5.00.

2 NETWORK OPTION FOR KREC CAMPUS

KREC Networking team made a countrywide survey of computer networking in India. The team met several experts both in the field of academic as well as networking vendors. Finally the team provided following three options for the implementations[3].

(a) Ethernet on Copper (10 base 5)

(b) Ethernet on Fiber (10 base F)

(c) Fiber distributed data interface (FDDI)

The networking nodes location have been identified and enclosed in Fig 1. The following are the proforma for submitting proposal for campus networking.

21 ETHERNET ON COPPER (10 BASE 5)

Sl No	Description	Type & Make	Unit Rate (inclusive of all taxes)	Qnty	Total Amt
1	16 Port Repeater				
2	Thick Ethernet Cable			2500 m	
3	Transeiver with Piercing Tap Kit			30	
4	Connection at repeater and				
	–terminator with necessary connector (s)			15	
	–Drop Cable (5m) with connector (s)			15	
	–Other accessories, if any				
5	Connection at converter and Deptl. server)				
	–Terminator with necessary connection			15	
	–Drop cable (5m) with connectors			15	
	–Other accessories, if any				
6	Ethernet cards with AUI/UTP/BNC connector			15	
	(Application User Interface 15 pin D type)				
	(Unshielded Twisted Pair)				

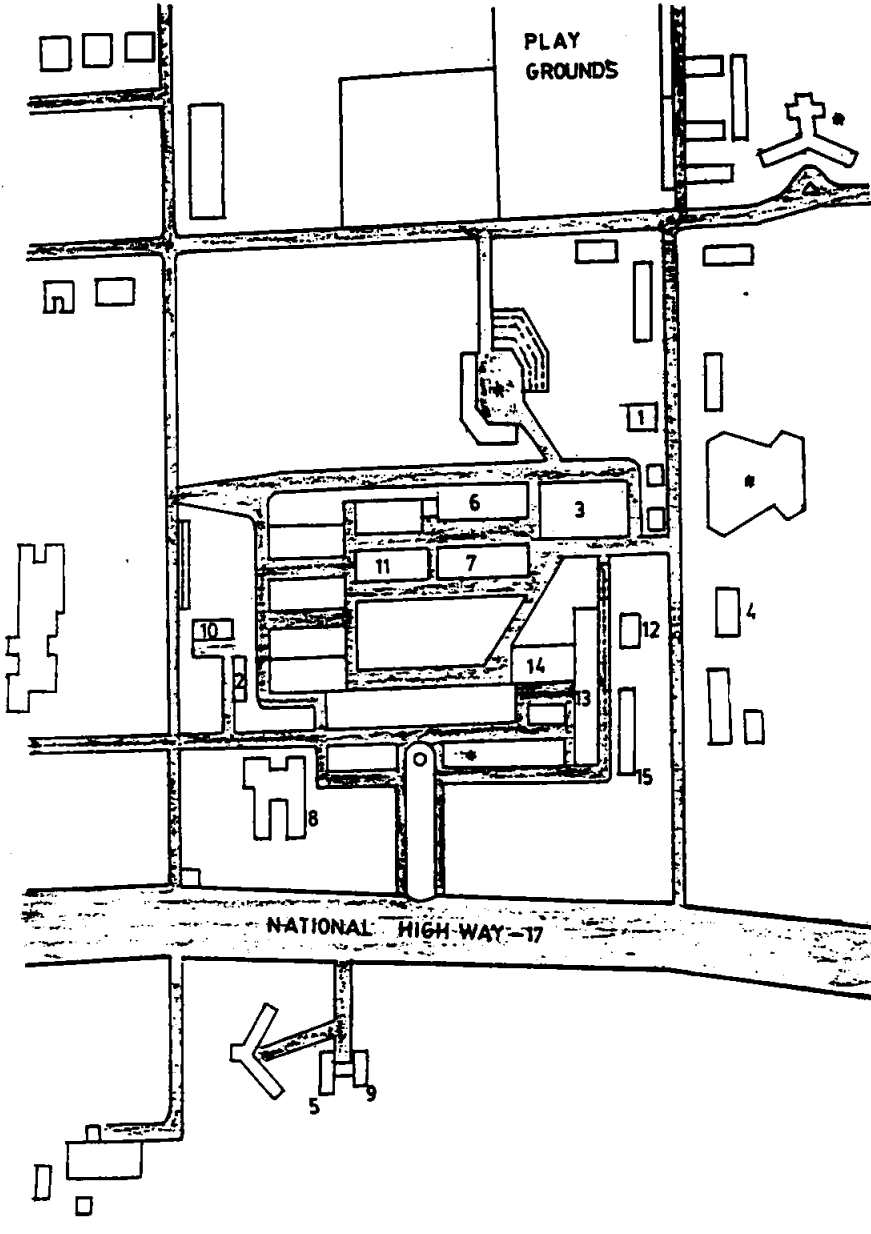
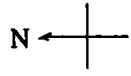


Fig 1 KREC Campus Networking Scheme



No to scale

1 Main Computer Centre
2 Civil Engineering Department
3 Mechanical Engineering Department
4 Electrical Engineering Department
5 Electronics & Communication Engineering Department
6 Chemical Engineering Department
7 Department of Metallurgy
8 Mining Engineering Department & Seminar Hall
9 Computer Engineering Department
10 Applied Mechanics Department
11 Physics Department
12 Master of Computer Applications (MCA)
(Under Mathematics Department)
13 Library
14 College Office & Committee Room
15 Entrepreneurship Development Cell and T & P
* Seminar Hall, SAC, SJC and Hoster Office

7 Media laying

–Media laying in GI pipe for 1500 m

–Media laying in PVC pipe for 1000 m

–Trenching of soil for 1500 m

8 Network Management System, if any

9 Network Integration, Installation, commissioning charges, if any.

10 Others (Optional)

–TCP/IP for DOS site license

–upgradation charges to upgrade netware 2.2 to 3.11

–repeaters with AUI input.

Note

1 If repeater quoted is of 8 points, 4 ports, 2 ports then the cascading of repeaters to be indicated with associated cost.
2 Repeater with intelligence to route the packets desirable.
3 Indicate separately any other item(s) needed with price detals to make the network operational.

22 ETHERNET ON FIBER (NOT UPGRADABLE TO FDDI)

Sl No	Description	Type & Make	Unit Rate (inclusive of all taxes)	Qnty	Total Amt
1	Ethernet 10 base F Hub with 16 ST connector ports.				
2	Fiber Optic Cable 62.5/125 micron 6 core multimode outdoor (FDII compatible)			2500	
3	FOIRL Transeivers (Fibre Optical Inter Repeater Link)			15	
4	Connection at Hub end				
	–Fiber termination box (90 crores)				
	–ST connectors and connectorisation			30	
	–Others, if any				
5	Connection at FOIRL end				
	–Fiber termination box (90 cores)				
	–ST connectors and cooechisation			30	
	–Others, if any				
6	Ethernet cards with AUI/UTP/BNC connector			15	
7	Media Laying				

–Media laying in G.I. pipe for 1500 m
–Media laying in PVC pipe for 1000 m

–Trenching of soil for 1500 m

–Others if any.

8 Network Management System, if any

9 Network Integration, Institution, commissioning charge,s if any.

10 Others (Optional)

–TCP/IP for DOS site license

–upgradation charges to upgrade Netware 2.2 to 3.11

–repeatres with 2/4 Thinnet outputs with AUI input

–8 core Fiber optic cable

–12 core Fiber Optic cable

Note:

1 Indicate separately the item(s) needed for upgradable to FDDI option.
2 For upgradable to FDDI option, indicate the cost of upgradability to FDDI (at today's market price).

23 FIBER DISTRIBUTED DATA INTERFACE (FDDI)

Sl No	Description	Type & Make	Unit Rate (inclusive of all taxes)	Qnty	Total Amt
1	Hub with FDDI concentrator to support 16 ports				
2	Fiber Optic Cable 62.5/125 micron 6 core multimode outdoor (FDDI compatible)			2500	
3	Hub with supervisory module and FDDI input interface and Ethernet output interface.			15	
4	Connection at Hub end				
	–Fiber termination box (90 cores 15 × 6)				
	–ST connectors and connectorisation			30	
	–Other, if any				
5	Connection at Repeater end				
	–Fiber termination box (90 cores)				
	–ST connectors and connectorisation			30	
	–Others, if any				

6 Ethernet cards with AUI/UTP/BNC connector 15

7 Media Laying

–Media laying in GI pipe for 1500 m

–Media laying in PVC pipe for 1000 m

–Trenching of soil for 1500 m

–Others if any.

8 Network Management System, if any

9 Network Integration, installation, Commissioning charges, if any.

10 Others (Optional)

–TCP/IP for DOS site license

–Upgradation charges to upgrade Netware 2.2 to 3.11

–Repeaters with 2/4 Thinnet outputs with AUI input.

–8 core Fiber optic cable

–12 core Fibre Optic cable

Shortly a decision will be taken to select one of the three options.

3 THE ROLE OF LIBRARY IN KREC CAMPUS NETWORK

With the campus wide network operational, the following facilities will be extended to the students, staff and neighbouring industries.

(*i*) The staff members of any department can scan the library resources by sitting in their respective departments.

(*ii*) The students can get the availability position of book/journal of the library by keying in data from any node and from any department.

(*iii*) The Science and Technology Entrepreneur Park (STEP) has a node connected to campus wide network. Thus entrepreneurs can scan industrial information present in the data base of the library.

(*iv*) Earlier the library used to send list of recent acquired books in the library to the various department on a monthly basis in a printed form. Now every week, we can update the recent addition to the library, this saves expenses towards printing multiple copies of information.

4 CONCLUSION

The KREC campus network is in implementation stage. It is hoped to complete by March 1995. When operational the following advantages will be derived by the network.

(*a*) Resource sharing among the various departments/including library through enterprise wide network.

(*b*) Integration of different vendor network through a back bone networking setup connection multivendor networking protocols.

(*c*) Reduction in printing expenses by resorting to circulate the message through network.

(*d*) First hand experience on performance of multivendor networking system to the students, staff and Library and Information Science professionals.

(*e*) Entrepreneurs will be provided fast and easy access to the data base at the nominal cost.

The college also have the proposal to subscribe to world wide information database after connecting to ERNET to which college is already a member. Thus eventually the world wide databases will be on the finger tip of any student/staff.

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NETWORKING OF LIBRARY AND INFORMATION SCIENCE EDUCATION THROUGH DISTANCE MODE IN INDIA

SMT K SUGATRI DEVI*

1 INTRODUCTION

The growth and development of a society largely depends on its educated members. It is these members who play a conscious role in bringing about the change that influence the process of modernisation.

There has been a phenomeal increase in the number of colleges and universities after India attained independence which resulted in increased enrolments. In order to accommodate the increasing aspirants for higher education, the opening of more conventional institutions with adequate provision for infrastructural facilities has been beyond the financial capacities of the Central and State governments. Moreover, the conventional method of teaching is not only very expensive but also inflexible, so far as teaching and learning conditions are concerned. The search for an alternative to the conventional system has, therefore, become necessary to meet the evergrowing demand for various types of courses. Such a perceived need for an alternative system of education has given rise to the concept of "Distance Education" (DE) in India which is less expensive and flexible enough to cater to the needs of educationally backward groups.

2 BEGINNING OF DISTANCE EDUCATION IN INDIA

In 1961, an expert committee[1] was constituted by the Ministry of Education, Government of India, with a view of working out the relevant details and preparing a scheme of correspondence education (CE) for the country. The committee suggested that a pilot project of CE be undertaken by the University of Delhi. Accordingly, the university made a modest beginning in CE by establishing in 1962, the "School of Correspondence Courses and Continuing Education" with the following major objectives:

- –to provide less expensive education at higher level,
- –to extend the benefits of educational facilities to all those who had missed the opportunity to acquire knowledge skill and training for social and economic reasons.

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The Education Commission[2] (1964-66) expressed the view that "the introduction of CE will help to reduce the capital costs of expanding higher education and outdown even the recurring costs to a substantial extent, especially as enrolments grow. They are the only means to provide higher education to those who desire to study further but are compelled on economic grounds to take up employment at the end of the school stage".

The commission hence suggested that by 1986 at least, a third of the total enrolement on higher education could, with advantage be provided through a system of correspondence courses.

The National Policy on Education, 1986[3], programme of action, Ministry of Human Resource Development, Government of India has observed that "the Open University system augments opportunities for higher education, ensures access, is cost effective and promotes a flexible and innovative system of education".

The Andhra Pradesh Open University, now named as Dr BB Ambedkar Open University, Hyderabad established in 1982 by the state of Andhra Pradesh was the first Open University in India established on the lines of UKOU. It was followed by the setting up of Indira Gandhi Open University (IGNOU) at New Delhi by the Government of India in 1985. The establishment of IGNOU is considered to be the most significant development in the field of DE in the country, as this gives the distance education the legitimacy it rightly deserves in the National Education System of the country.

3 THESE ARE SALIENT FEATURES OF DISTANCE EDUCATION

–No direct contact between the teacher and the student. He may meet the students only for selected tasks as counselling, giving tutorials.

–the use of a range of technical media for communication. Teaching is conducted through print, mechanical or electronic devices like radio, television, audio-video or computers.

–Learners can learn and earn simultaneously.

4 LIBRARY AND INFORMATION SCIENCE EDUCATION THROUGH DISTANCE MODE

The primary aim of Library and Information Science Education is to train manpower, capable of handling the human knowledge and promoting the utilization of knowledge and information for benefit of mankind.

Modern libraries and information centres need professionally educated and trained personnel who are expected to be scholars with love for books, sociologists with an understanding of society they have to serve, scientists

and researchers for furthering education and development of subject, administraters with a special knowledge of scientific management.

Library and Information Science Education has a history of more than hundred years and has the credit of producing millions of Lib Inf professionals, teachers and researchers. However, the formal system of LIS education today is squirming under rigidity regarding enrolment. To relieve the pressure on formal system and to cater the increasing demand for the course, the higher educational institutions have been prompted to introduce LIS education through distance mode as an effective alternative. It can play an important role to improve the qualifications of inservice candidates. Being flexible in nature, it can be adopted by individuals who are place bound and have employment or house commitments which make it impossible for them to attend the on-campus LIS education programmes. Being a student-oriented system, it allows a self-placed learning process.

41 LIS EDUCATION THROUGH DISTANCE MODE IN OTHER COUNTRIES

Several countries have embarked on distance education system to impart LIS education eliminating the tyranny of distance.

In United States[4] there are about 26 of the 60 ALA accredited programmes offering off-campus teaching in graduate library education. In Canada, The School of education of Toronto University, provides audio-conference courses in LIS at graduate level since 1982. In UK Haythornthwaite[5] has identified eight courses being offered at professional level through distance mode. In Australia and New Zealand distance education is managed by the same staff of the University who provide 'face to face' education also.

42 THE INDIAN SCENE

The distance education programmes are more relevant and suitable for developing countries like India. Due to increase in population and scarcity of sufficient universities, it is unrealistic todepend solely on formal type of LIS education. At present there are more than 10 universities, offering LIS education through distance mode. The Table shows the list of universities and the LIS courses offered by them.

The Table shows that three universities are situated in Andhra Pradesh. Two institutions in Madras city itself. Kashmir University and Sri Venkateswara University are offering only certificate courses which are 6 months duration. Indira Gandhi National Open University is offering MLIS course from this Academic Year (1994-95). There are three universities offering postgraduation in Library and Information Science through distance mode.

The distance LIS education programmes in the country are traditional

Table 1
Universities offering LIS programmes through distance correspondence mode

Sl No	University	Programme	Duration
1	Annamali (Tamil Nadu)	BLIS MLIS	1 year 1 year
2	Dr BR Ambedkar Open University (AP)	BLIS	1 year
3	Indira Gandhi National OpenUniversity (New Delhi)	BLIS MLIS	1 year 1 year
4	Kakatiya Univesity (AP)	CLIS BLIS	6 months 1 year
5	University of Kashmir (J&K)	CLIS	6 months
6	Kota Open University (Rajasthan)	DLIS	1 year
7	University of Madras (Tamil Nadu)	CLIS BLIS MLIS	3 months 1 year 1 year
8	Madurai Kamaraj University (Tamil Nadu)	CLIS BLIS	3 months 1 year
9	Punjab University (Punjab)	DLIS	1 year
10	Sri Venkateswara University (AP)	CLIS	6 months

and papers, modules are similar to that of the regular on-campus courses offered by the Universities.

5 LIMITATIONS OF PRESENT LIS EDUCATION PROGRAMME AND NEED FOR NETWORK

As already noted, there are ten universities/institutions in India, teaching LIS education through distance mode in different levels like certificate courses, diploma, degree and master degree level. But there are limitations which have contributed to the ineffectiveness of distance education in India.

–In some states, more than, one university started LIS education through distance mode, thereby duplicating efforts.

–Some Universities are using DE programmes to augment their revenues, not bothering about the standards in LIS course.

–Course materials are often prepared in a hurry with no regard to quality.

–Distance teaching institutions are having their study centres in the same

city, conducting the contact classes at the same time and teaching the same syllabus.

However, these programmes are dedicated to the concept of self sufficiency and lack of co-operation leads to duplication of efforts, in-efficienc in the organisation of programmes etc. Hence, networking of LIS education programmes will lead to:

–avoid duplication in the preparation of reading materials;

–organise study centres with well equiped libraries and audio/video materials;

–diversion of these efforts to other activities like development of media technology;

–employing regular counsellors at study centres;

–above all reducing cost-effectiveness in distance teaching.

61 NETWORKING OF DISTANCE EDUCATION PROGRAMMES IN OTHER COUNTRIES

The range of co-operative activities in the United Kingdom[6] is extremely large and cover, exchanges of information materials, co-operation on training, personnel exchanges, joint course production and joint programme development.

An important feature of the Australian DE programmes is the opportunity it offers for students to undertake courses at locations which suit their needs.

The willingness to share experience on an informed basis in a feature of the Canadian scene. For over ten years some Canadian Universities have used course software developed by sister institutions as part of their own programme offerings.

62 CO-ORDINATION AND NETWORKING OF DISTANCE EDUCATION PROGRAMMES IN INDIA

There has been little experience of co-operation in DE in India at any level, Prof G Ram Reddy[7] former VC of IGNOU and presently the Chairman of UGC stressed the need for open universities networking, 1988 itself. He suggested that by exchanging course material among the member countries of Asian Association of Open Universities both money and time could be saved.

The Indian Distance Education Association (IDEA) recently (1994) organised its second National Conference on "Increasing Access to DE: An

Agenda for action", at Sri Venkateswara University, Tirupathi, Andhra Pradesh. In his inaugural address Dr Swaminathan[8] (Member, Planning Commission), observed that 'the Eight Plan, rightly envisaged that the expansion in Higher Education, keeping in view, the present resource crunch, had to accommodate in an equitable and cost-effective manner, mainly by large scale expansion of DE system and providing opportunities to larger segments of population.

Prof Bakshish Singh (consultant, DE UGC) who presided over the conference observed that 'Networking, collaborations, diversification of the courses, credit system, computerisation, compulsory assignments were also to be discussed'.

It is essential to develop a good networking of open universities within our country, before establishing co-operation with other countries. India, as a developing country is not in full form to use the modern Information Technologies, like in other developed countries ie., UK and Australia, which have a full networking of Open Universities through computer terminals.

However, with-in its capacity, India can also have some co-ordination among the Open Universities. Once the network is established, a student enrolling in any one of the Open Universities will be able to avail all the facilities like course materials, contact classes, student services etc. provided by any other Open University.

63 IGNOU'S PART IN CO-ORDINATION OF DISTANCE EDUCATION

IGNOU has an all India jurisdiction and was established by an Act of Parliament in November, 1985.

IGNOU is an apex body for Open Universities and Distance Education Institutions in the country, charged with the responsibility iof the promotion and co-ordination of the distance education system. In furtherance of these objectives it has taken some important steps like establishment of Distance Education Council (DEC) and staff training and Research Institute for Distance Education (STRIDE).

7 SUGGESTED MODEL FOR NETWORKING

71 JOINT COURSE PRODUCTION

All the DE Institutions must maintain the same syllabus, or wherever the syllabus is identical the study material of one university may be useful to students of other DE Universities.

72 MATERIALS EXCHANGE

The study materials prepared by one university must be shared by all the other Universities.

73 CO-OPERATION IN TRAINING & PERSONNEL EXCHANGES

The objective is to share experience in course writing.

74 JOINT PROGRAMME DEVELOPMENT

The principle behind the scheme is inter institutional enrolment, backed by rationalisation of course offerings.

75 STUDENT SUPPORT SERVICES

A single study centre for all the Open Universities in each town or city, so that money and manpower is saved.

76 USE OF LANGUAGES

Media of instruction in the regional languages, within the state.

77 CONTRACTING

Commonly known as an aggrement between a tertiary institution and a regional college, whereby the latter is licensed to teach certain of its award courses. The college provides, staff and resources and the institution supplies the funds required.

78 EXTENDING COMMUNICATIONS BY SATELLITE

By using modern information technologies, the DE institutions can reach the most disadvantaged groups such as rural areas or people in remote areas.

8 CONCLUSION

Distance Education's main justification lies in its financial viability as against conventional system. The system though cost intensive, makes education generally cost effective and the cost per year per student is appreciably lower and it drops proportionately as the clientele rises.

Development and expansion of Distance Education the world over and its popularity by virtue of its openness, flexibility, wider access, multimedia teaching and the wide range of course offerings relevant to the societal needs, has ushered in an era of globalisation of DE. Having come to be recognised as an independent and distinct discipline and academically and economically viable channel for imparting education, the emphasis the world over is shifting towards quality control, networking in sharing of course material, introduction of inter-disciplinary studies, integration of latest communication technology, student support services, student mobility and credit transfer etc.

DE is a mode of education with its own strength and characteristics and has certain domains where it is stronger than any other system. It is still in its infancy and has vast potential. It will emerge as a dominant mode of

education in the 21st century. The need of the hour, however, is imaginative planning, aiming at an effective use of the available resources. Proper networking is essential for the future development of DE in the country.

Duplication of courses by the different universities atleast within a state should be avoided. Australia offers a good example. The Government will identify a particular university for preparation of material for the DE and provides funds. Others could use the material and offer the programmes. Co-operation among institutions in institutional development, preparation of course materials, student support services, staff development etc, will reduce costs, bring about qualitative improvement and provide wider choices of courses to students.

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PREPARING LIBRARIES FOR DISTANCE EDUCATION

WOOMA SANKAR DEV NATH*

0 INTRODUCTION

The national development of a vast country like India depends mainly upon the accessibility of educational opportunities to its citizens. As the multi-lingual and multi-cultural characters of our country posing tremendous challenges for the planners and administrators, the education sector has become a major concern of the Government. Since last three or four decades India has entered an educational reformative era of 'open education' supported by the methodology of distance education, characterised by relaxed or no rigid entry qualifications, learning according to one's own pace and convenience, flexibility in the choices of courses, and use of most modern and appropriate educational and communication technology. Of late, Distance Education is emerging as a discipline in its own right, with its own philosophy, methodology and techniques, economics and research.

01 PHILOSOPHY

The basic philosophy behind distance education is very simple and is not alien to the Indian soil. It presupposes that

(1) Education is not a once for all process but a life long process;

(2) No one is too old, too shy, too big or too small to learn at any moment;

(3) No one of too knowledgeable to learn new ideas, methods and concepts;

(4) One's inability to be a regular and residential student of a college or University campus or any other institution is no bar to learning; and above all;

(5) An adult is conscious of the loss of no learning and even if he is not, he could be made so.[1]

02 DEFINITIONS

A variety of non-traditional forms of education such as external degree, Extended University, Open University, University without walls, etc are in vogue for which the generic term 'Distance Education' can be used to mean

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all these at a time. AR Kaye defines distance education as Education which either does not imply the physical presence of the teacher appointed to dispense it, in the place where it is received, or in which the teacher is present only on occasions or for selected tasks![2] Again Zigerell states distance education as 'a form of institution characterised by the physical separation of teacher from student, except for the occasional face to face meeting allowed for by some projects'.[3]

021 Basic Elements

Thus, two basic elements in these definitions can be pointed out viz,

(1) The physical separation of teacher and learner, and

(2) The changed role of the teacher, from regular class-room teaching to selected tasks such as counselling, conducting tutorials or seminars, or solving study problems.

2 DIFFERENTIATION

There are some fundamental aspects of distance education to show how it differs from traditional education. These aspects as Desmon J Keegan[4] pointed out are:

(1) In traditional education a teacher teaches. In distance education an institution teaches. In traditional education, the teacher is present in the lecture room with students. In distance education, the teacher prepare learning materials from which he himself may never teach.

(2) In distance education, the goal of linking of learning materials to learning is at the centre of the organisational structure. In conventional education, the intersubjectivity is automatically set up. In distance education, this intersubjectivity is lacking; and

(3) From the student's point of view, there are important differences between the two systems of education. The distance education gives a radical new meaning to the concept of the independence of adult learners. In this process, he is responsible for initiating the learning process and, to a large extent, for maintaining it throughout.

3 WHO ARE THE DISTANCE LEARNERS

Workers in offices, factories, and elsewhere and also those who must earn to support their own education, can receive education they aspire for, only by distance learning method.

This way opportunities also open up for the sick in hospitals, prisoners in jail, and persons physically handicapped. The people advanced in age who

may have missed chances of schooling at the appropriate time due to some adverse circumstances in their youth, can still hope to learn if distance learning method is available.

4 GENESIS

Origin of distance education dates back to the first part of eithteenth century.

41 SHORTHAND & COMPOSITION

The BOSTON GAZETTE of 20th March 1728 wherein Caleb Philips advertised about his system of postal tuition on shorthand through weekly lessons could be referred as the earliest recorded reference of distance education. Another advertisement in a weekly, the LUNDS WECKOBLAD, appeared in 1833, offering opportunities for ladies and gentleman to learn composition by post. In 1840 Issac Pitmans shorthand course was introduced for distance students, through the penny post in United Kingdom.

42 LANGUAGE

Organised distance education was introduced in Germany in the year 1856 by a Frenchman, Charles Toussaint and a German, Gustav Langenscheidt who organised a school for teaching language by correspondence.

43 THROUGH LETTERS

In USA, Anna Eliot Ticknow was the mother of distance study who founded the Boston based society to encourage study at home from 1873 till 1897. The idea of exchanging letter between teachers and students originated from her.[5]

44 TEACHING

In USSR, though distance education was started in 1920s to train the distance teachers, it was later extended to other courses. It is estimated that by 1962 more students studied through correspondence courses than the regular classroom instruction in colleges and universities.

45 FULL SHAPE

The establishment of 'Open University' at Milton Keynes in England in 1969 has created a worldwide impact in the development of distance education. The radio and TV programmes of this University have a good educational value and are adopted by other countries as well.

46 SPREAD

The policy of democratisation of education compelled the Asian

countries like China, Japan, Pakistan, Srilanka, etc to adopt Distance education system. In Pakistan, the Open University system came in operation in 1974. In China, the Central Radio and Television University (CRTUV) was set up in 1979. This has made a national network for higher education throughout the country.[6] The first open university in Srilanka was set up in 1979. Within the last decade most of the Asian countries established open universities also.

5 SCENE AT HOME

In India Distance Education began its humble role in 1962 with Delhi University offering courses in BA, it has assumed a gigantic role for itself in the university education, According to the Handbook of Distance Education published by Association of Indian Universities, 1986; 42 universities engaged in Distance Education offer courses in different disciplines. The first open university to be opened in India was the Andhra Pradesh Open University in 1982. Later on the name changed to Dr BR Ambedkar Open University in the year 1992. At the national level the Indira Gandhi National Open University which was started in 1985 is unique in its national coverage. Besides, four states have established Open Universities viz, Kota Open University System, Rajasthan (1987), Yashwant Rao Chavan Maharashtra Open University, Maharashtra (1989); Nalanda Open University, Bihar (1989); and Open University in Bhopal, Madhya Pradesh.

51 NEED OF LIBRARY SERVICES

It is said that 'Education and library service are twin sisters and one cannot live apart from the other'.[7] The various Indian Education Commission (1948-49) states that 'The library is the heart of all the University's work... Scientific research needs a library as well as its laboratories; while for humanistic research the library is both library and the laboratory in one'.[8]

511 Library Use-self Directed

The role of the library is no less important in distance education than in traditional education. In fact it is much more important because, the distance learners have to accept responsibilities for the completion of the courses independent of teaching/teachers. They have to use their own knowledge and experience before accepting the passive information provided in reading materials. They have to plan their reading programmes at their own pace and have to implement it effectively. The most important element, therefore, in the infrastructure that is necessary to support distance education is the library.

6 EXISTING NETWORK PATTERN

In India we have in the Open Universities multitier system of library

services. Some libraries of the distance teaching universities such as IGNOU, operate through the three tier system, the main university library, and the branch libraries at the regional and study centres. The two tier system, functional in universities such as Bhimrao Ambedkar Open University of Andhra Pradesh in India, have the supporting libraries at study centres, directly responsible to central library at Headquarters. The central library combines the features and functions of both, a general academic library as well as a specialist library. This dual responsibility increases the complexity of the library policies, regarding the development of collection and provisions of library and information services.

61 USE OF LIBRARIES

But practicaly utility of these libraries gives a gloomy picture of library services in the reality. Only a few distance learners are getting the change to use these libraries, as attendance to counselling sessions are not compulsory. Only these who are residing in the vicinity of the centres have the privilage to use these libraries, ultimately the distance learners of the remotest corner, away from these centres are deprived of the library services. Thus, economical, geographical and also phychological factors are acting as the barriers in respect of library services provided by the existing library networking of the Open Universities.[9]

POSSIBLE ROLE OF PUBLIC LIBRARIES IN FUTURE

Most distant learners are busy people, often with heavy occupational and domestic responsibilities. They naturally expect to have a library service near at hand if they are to take full advantage of it. To provide library service to all students of distance learning, it is highly expensive to get up a separate state wise or nationwide libraries. The services of the academic libraries may not be advantagiously utilised by all students, of a particular distance education agency, since they have already been committed to cater to the need of their own clients, and are also located only in some prominent places. At the same time, the learners in the remote corners of the villages, should not be deprived of the change to utilise the facilities offered by the institutions. It is in this pressing circumstances, that the public libraries can play a pivotal role, in providing ready and reliable access to information resources, other than the supplied course materials, and also to extend the advice and guidance.

621 Audio-visual Material

Records/cassets of radio and TV programmes on education may be collected and organised by public libraries so that the readers may use them according to the availability of time. For this the materials have to be

organised according to some internationally accepted codes. In many of our public libraries there is no proper classification and catalogue. Retrieval does not create problems if catalogue cards and cabinets, video-cassettes and players, computers etc are provided. In this respect librarians have great role and responsibility. Apart from collecting, organising and helping to retrieve information for distance learners, they may function as resource persons by preparing bibliographies and abstracts etc for the course.

63 SOME IMPEDIMENTS

631 Rural Students

Some more problems related to distance education media are that majority of students are employed and having rural background with less TV or computer facilities. Most rural area in India do not have proper library facilities. The assignments given to the students, will not be of good quality as they do not get proper library facilties to supplement their assignments.

7 IGNOU'S STUDY CENTRES

The existing facilities of distance education provided by the Network of IGNOU in the NE-Region. IGNOU has established 16 academic regions encompassing the entire India, out of which Shillong is the Regional Centre catering to the needs of the entire NE-Region. With a view to providing human and physical resources to students, IGNOU opens 'study centres' in each region, numbering 201 in entire India, out of which there are 12 study centres in the NE-Region, viz Guwahati, Bangaigaon, Dergaon, Tinsukia, Tura, Itanagar, Dimapur, Kohima, Imphal, Churachadpur, 'Airwal and Agartala.[10]

71USE OF STUDY CENTRES

These study cetnres housed in the existing education institutions, do not have enough accommodation for library stackroom and reading room. Besides, due to lack of qualified experienced and regular library staff, proper information services cannot be provided. Circulations of books including issuing, adjustments of loans, reservations of books etc is not possible as learner(s) attendance at counselling sessions is optional. Books are issued only for reference at the premises to prevent losses and ensure availability to other students. The students residing in rural and remote areas can use neither the reading nor the audio-video facilities at the study centre.

72 POOLED LIBRARY RESOURCES

Thus, it is seen that the task of providing library facilities to hundreds of thousands of distance learners scattered all over the country cannot be accomplished by the distance teaching universities alone. By co-operating

with public, academic and special libraries they can meet the demands of diverse learner population and this can be achieved by bringing together all the existing libraries to utilise their infrastructural facilities and library resources, which otherwise remain idle on holidys and in evenings.

8 SOME SUGGESTIONS

(1) In view of the key role of the public library system in supporting distance education, enactment of library legislation with Government concurrence both at National and State level, providing clauses of resource sharing, including Inter-Library-Loan facilities, and exchange of publication, is essential to resolve various conflicting issues, which may arise in future for smooth running of the library services owned by Government and non-government organisations.

(2) The public library system needs to be rejuvenated by providing extra funds, personel, equipment, etc, to meet the challange of the fast developing distant learning activities.

(3) University libraries in the state should extend its facilities to students of distance education and funds earmarked for this purpose should be included in the budget of these libraries.

(4) College libraries with good resources should be identified to be developed for extending facilities to students of distance education in their respective areas.

(5) Libraries attached to the `study centres' of different localities should be provided with a good collection of relevant reference materials, and books to support the course materials of different subjects taught, along with audio-visual materials viz TV, VCR, and cassettes and tape recorder.

(6) Study centres should be provided with sophisticated xerox-machine to make information embodied in the books and journals, available to the users, as and when needed by them.

(7) Book exhibitions are very successful publicity programmes for awakening public interest. Charts, maps, models etc which cannot be sent alongwith lessons can be exhibited once or twice a year and active participation of the local students can be elicited for the preparation of models and charts and arrangements of exhibitions, so that they get work experience also. These exhibitions, as well as similar demonstrations of library facilities, can create reading interest among more and more people. Keeping in view the nature of the distance education, its responsibilities, and types of its students, such exhibitions can play an important role in promoting more and more use of the library.

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PREPARING LIBRARIES FOR TWENTY FIRST CENTURY

G THAMARAI SELVI*

1 INTRODUCTION

The evolution of information systems and technologies play a vital role in the field of Library & Information Science. The size and volumes of the available information posed tremendous problems in the quick search, access & retrieval of information. Therefore it is inevitable that newer tools and techniques of information technology to be invented and implemented to keep pace with the constant outpourings of latest additions to the oceans of information, and to face the issues and problems in preparing our libraries for Twenty first century.

2 AUTOMATION AND COMPUTERISATION TO PREPARE OUR LIBRARIES FOR THE TWENTY FIRST CENTURY.

To provide immediate information services more exhaustively and pinpointedly from the evergrowing information revolution, it is a must to automate and computerise the activities of our libraries, to face the needs of the 21st century. Now the social and cultural effects of computers are fully realised and computers have pointed the way to an automated information society through local, regional, national and international communication networks. Computer application in Bibliographical information handling has many advantages:

1 routine & repetitive jobs are handled with saving in labour & eliminating drudgery

2 speed of the computer is infinitely fast

3 Improving productivity ie, Computer application is able to restructure works, redefine jobs & in the process, reallocate resources.

4 contributes to efficiency, interms of recall & precision parameters.

21 SERVICE AND COT EFFECTIVE

Though the initial investment may appear to be high, computer application in library functions will prove to be cost effective, not only in a long term, but also in an immediate perspectives. Computerisation of Library

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activities will offer the facilities for interlinking with the other library & information centres through networking services. So the often talked "Resource Sharing & Library Co-operation", will become reality only on account of computer networking.

3 BIBLIOGRAPHIC DATABASES AND STANDARDS

Database is a set of records on any subject and in any format which may be Bibliographical, Numerical & Textual references, which are stored electronically, with a mechanism to retrieve information when required, and allow us to update or modify the records at any time. In India, NISSAT under department of Science & Technology is actively supporting the design & development of computerised databases at national & sectoral levels by assisting with softwares, hardwares & personnel training programmes. NISSAT has distributed more than 700 CDS/ISIS packages. To cope up with the forthcoming 21st century, it is suggested that, the optical character Recognition technology should be used to transfer databases directly from the actual sources into machine readable form, which would have advantage of accuracy as the true copy of the source records. To facilitate the data matching, the publishers should provide ISBN/ISSN in all their publications. For exchanging bibliographical records between 2 or more computer based systems among various institutions, common communication format (CCF) must be followed in creating and standardising the bibliographic databases.

4 NEW INFORMATION TECHNOLOGIES TO BE IMPLEMENTED

To prepare our libraries for facing forthcoming computerised world of 21st century, it is a must to follow and implement the following new technologies to provide information retrieval services promptly to the users. The impact of information technology is already transforming Library & Information Services and this is a process which can confidently be expected to continue.

41 CONDENSATION LEVELS

Neustadt stated about the information storage and retrieval capability of these electronic devices as, "the clay tablet could hold a tenth of a bit, a typed page ten thousand bits, magnetic tape a million and the latest memory can handle 1,00,000 crores bits of information per gram". The recently developed storage media like magnetic disc, CD-ROM discs, optical laser discts etc, which has still greater storage capacity, as only one side can cartain 40 volumes of an Encyclopaedia, must be used for the mass production and distribution of information.

42 TRANSMISSION RAPID AND CHEAP

The newly improved, computers & telecommunications technologies

such as Electronic mail, Electronic Journal, Video-tex document delivery, on-line search and networking, Teletext, FAX etc, are providing rapid and cheap transmission of information. So it is better to implement these facilities for the future.

5 STANDARDISATION

For preparing our libraries to face the 21st century, sandardisation is very necessary in the field of computerisation for compatibility, exchange, economy in costs & efforts. The international organisation for standards (ISO) has brought out some standards in the field of documentation, coded set of characters for information processing, interchange, tape labelling and fiel structure, printing specifications OCR etc. To establish the future of networks, any common communication format or standards introduced by the International Standard Bibliographic Descriptions for monographs and serials must be followed.

6 NETWORKING SYSTEMS

The objectives of resource sharing and library cooperation will be fulfilled during the 21st century, only through the networking services. The resources can be shared using the Local Area Networks or Wide Area Networks. In India, many of the proposed Library networks like INDONET, INFLIBNET etc, will be operational and all the libraries in the Universities, Colleges, Institutes of National Importance and Research Laboratories will be linked through networks. Library and Information Networks not only reduce the wasteful duplications of intellectual efforts and expenses, but also increase the opportunities for improving performance of specific services through enhancing the speed and comprehensiveness of coverage of information.

7 COMPUTERISED INFORMATION RETRIEVAL SYSTEM

The automated IRS will maximize the user's satisfaction by providing desired information efficiently and minimize the user's time loss between setting up the query, and retireving the information, which is the main objective of IRS. To provide fruitful infomration Retrival, services (1) Storage of information should be done using software based on database management systems such as local databases, CD-ROM databases and online databases, (2) Convenient display formats should be selected for browsing the required information, (3) For supply of information to the users, the information should be extracted from the database by downloading, onto the floppy disks or by taking print out on paper as hard copy.

8 HUMAN RESOURCES

The automated library and Information system consists of three basic

elements; hardware, software and humanware. Human beings are the most important component of the computer systems. For the success of computerised Library and Information systems, knowledge skills and attitudes of the existing staff is essential. So proper education and training must be provided to the library staff to cope up with the needs of computerized Library and information systems of the 21st century. For improving the skills; Continuing education programme, summer schools, refresher courses and inservices training on computer application to Library and Information world should be conducted in all Universities and Library schools. In India the institutions like, CSIR, ISTE, INSDOC, DRTC, DESIDOC, NISSAT etc are providing a number of training courses and workshops regularly. The Library staff should undergo these training programmes. Then only the objectives of automating the library functions will be fulfilled.

9 SUGGESTIONS

(1) The college must procure the CD-ROM drive and the databases, available in their subject fields.

(2) The charge for the usage of CD-ROM packages should be uniform in all the colleges.

(3) All the professional and other college Libraries should computerised and should provide the computerised cataloguing, serial control, acquisition and circulation services.

(4) The e-Mail and the FAX facilities should also be made available in the libraries for the users to receive the required information in time.

(5) All the libraries must be connected though LAN or WAN by which the resources can be shared among the users of various libraries.

(6) The young library professionals should be properly trained for handling computer in their day to day works.

(7) The librarians should acquire the skill to exploiting computers to the best of their advantage for increased productivity.

(8) The institutions should support the users by providing a document delivery service.

(9) There should be continuous communication and co-operation among the library and Information centres.

10 CONCLUSION

The recent pace of advances in information technology its ambit in telecommunication components, software development searching techniques,

switching mechanisms, the merging, linking and interactive modes of access to information systems and their databases, will surely transform many of the traditional library procedures, practices and functions in the 21st century. The librarians of 21st century will be able to sit at a workstation and call up library catalogue, bibliographic databases, and other internal systems. They will be able to create document via word processing and communicate with other libraries through electronic mail, telecommunication and satellite communication systems.

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PUBLIC LIBRARIES OF 21ST CENTURY

LEENA SHAH
S KUMAR

0 INTRODUCTION

21st century, like 20th century, will also be an era of scientific research and technological advancements. There have been much advancements in science in last two centuries. But many more problems are yet to be solved and many more advancements are yet to come. So far we are not able to develop Anti-Cancer or Anti-Aid vaccines. We hope that such progress will take place in 21st century.

01 ERA OF INNOVATIONS

The 21st century will be an era of scientific and technological advancements in every field and in every walk of life. It will be an era of speed, when such developments will take place with no time lag. Very soon these new developments will also be out-dated with new innovations. Thus it will be an era of innovations and their innovations and so on.

1 INFORMATION TECHNOLOGY

The information technology is also not untouched by scientific and technological advancements. It too had advancements in last two centuries and will have much more advancements in the next century. It is not too far back in time when communication of voice on wires was a Miracle, Communication of picture on TV made us dazzled. The new generation may not be amazed by receiving smells on their TV screens.

The information technology in its simplest form, encompases the world of computers, micro electronics, telecommunication, storage and transfer of data in the form of pictures, words and numbers. The development in information technology has changed and will change much more, the very texture and fabric of 'wired society' with words such as tele-medicines, tele-presence, tele-conferencing, etc. The 'Information Revolution' is a product of the rapid development of both computers and telecom technologies. The integration between the two has made it possible to the users of data to access information throughout the world.

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2 INFORMATION TECHNOLOGY IN DAILY USE

Information technology covering computers and other tools collecting, storing and disseminating the information is fast becoming a part of everyday life. It has already involved fields like crop, environment and natural resources like coal, oil and natural gas, etc. In the primary sector Weather forcasting and Environment Information System (ENVIS) are few examples. National Information Centre (NIC) is the nodal science and technological organisation of Central government of information development and dicision support in government, using NICNET facilities available at district state and central government's departments. It is a (Satellite) (INSAT-1D) based computer communication network-NIC has taken computerisation of land records, DISNIC programme provides a framework for the development of District Information System (DIS) for each district in about 27 sectors. GISNIC facilitates the development of Geographical Information System for enabling information supported planning for rural developments. Computerised Rural Information System (CRISP) have become a reality.

21 INDUSTRIAL USE

In the secondary sector, computer application in steel (SAIL), natural gases, water resources, coal, power, and manufacturing industry are already a legend. The computer application in service sector is a recent phenomenon affecting banking, general insurance, health, education, employment, road, railways, air-lines, police, etc.

3 INFORMATION TECHNOLOGY OF TOMORROW

We can not think that, state of information technology of today, will be the same tomorrow. Time is not far, when a hairthick optical fiber entering in a room will enable a person to get information from anywhere in the world, on any topic of interest. The development of information technology will be much more and with accelerated speed. More and more sophisticated equipments will be developed. The computers may be as mini as pocket calculators, with attached screens and printers. They may have greater memory and better Central Processing Unit (CPU) working with much more speed. It may also be possible to link these tiny computers with networks with the help of cordless devices. Use of modem may no longer be necessary to transmit computer data on the transmission lines.

31 ELECTRONIC TECHNOLOGY IN HOMES

TV transmission will be easier. We already have many channels on TV. We may not need disc antena for satellite TV transmission. There may be multilingual TV sets and we can be able to listen any programme in any language. Thin screen is already in the market with liquid crystal (LC)

technology. There may be special channels for information transmissions. Local area Networks (LAN) will be very popular and their access and use will reach the common masses. We can hope to have a cordless telephone in almost every house, just like we have provided electricity in almost every house. It will not be so easy, if not very difficult, to presume new scientific developments which may come in the next century.

4 DAZZLED LIBRARIAN

The librarians with conventional techniques will apply electronic devices to Library Information Services. The computers have arrived on the scene, not for the aesthetic reasons, but because they are essential for the survival of complex society, in a way, the food, clothing, housing, education, health services are essential. The world is suffering from 'information over load', and we can no longer handle it unaided. Out society is too complex, and can not live without adequate memory and rapid flow of information. The complexity has become so great that its very existence is made possible only through correspondingly complex mechanism for communication, processing, storage or retrieval of information.

The technological developments have lagged behind this profession for centuries. The telecommunication has opened new vistas for us. The development in communication has vanished or atleast trying to vanish distance as barrier to information. The computers, performing communication functions can make pages of texts, from one part to another part of the country or anywhere needed throughout the world, using a telecommunication through telephone lines, cables, micro waves or satellites. They are webbed, called Networks for inter communication between centres and locations, to share economy. The new developments have and dazzled librarians, and we are trying to cope with these developments, to adjust with the new era.

5 LIBRARY AUTOMATION

Every aspect of human life that is or appears to be is related to the rapid developments in science and technology, expected to match the technological pace. The library is thus expected to provide more complex services with greater precision and reliability, and to do so with little or no delay.

51 LIBRARY PROBLEM

The mid twentieth century accelerated development of electronics. Compact storage, communication and information technology. The impact of technological opportunities is muted, by the very nature of library economics and inherent complexity of the storage and retrieval function.

52 AUTOMATION TO AID

The increased library activities made traditional tools ineffective. The increasing work load has forced the libraries to adopt technology for effective and quick services. The intent of automation is, to accomplish the same final purpose by designing the process, to make optimum use of both human skills and mechanized aids. There are many applications of automation in libraries. It begins from registration of readers to the acquisition of documents, readers profile, circulation, classification, cataloguing, indexing, abstracting, translation and storage of documents, etc.

6 LIBRARY NETWORKS

Ultimate goal of networks is to consolidate its records, through communication services, into one integrated computer controlled system, providing common switching facilities. Library networks might concern themselves with: (1) shared data-banks of cataloguing information, (2) central serials records for member libraries; (3) interlibrary loans; (4) transmission of graphic materials; (5) access to special data banks; (6) locating out-of-print materials; (7) book selection; (8) statistics of member libraries; (9) fact retrieval in special areas; (10) exchange of duplicate lists; (11) exchange of 'want' lists; (12) guiding collection development; (13) sharing of library materials (14) planning for better service at the same or lower cost; (15) automation developments in the national libraries and other networks. Thus, mechanisation puts machines to work to do the same things that were previously done manually. Computers and telecommunication encourage total automation and a fresh approach to library operations.

61 NATIONAL & INTERNATIONAL NETWORK

Much have been done in the field of special and academic libraries to web these into networks. At international level. INIS, AGRIS, FOSTIS, EURONET, BIONET and many other networks have come. International professional associations, international political institutions, Unesco and other specialised agencies of the United Nations have promoted the cause of international cooperation and the development of international network for the transmissions of information and bringing universal bibliographic control. FID and its various committees, IFLA, ISO, OECD, CMEA, UNESCO, INIS, AGRIS, ICSU, EEC, ESRO, SDS, INSPEC, NISPA and finally UNISIST have helped in developing international cooperation among libraries, documentation centres and archives, and perhaps the dream of full universal bibliographic control is nearing realization. At national level NISSAT, NICNET, INFLIBNET are developing the networks will cooperate with public libraries and with one another as well as with subscription

libraries, school libraries, college libraries, departmental libraries, research libraries, and university libraries, etc.

62 DISCONNECTED GROWTHS IN INDIA

Dispite these developments India is, as yet, lacking the development of a proper national network, as there is no coordination among school, public college, university and research libraries. Public library and school library structure is more or less neglected and that college and university libraries are developing in isolation, which fact has virtually hampered the development of a national network in the country.

7 LIBRARIES OF TOMORROW

If the technology continues to grow at this accelerated speed, it will be very difficult to presume the nature of libraries of 21st century. It is just possible that these libraries may take a shape of paperless libraries with every few readers to use these libraries by physical presence. A touch of button of a cordless equipment may be able to contact with public information centres (Public libraries) in any language, in any print or non-print media. We may presume that these public information centres (Public libraries) may not have a qualified librarian, but just a super and amazing computer housed in a very small chamber or on any desk top, with just a maintenance engineer cum librarian. The technology may develop where information will be available on tiny media. The information storage media will have great amount of information than it has today. At present an Encyclopedia Americana can be in our purse on compact disk. Tomorrow it may be possible that it is in our ring, with its reading and printing device in our purse.

71 CONVENTIONAL FORM OF BOOK UNCHANGED

It can be said that libraries of tomorrow may be very much different than that of today. Though technology may change these libraries considerably, the conventional form of book and the conventional library is not going to scraps. This is the most convenient media, the human civilization has ever evolved, and it is going to be the most convenient media in future too. There will be adoption of may new technologies, but this is not going to replace the conventional form of a library.

72 PUBLIC LIBRARIES

Public libraries are the libraries open for the public. These libraries are meant for educational, cultural and recreational purposes. It is meant for young and old, men and women, poor and rich, literate and illiterate on equal basis.

721 Storage, Dissemination & Copy Supply

The public libraries are considered to be the treasure of documents. These libraries have to collect vast variety of literature for varied groups, cultures in different languages, specially in a vast and varied country like India. The role of public libraries have changed considerably. These are also not merely libraries but disseminating centres of knowledge, embodied in varius kinds of documents including copy supply, if needed. These libraries have to cope up with modern technology applicable in communication world.

722 Technological Applications

The present scene of public libraries in India is pathetic. They are still considered to be the store houses of some newspapers, magazines, novels and short stories, housed in poor buildings, without sufficient furniture, equipment and other physical facilities and staff. To take public libraries into 21st century, it will be desirable to use modern technology which is now limited to special libraries, as if they are meant for them only. The computer application, networking and compact disk technology, at present, are in use in many special libraries and to some extent in some universities. The public libraries are almost untouched. In 21st century public libraries have to adopt, new technologies, already evolved and many more to come.

723 Library Acts to Suitably Change

Virtually the libraries have transformed into information centres. The information has become a commodity with information market and buyers and sellers. The information is sold at a handsome price, though this concept of information marketing is not desirable in public libraries. At present there is 'free book service to all' or 'free information service to all'. But at the same time huge and vast quantity and unlimited variety of knowledge, may force public libraries to charge fees, to cope up with the expenditure involved with the maintenance, dissemination and communication of information, to take public libraries into 21st century. It will be desirable to change the concept of present public libraries. They will have to be equipped with modern equipments, webbing public libraries into information networks, and for that a handsome amount in terms of aid or cess will be necessary. The present public libraries have to be modified considerably. The public library acts may need modifications for the public libraries of 21st century. In these acts, many more definitions will have to be added like computer, information network, compact disc, etc.

724 PUBNET

While taking public libraries to 21st century, which is to come after just

5 years from now, we cannot imagine drastic changes in this short span of time. But we can think many changes in public libraries some times in the 21st century. The 21st century will be, a century of many more new technological advancements. There have been many changes in special libraries and to some extent in university libraries, but there is very little change or effect on college and school libraries, and hardly any effect on public libraries. The development of new technology is bound to force the public libraries to adopt these sooner or latter.

7241 NISPUB

Unfortunately public libraries do not figure any where. At present there are information networks in science. India should have a public library network too which may be called (PUBNET) or National Information System of Public Libraries (NISPUB), with its headquarter at National Library, Calcutta.

7242 SISPUB Details

There should be State Central Library in the each state capitals or in some other big cities of the States. These should be interlink in a 'NETWORK' in each state. A public library network has to be established called State Public Libraries 'Network and Information (SPLIN) or SISPUB (State Information System of Public Libraries) or with the name of the state with PUBNET ie. GOAPUBNET, Karnatak PUBNET, etc. In a state public library network, the STate Central Library will work as its headquarters, with its regional libraries, district libraries, city libraries and rural libraries. The state library network will take care in regional languages and in arts and culture of the region. District libraries may have more responsibilities. The collection of information, in print and not print media, will be the responsibility of district libraries and District Librarian should have the power of imposing penalties on defaulting publishers and information generators.

72 Electronics in Public Libraries

At state level the computerized public libraries network can be made as follows:

(1) Mainframe computer system can be installed in State Central Library and made fully operational. The system should support administrative services, accounts, book selection, classification and cataloguing and preparation of union catalogue of the region.

(2) The regional libraries can be equipped with micro processor system, supported by adequate configuration off-line data terminals. These should take routine, administrative work, charging-discharging registration,

overdues and information retrieval of the interest of the region. District Libraries and City Libraries should cater the need of Local Area Networks (LAN).

73 Electronics in Rural Libraries

There may be a lot of debate for the use of electronics in rural libraries. At present we may not think any greater use of information technology (IT) in rural areas. Rural development planning monitoring, role and scope of information technology to stream line and improve the information flow and analysis can be debated at length. The Computerized Rural Information System Project (CRISP) was lunched in 1986 by Govt of India. To assist district Rural Development Agencies (DRSDA) on Information Processing (IP), related to poverty elemination schemes, at district level. The information collected from blocks and panchayats, can be processed and disseminated at district level. Use of computers will facilite agricultural advancement and can reach to rural people with the help of such rural network.

731 Extension to Information

The rural libraries of tomorrow may be developed much more with the extention of telecommunication facilities in these areas. The villages are being connected with telephones. We can hope that with the technological advancements, much more sophisticated technology will be developed. Wireless telephones of tomorrow may facilities communication facilities in these areas. The rural libraries of tomorrow can be expected to be inter linked with cordless telephones, with much more sophistidated technology. Rural libraries will have much role in the rural development.

8 PUBLIC LIBRARY ACT FOR 21ST CENTURY

State and union government must realize that the public library system will have to be builtup through public expenditure. The most important task for the next century would be, to complete the process of library legislation in the country. It began with the state of Madras in 1948. After that Hyderabad (1955); Andhra Pradesh (1960); Mysore (Karnataka) (1965); Maharashtra (1967); West Bengal (1979); Manipure (1988); Kerala (1989); Haryana (1989); Mizoram (1993); and Goa (1993) have enacted public library acts. It is high time that remaining State and Union territories had their respective library legislations.

81 INFORMATION MAY BE CHARGED

It is however important to emphasize that legislation alone can not give us sound public library system. Due to its changing role in 21st century, the concept of 'free' information service may not be feasible, due to high cost of

information storage, retrieval, and communication. We must give serious thought to the problem of financing sound public library system. Public institutions need public support.As we pay for viewing a film, we may be ready to pay something for the services from public libraries. Free information service may not be feasible in the next century. We may continue with 'free book services', but not free information service.

9 PUBLIC LIBRARY ACTS AND MODEL BILLS

91 EARLIER EFFORTS

In India, the first Model Bill was mooted by Ranganathan in 1930, discussed in first All Asia Educational Conferences, Benaras in 1943, at the instance of ILA, Dr Ranganathan drafted a Model Public Libraries Bill. In 1948 Government of India appointed a committee which drafted Union Library Bill. Dr Ranganathan was one of its members. The Referred Union Library Bill was published in Five Laws of Library Science in 1957. Advisory Committee for Libraries with KP Sinha as its chairman, outlined the factors to be governed by library legislation.Dr Sen committee drafted a Bill in 1964. Its revised version appeared in 1965.

911 Library Act to Include Electronic Library Features

Since we hope that, if not at the beginning at 21st century, sometimes in the 21st century, technological development will turn public libraries to be the modern electronic libraries, we will have to incorporate these advancements in public library acts. The Acts passed so far and the Model Acts are mainly concerned with conventional public libraries with conventional books. It will not be futile to attempt for a model public library bill for 21st century, which will be able to cover modernization of public libraries. For the purpose Model Library Act given by Dr SR Ranganathan, may be taken into consideration and some major changes can be suggested. The model bill was published in Library Science with a Slat to Documentation; Volume-1, 1964, p 380-410. The Mysore (Karnataka) Library Act, 1965 is based on this bill.

912 Model Public Libraries and Information Centres Bill for 21st Century

The public libraries and information centres (2000 AD): A bill to provide for the establishment and maintenances of computerized and electronic public libraries and information centres and the organisation of the comprehensive automation in rural and urban library and information service in the state of.....

Whereas it is expedient to provide for the establishment and maintenance of computerized and electronics public libraries and information centres and

the organization of the comprehensive automation in rural and urban library and information system in the state of... and for matters connected herewith.

Be it enacted by the legislature of the state of 2000 AD year of the Republic of India.

Some major changes may be as follows:

1 Definitions

Many more new definition will be included

1 Networks, Networking
2 Computer
3 CD Rom/Ram
4 Telecommunication
5 TV
6 LAN
7 PUBNET
8 Library fess
9 Service charges
10 Floppies
11 Software
12 Fax
13 Teletext

2 Library Authority

The library authority for the state and district will be smaller and will include some computer personnel as its member.

3 Development Plan

The development plan for the state for the district will include the facilities for computers, networking, telecommunication and formation of local library network. It will also include networking plan for smaller city libraries, block lirbaries and rural libraries.

4 Finance and Accounts

1 An annual grant of at least 10% of education budget in the state will be provided for the libraries.

2 The library cess will be levied on properites including rural lands.

3 Library fees will be decided for every service, provided by the library. For each page there will be seperate service charges for the information procured locally, state level or national or international level. It will include cost of tele communication.

5 Press and registration acts

The ammendment will include printed books and other non-print media. The district librarian will have more powers to enforce this act. The term books will be replaced by documents.

10 CONCLUSION

The new technology will be a part of 21st century public libraries. We will have to equip our libraries to welcome the 21st century. The government should take following steps to provide adequate funds to equip these libraries into modern libraries:

1 The public libraries should be housed in a modern functional buildings and provided with modern equipments.

2 The young librarians of public libraries of today should be trained in new technology.

3 Considerable changes should be made in the syllabus in the Library and Information Science School to provide training for the students in modern technology.

4 ILA should take steps in conducting special refresher courses for public librarians.

5 Public libraries network should be developed.

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RESOURCE SHARING
A Historical Perspective and a Vision for the Future

ON CHAUBEY*
AP GAKHAR*

0 INTRODUCTION

Cooperation is a social activity as old as human civilization itself. The aim of any cooperative activity is to achieve what the members of the group can't achieve individually. The fascination for cooperative endeavour, later envolved into division of labour among individual members and subsequently to specialisation.

01 FORMS OF RESOURCES SHARING

Resource sharing is a needbased concept founded on sound principle of give and take. It is not the quantum of exchange but the real desire to do so that is essential to become part and parcel of the important programme of resource sharing. Among the resource sharing activities, interlibrary loan, document delivery services and exchange of publications, hold an important place.

02 GOALS

Resource sharing denotes a mode of operation, whereby functions are shared in common, by a number of libraries. According to Allen Kent, the goals are to provide a positive net effect: (*a*) on the library user, in terms of acess to more materials or services; and/or (*b*) on the library budget, in terms of providing level service at less cost, increased service at level cost, or much more service at less cost, than if undertaken individually. These goals should be realized without harm to the missions of participating libraries, although their methods of operation invariably must be adjusted. Similarly, the goals are realizable, only with some changes in the habits of users.

1 HISTORICAL CONTEXT

11 ANCIENT HISTORY OF RESOURCE SHARING

History of resource sharing can be traced to 200 BC, when Alexandria library shared its resources with Pergamon library. Among the later developments, Kraus gives examples of library cooperation among monastery

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libraries in the 13th Century. There were exchange of agreements among the Universities of Lund, Abo and Greifswald as eary as 1740. One of the oldest traditions in library cooperation has been sharing of bibliographic information. The 'catalogue of Manuscripts in various parts of Inida' complied by Whitney Stokes in 1868, and in 1863 Part I of 'Sanskrit' manuscripts in private libraries of Northwest Provinces, covering Varanasi was published. In 1885 the Smithsonian Institution published a major Union list entitled 'a catalogue of Scientific and Technical periodicals'.

12 ILL CODE

The development of the first inter-library-loan code by ALA (American Library Association) in 1917 began a long term effort within the profession to formalize procedures for access, when ownership was not possible. The publication of the Union list of serials in libraries of the United States and Canada in 1927, was one of the most notable achievements of the decade. With the establishment of the Library of Congress cooperative cataloguing division in 1932, sharing of information expanded to most of the libraries of United States and Canada. One of the best cooperative organizations for Academic Libraries, was the Midwest Inter library Centre in Chicago, founded in 1949.

13 SERVICES & RESOURCES-'ON LINE'

The formal cooperative efforts of the 1950's and 1960's known as 'resource sharing' were born of a Union between, available resources, to respond to the reader's at the libraries that lacked. Government agencies, professional organization and individual institutions began to set standards and organize information networks. They found that certain functions, such as Cataloguing, could be done more efficiently in a central location, with the results distributed to participating institutions. They found that little used research material could be acquired and stored in a central place, and the distributed to interested scholars, thus freeing local space and budgets for more highly used materials. The development of cooperative organization took on an entirely new significance for libraries as the computer began to change the face of library operations. The first major cooperative effort in automation within academic libraries, the Columbia/Harvard/Yale Medical library project, operated from 1962 to 1966. This project used online system, for both card production, and access to bibliographic information.

2 RECENT HISTORY: 1970'S AND 1980'S

21 AUTOMATION & COMPUTERS' INFLUENCE

The development and maturation of computer technology, coupled with an unabated increase in the cost of library materials, provided fertile ground

for growth of resource sharing among American and European libraries, in the 2nd half of the 20th century. The amount of resource sharing occuring among libraries took quantum leaps during the 1970s and 1980's, due to creation and widespread acceptance of computerized bibliographic networks. Important foundation had been laid during the late 1960's, with the creation of MARC Communication Format by the Library of congress for machine readable cataloguing (MARC) and offering both the format and data from its own Cataloguing operation, to any organization willing to experiment. This development set the ground rules for the future.

22 GROWTH OF FAX

Another step forward in resource sharing is brought about by improved technology in the area of document delivery. For this purpose idea of the telefacsimile (better known as fax) was intorudced in the 19th century, in which a device was developed, which could send an electronic current over wires and reproduce the motion of a pendulum. After this beginning, lot of developments took place. In 1960's (group I) and 1970's (group II) there were several attempts to use telefacsimile transmission for the delivery of periodical articles. These attempts failed, because the technology was still too crude, equipment was expensive, transmission was slow, copies were unclear etc. In the middle of 1980's revised group III fax machines, capable to very fast transmitting, with a significant drop in the price of the equipment, resulting in almost overnight enthusiastic acceptance of fax. In 1989, 77% of all US bisiness organisations had installed telefacsimile machines, while 50% of the government and education locations had access to fax equipment. The relatively low cost of a group III machine, makes it a feasible equipment for libraries with even the smallest of budgets.

3 THE CHALLENGES FACING TECHNOLOGY 1990S

31 NEEDED TECHNOLOGICAL INPROVEMENTS

To meet the challenges of today and tomorrow it is necessary to adopt a mechanism–system of resource sharing. The technological innovations in the 1970's and 1980's have brought about an increase in the availability of data, faster transmission of requests and delivery of materials. Yet there are many challenges ahead. Some of them are: reduction in all round cost; avoiding unnecessary duplication of information materials and efforts; possibility of developing specialized activities, specifically concentraing on some particular area; and maximum accessibility to information, without losing the individual identity of libraries.

32 PRICE ESCALATION & ACCESS TO HOLDINGS

The continued rise in the cost of serials and the resulting concellation of many subscriptions puts pressure on systems, librarians, and publishers, to

devise alternative methods for improved, economically viable yet affordable access to materials. It is a fact that even big libraries can't afford to acquire even half of all published material, both in terms of cost, and investment in space and personnel time required to process and provide access to ever increasing quantity of information. A problem still far from solution, is that of access to the many electronic networks and databases. Access between the major utilities and among the ever increasing number of local automated systems, leaves much to be desired. The necessity to log on to one system after another, in order to search for a item, is time consuming and tedious. Many system of commands must be learned. Some understanding of telecommunications software is required. Moreoever, the 'holdings' information contained on the utilities, is not entirely reliable. For several reasons holding may be lost, missing and in poor condition, that probably prevents circulation.

33 MEDIUM OF DB-AFACTOR

Methods of document delivery supported by technology are far from perfect. The problem is exacerbated by a proliferation of media in which information is stored. An early example of technology getting in the way of resource sharing, is the use of microform for back files of journals for space saving or security reasons. With microform there is more staff work required to produce the copy requested for interlibrary loan, reader printers are very costly and cost of each copy is very high. In more recent developments, it is not yet clear where 'hypermedia publications', containing sound, picture and text, as well as interactive sections, should fit into resource sharing. Does a library share such materials? If so, what is the method of delivery? Does one mail the CD? CD-ROM technology has the potential to effect and change dramatically resource sharing at the local, national and international levels. This impact will be felt by most libraries, including those which have not been involved with resource sharing activities in the past. The positive aspect of automating collections are apparent with CD-ROM technology. Most notable is its large storage capacity. It is now an affordable method for providing library services, and has a low per copy replication cost, for additional workstation whether they are in house or in another library. There are no communications costs. It actually end user oriented, requiring minimal library's intervention. CD-ROM can and does function as a back up catalogue, and the database, once built, can migrate to different technologies. The wide range of CD-ROM products and services involved, have made it difficult for librarians and libraries to analyse and focus on the implications of this impact on resource sharing. If CD-ROM technology is to be adopted and used by libraries in any semblance of a planned and organized fashion, then this impact must be recognized and anticipated by all libraries, from the

school level to the largest research institution.

34 EMAIL'S ADVENT

Electronic mail (E-mail) is the latest in the line of postal, telex and fax systems of communication. It is one of th eimportant network based services, available to Email users for sending and receiving messages across the world. It is projected as the cheapest and fastest channel for disseminating information across the globe. Application of Email in information processing centres, ensures fast and speedy transmission of information products. The main application of Email is rather in online information service, than in message handling. By using Email, user can send an online request. The searched output is delivered at the user's terminal through Email. An Email user can avail online service, cutting across geographical barriers, irrespective of the distance, between user terminal and database host system. Other Email applications including computerized literature searches, reference enquiries, photocopies supply, interlibrary loan, reserves and renewals that have been offered in different libraries. Some of these library services, particularly document delivery requests, have proved very popular.

35 LIBRARIES MUST ADOPT 'IT'

Users have always wanted information that was timely, convenient and customized. Technology is rapidly growing in its capacity to meet these demands. How well libraries and resource sharing systems, incorporate these characteristics into their services, will be critical to their success in the future. System which create obstacles between the use of local resources and remote resources, which are so complex that they require the mediation of an information professional, which are, slow and which are based on traditional bibliographic units, rather than the delivery of information, will be inadequate to meet the majority of users needs. If librarians can't create successful information delivery systems, the role of libraries in the information society of the future will shrink dramatically.

4 FUTURE OF RESOURCE SHARING: 21ST CENTURY

41 ACCURATE, QUICKEST & CONVENIENT SOURCE

If understanding user's needs is the key to the future, Librarians must become must more knowledgeable about what each individual user requires, in terms of content, timeliness and customization. Many authors have projected what the user of the future will require from information services. One point on which most agree is that users will go to the quickest and most convenient source for what they need. Stay put professionals are in danger of trying to solve tomorrow's problems with yesterday's tools viz computerization, MARC, AACR2, yesterday's networking, etc.

42 CONFLICT OF GOALS

It is a paradox typical of technological development, the advent of the computer at first increased the amount of resource sharing that went on between libraries. Now as the technology advances, it will probably make *interlibrary loan obsolete within a generation.* The goal of computerized information resources which are easily accessible electronically, is being pursued by university administrations as well as many librarians. This goal may conflict with the goal pursued by a large part of the library profession. The basic conflict in the two camps is that, one group is working toward provision of information directly to the user, while the other group is concerned with improving the mediated services which librarians provide. One assumes a highly sophisticated scholar user, the other assumes that librarians still have a role to play in scholarship and research.

43 TELECOM & SOFTWARE STANDARDS

Technology-is now and it will remain-both a force for progress and an obstacle to progress. Impressive advances in bibliographic resource sharing, have been made because the power of technology was harnessed by the use of standards like MARC. The lack of standardization which remains in the world of telecommunications, applications software and Electronic Mail (E-mail) etc will need to be addresed before the information society can became a reality. Technological advance will probably continue to outstrip the ability of the people to link the old and new. The development of standards and the bridging software will be the challenge of 21st century. The shift from print based materials to electronic materials, will present us with more than just the technological task of creating system for seamless electronic resource sharing.

44 EXPENSE ON PUBLICATIONS TO CHARGES FOR DBS

A critical factor in forcasting the role, technology will play in 'resource sharing' in 21st century, is the manner in which scholarly information is developed, shared and transmitted. This is changing so drastically that it will be a challenge to librarians to find their place in this brave new world of communications, and access. Since scholars and writers work on word processors and publishers use computers for the creation of their products, the electronic database becomes the product. As academics use microcomputers for writing and communicating over networks, in the pursuit of research, more scholarly information is in the electronic medium. It seems a natural progression for electronic publishing to proliferate, and for the academic world, to short circut and eliminate the incredible expense of publications. If the scholarly community figures out how to avoid the expense of publications, the publishing world will figure out how to compensate by a charge on

the electronic databases, which are becoming more important, as a revenue base than print media, in some cases. (eg., Chemical Abstracts now finds that cost recovery for the production of their database is found in their electronic product, whereas as just seven years ago, it was found in their paper product).

45 PROFESSIONAL ACCOUNTABILITY & SECRECY

A major challenge faces librarianship in refocusing professional skills on the user, rather than on documents. It will be increasingly necessary for a librarian to develop a closer relationship with the "client", much like that which other professionals develop. This professional relationship may well include a greater performance accountability for information service staff, and a relinquishment of the traditional cloak of anonymity, which has distinguished librarians from other professions. A greater sensitivity to the privacy which a user expectes his/her question in handling, will also be necessary, as the possibility of using cooperative information services increases. The future will require librarians to operate as 'knowledge professionals', rather than collection professionals. In his article in Library Journal, New York Public Library Director Richard De Gennaro writes:

"In the future, the size of a library's collection of conventional materials will matter far less than it does now. The question is no longer how many volumes a library has, but how effectively the librry can deliver needed resources from a wide variety of sources to users via the new technology. The emphasis is shifting from collections to access.

5 CONCLUSION

The history of library cooperation and resource sharing, is an aspect of which the profession can be very proud. But the future will demand a new paradigm. The spirit of this age is high technology combined with individualized and personalized response. In future, resource sharing and document delivery continue to be improved by the evolving computer and telecommunications technology. However, librarians at the institution level, should get involved with the research of the computing community, so that they remain a vital part of the delivery of information. Librarians can play an important role in assuring that technology does not lead to chaos, that order is maintained. Librarians may be able to prevent technology from causing major disruptions in our carefully structured resource sharing arrangements, while they are still necessary. For the long term, librarians may have to choose between two diverging paths: either increasing involvement in the emerging electronic world of scholarship, bringing their skills and knowledge to this new world, allying with scholars and producers of electronically created and

disseminated information, or becoming curators in the more traditional type of library. The librarians may also serve as a bridge between the traditional and the new, serving the needs of the less educated by mediating and bringing them up to a level where they can become part of the electronic age. Whichever path the individual librarian chooses, resource sharing as we now understand it, will probably cease to exist.

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RESOURCE SHARING AMONG ETV LIBRARIES

AMJAD ALI*

0 INTRODUCTION

Television has been regarded as the most powerful medium of mass communication. It is being used widely for the instruction of students at all levels in education; primary, secondary and university. Undoubtedly, paper has dominated as a medium for the last many centuries, and still continues to be so, but its growth was rather slow, comparing with the new electronic media. Television was introduced in India in 1959 as a Pilot Project of Unesco to impart social education. Within 35 years of its inception, the country has witnessed a revolution in its technology and use for many purposes. In the area of education alone, over 300 production agencies have been established as surveyed by Poornima Vyas of IGNOU. But most of them are being run privately. The Government of India is also very much concerned about the utilization of the potential of television in education. Doordarshan now devotes 34.1% of the telecast time for education through its various national regional and ETV services.[1]

01 GROWTH FACTORS

There are many factors responsible for steady growth of television as a medium of instruction. One of the most significant among them is, the replacement of celluloid by video, which contributed to atleast a 10% reduction in the price of the medium. The cost of TV sets, VCRs, VCPs, cassettes, cameras, editing and the post-production equipment is going down, because of the technological advancements. Ten year back, a film of 30 minutes duration on video involved an expenditure of around one lakh on its production. The approximate cost is Rs 30,000 now. Further, the programmes have a higher degree of resolution. The number of viewers has gone up considerably, because of the access to the medium and its popularity. Various surveys suggest, a shift in the learning behaviour of men, and increasingly more dependence on the audiovisual media.

1 ETV ORIGIN

The Education Television (ETV) has grown faster during the last one decade. The inception of the 'Mass Communication Research Centre' (MCRC)

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at the Jamia Millia Islamia in New Delhi, with the assistance available from the 'Canadian International Development Agency' Toronto, has been regarded a milestone in the history of ETV in India. The year is significant because, two other national agencies namely the 'Central Institute of Educational Technology' (CIET) and the Indira Gandhi National Open University (IGNOU) were also established in the same year.

11 ETV NETWORKS

India has two well established networks for the ETV production and distribution.The Countrywide Classroom (CWCR) of the 'University Grants Commission', and its modest beginning as INSAT TV Project at MCRC, and the first very programme under the project went on air on 15th of August 1984. Earlier the programmes were aimed at the post-graduation students, as sufficient infrastructure was not available to cope with the production needs for the undergraduates. Satisfied with the success of the project, the Government of India decided to establish media centres in all the regions of the country. As a result, the Educational Media Research Centres (EMRCs) and the Audio Visual Research Centres (AVRCs) were established. The programmes produced by all these agencies are being telecast by the 'Consortium for Educational Communication' (CEC) in the Countrywide Classroom.

12 RURAL EDUCATION

The National Council of Educational Research and Training through CIET caters to the educational needs of the rural primary schools and their teachers. CIET has a network of 'State Institutes of Education Technology' (SIETs) and the 'District Institutes of Educatinal Technology' (DIETs). Both CIET and SIETs undertake ETV productions, whereas the DIETs only use them for training. Another major ETV producing agency in the country is IGNOU, having a network of study centres through out the country but the work of production is undertaken centrally in its Communications Division. Most of the IITs, IIMs, Agricultural Universities and government departments have their own infrastructure or hire the services of the private agencies in the trade, to produce training programmes for the students and staff aimed at their specific requirements. A look at the annual rate of ETV production by the CWCR reflects an ever increasing trend (Table 1).

13 SOUND BASE & IN HINDI

In 1984 hardly 20% home-made programmes were telecast in the CWCR and the dependence on the foreign countries mainly USA, Russia, England, Germany and Australia was 80%. Within a decade the Consortium for Educational Communication has created a sound base of around 3,500

Table 1

Sl No	Year	CWCR
1	1985	109
2	1987	276
3	1989	372
4	1991	451
5	1993	525

Note: The above data were collected personally.

programmes, excluding the non-broadcast titles. There is another significant change as far as the viewership is concerned. The decision to telecast CWCR programmes in Hindi, will yield better results, as till today the majority of college and university students in North India do not understand the programmes in English properly. Many surveys have revealed these findings.

2 EFFORTS IN AUTOMATION

The first systematic attempt to automate the ETV libraries in the country was made in 1987, when the Mass Communication Research Centre at the Jamia Millia Islamia introduced computer in its library. The record of completed films, as well as the stock footage, were mounted on a Personal Computer. The software for it was developed locally. A special communication format was designed, keeping in view the needs of the students and the producers of the CWCR. The system is still working, and the details about the new productions are regularly being mounted, in order to update the information system. In fact, this was an individualized attempt and its main aim was, to esure an easy access for the users and specially the producers. This proved effective in reducing the cost of production, since a number of stock shots are used repeatedly in many productions.

21 MCRC SUPPORT

MCRC played again a lead role in identifying, defining, analysing and mounting on computer, the contents of the stock footage collected by way of the rough-cuts and extracted from the complete video productions. Alongwith the information system for books, a video module on management of information available in stock footage, was integrated in the multimedia software. The software covers only seven fields ie record no, tentative title, subject, duration, position, keyword and synopsis. The provision of global search facilitates retrieval through any of the terms known to the users relating the desired shots.

22 SOFTWARE FOR NETWORKING

The Development Educational Communication Unit (DECU) of the 'Indian Space Research Organisation ISRO'. Ahmedabad, has come out with a software package for automation and networking of the libraries of CWCR. Their software has been improved over the years, by incorporating changes, as a result of the practical difficulties in its use, as experienced by the various media centres of CWCR. The software has already been distributed to all the EMRCs and AVRCs, with a suggestion to mount the record of productions in the prescribed format. The staff of media centres has been trained in advance for its use. It is possible to improve the software further in order to use it for networking of all CWCR libraries, providing the E-mail facility with the 'Consortium for Educational Communication' as a central agency. But despite all these efforts, the software is being used no where excepting CWCR.

3 NETWORKING AND RESOURCE SHARING IN PRIVATE HANDS

Networking and resource sharing is possible only after the availability of data, a suitable software package and also the telecommunication link, to transmit the information both in the form of text as well as audiovisual media in case of the ETV libraries. So far **there has not been a single notable effort in centrally listing all the available ETV productions so that a comprehensive record may be available.** The first major attempt in compilation of the union catalogue was made by the Electronic Trade and Technology Ltd, New Delhi. They have been basically a supplier of electronic hardware items who occasionally undertook the production as well as the distribution of ETV programmes. Now the work of distribution has been undertaken by M/s Wiley Eastern Ltd New Delhi. In addition to the programmes of CWCR, CIET, SIETs they are negotiating with IITs, IIMs, IGNOU and many other producing agencies for distribution of their ETV productions. The advantage attached with WEL is that they have a long history of book supply, and understand the educational needs of the academic community.

31 STUPENDOUS ECONOMIES

Resource sharing among ETV libraries will be useful in many respects. It will not only make it possible to compile a union catalogue of all the media centres, but also the finalization of the topics of the forthcoming productions, will be made earlier and easier. By sharing the stockshots which are very rare sometimes, the cost of production can be minimized considerably. There are instances when the complete video productions have been raised by using the stock footage only, and without even touching a camera. Since many of the educational disciplines are closely related, and contain the same

fragments of subjects, it will be possible to use such common shots in all the related programmes.

32 ETV CLASSROOM-INTERACTIVE

The telecommunication technology has provided us with the facility of hooking up all the media centres, like many other organizations. It allows communication, as well as interaction. Two successfull attempts can be cited as examples in ths context of ETV. The 'National Talkback Experiment' of the 'University Grants Commission', conducted in 1991, came out with the findings that the whole country can be integrated in the form of a classroom. Learners sitting anywhere in the country, can interact with the teachers sitting near the earth station. In May 1993 CIET chalked up an interactive teaching experiment on television called Classroom 2000 plus. Students in Hyderabad, Madras and Calcutta were not only able to access the lectures originated from Delhi, but also question through telephone links. There have been other successful attempts too like IGNOU/ISRO Project on video conferencing.

4 POSSIBLE IMPROVEMENTS

Recently, an Indian Scientist settled in the United States has developed a system through which the audio and video or a combination of both, can be transmitted to greater distances, using the telephone lines. If this technology is available in India, it can improve the conditions and save a lot of expenditure on ETV production. Similarly once a suitable software package is available, the provision of integration can be incorporated. Possibly a permanent accession number may be assigned to the programmes added to the system, in a chronological order, just as the Indian Railways have a system of assigning PNR numbers.

5 CONCLUSION

The popularity and use of ETV programmes for education is increasing day by day, but so far we have no standardized information system for them. The medium can be utilized properly, only by way of networking and resource sharing. The case of audiovisual media is different from the print media, as far as the transfer of information is concerned. It is very much possible now, with the new telecommunication technology to hook up all the media organizations, and transmit information available, in the form of text as well as the audiovisual media, in order to use it in future productions.

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RESOURCE SHARING AND NETWORKING

V VIJAYASUDHA*
BN RANGASWAMY**

1 INTRODUCTION

The structuring of libraries evolved, traditionally to provide responses to demands from users. Users would ask questions, demand information, knowledge and documents, and libraries responded by providing them. All effort was to satisfy individual users, cultivate them, retain them as users and through them to attract other users. The speed and effectiveness with which users were served, their satisfaction, and the courtesies extended to them, and the continued patronage given to the libraries created mutual loyalties. And to keep that loyalty and to deepen it, libraries strove to build up collections, employ qualified and efficient staff, and organise better service. One way to maximise service was, for every library to attempt self sufficiency in all respects. It seemed to be an exhilarating idea at the time.

11 ADVANCE TO COOPERATION

But then, sooner than later, a complex of advances in science and technology, rapid industrialisation, the urgent need to acquire better and improved skills to meet new developments in society, education of the common man, the spread of the concept of democracy and the increased production of information, made it difficult for individual libraries to acquire all of it and meet all and every demand of the users. All this has exploded the idea of self-sufficiency of individual libraries. It is a truism that constant doubling time in output of printed material, raised problems of logistics and of costs, so acute, that co-operative solutions among libraries had to replace any ideal of self-sufficiency by a particular library. Literature issued by commercial publishers, by government and governmental agencies, by international organisations and growing number of societies, institutions and corporate bodies assumed proportions beyond the capacity of any one library.

2 RESOURCE SHARING

The early intimations of the need for resource sharing between libraries, can be had from the observations of Sidney Webb in his address to the Library Association in 1920. He pointedly questioned the separateness and the isolated existence of each library "each of whom 'hugs its own stores'

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and suggested that 'the library service of a great city, can and surely ought to be something more than a couple of hundred accidental heaps of miscellaneous volumes, each maintained and managed in jealous isolation from the rest, and limited in its public utility by the lack of communication between the heaps–even, usually, by a dense ignorance in those in charge of each heap, as to what may be hidden in every other heap".

21 TECHNOLOGICAL ADVANCES

The period of second World War and the subsequent years saw tremendous advances in technology, information and communication and production of information and knowledge. In their wake came the developments in space and satellite technology and the advent of computers, which together brought about a seachange in the horizon of information, knowledge and libraries. Libraries had either to adopt to these changes or get relegated into the oblivion. The manner in which information, knowledge and the varied concepts began to reproduce themselves, with enormous speed is best understood in the following observations of Kent.

22 BEYOND MANUAL-FINANCIAL SYSTEM

There is an information system challenge facing us. The flow of information from all sources would continue to increase, at an even faster rate than in the present. Indications are that expenses associated with acquiring, processing, storing, and retrieving, will continue to increase at a faster rate than library budgets. Our information systems are hardpressed now, if not overwhelmed, by the present rate of information production, and that rate seems likely to increase. We cannot halt this evolutionary process, even for a time, even if we want to.

23 AMOEBIC GROWTH

To a large extent our culture is producing information much like one amoeba produces another. The great amount is not the direct result of users making specific inquiries. It is the result of parent concepts, generating offspring, because there is an inevitability in the growth of knowledge. At this point in the history of humans, that self-renewing community of parent concepts is so vast, and is proliferating at such a rate, that the user is presented with more information than he can assimilate. The impetus to produce more information, is more a factor of what has already been produced, than a user's demand for specific knowledge.

24 RESOURCES OF OTHER LIBRARIES

Added to this is the great variety of demands made on the library by wider and wider sections of society, which forced the libraries to draw on the

resources of other libraries and organisations, so as to place a maximum of resources at the disposal of a user.

25 NETWORKING

Out of these arose the concept of "Net working". What started with ordinary inter library lending evolved into extensive resource sharing, involving specialisation in subject, acquisition and technical processing. All these finally resulted in networking of libraries through the help of computers.

3 NETWORKS

31 DEVELOPED COUNTRIES

We will observe some of the networks developed in the west. The evolution of simple inter-library book lending into the present complexities of library networking, depended initially, on the application of the telephone to the task of inter-library co-operation. The next step was, the introduction of tele-type facilities known in the United Kingdom as TELEX. The first facility of this type, to be extensively published as a viable library information transmitting facility, was installed in the Commercial Library of the Manchester Public Libraries in the early 1950s. By the mid 1960s, telex-transmission had become a major feature of the formal inter-library co-operation system, for book and periodical loans, especially in respect of the activities of the National Lending Library for Science and Technology (now known as British Library Lending Division).

312 Computers

The Telex transmission had become Unsophisticated with the evolution of sophisticated computer technology. Since then the computer has become, the key component of a communication system, allowing almost limitless capacity for information transfer, and facsimile transmission of actual documents, between any two points, possessing relatively ordinary provisions, such as telephones, computer terminals, television screens and other ancillary equipment which is by no means expensive to purchase or difficult to maintain.

313 Problems in Computer Networks

There are two principal problems which need to be overcome to realise the full potential of co-operative computer networks, not only for reference service, but for all library operations.

1 The ability to standardise the range of bibliographic data stored in various library databases, so that each individual source is 'readable'

with the help of networks, and readily adaptable to their particular needs; and

2 The ability to improve the speed of access to the critical documents that are readily visible to a literature search. The access to documents includes not only the problem of inter-library loan, but also it facilities the breaking down of legal political and cultural barriers, to the free availability of documents across national boundaries (copyright restrictions).

3 Financial constraints, retraining and reorganisation of existing staff and reformation of their attitudes towards the work, will be some more major problems in considering the efficiency of networking environments.

3131 Bibliographic Standardisation

The problem of standardisation of bibliographic data have been tackled in two principal ways.

1 A fair measure of international agreement for providing standardised descriptions of many types of bibliographic units-books, serials and non-book materials. Such agreements can be achieved through ISBD, UBC, UNESCO and IFLA.

2 Standardisation of bibliographic data has its origins in the realisation of varience in large quantities of small items of data.

32 ADVANTAGES

1 Provides greater magnitude of service;

2 Extends the range of services and to improve service performance;

3 To bring into focus new objectives not possible for the individual library, through librarys' acting in concert; and

4 An awareness of the total library scene and of affinities between library services; and

5 Professional ethics of service, over mere institutional loyalty.

33 DISADVANTAGES

1 Libraries vary in their stages of development and differ in what they demand from and to what extent they can participate in co-operative activity;

2 Library policy and finance fall within the frame work of a parent

organisation. Therefore, interdependence with other libraries must prove advantageous to the parent body;

3 Legal barriers may hinder the extension of a library's services beyond its own membership or prevent movement of stock; and

4 Costs of this has to be accepted by parent body.

321 MARC & UAP

The development by LC and British Library Bibliographic Services Division of the MARC format was an important step in the evolution of networking capacity. Maurice Line describes the joint project mounted by UNESCO and IFLA under the title **"Universal Availability of Publications"** (UAP). He states the aim of the UAP project "both availability of all the world's publications and availability of publications to all the world". The first requires comprehensive collection and the second universal interlending!

322 CATV

In the United States Cable Television (CATV) was used potentially in library operations. The first American Public Library to employ CATV was the Natrona County Library in Wyoming, which began transmissions in 1970. Kenneth E. Dowlin Director of the Natrona County Library commented on the effectiveness of various possibilities for the employment of CATV as follows. "The marriage of libraries and television is an exciting prospect and I hope that libraries will enter into it willingly, rather than in front of a shotgun".

33 CONFERENCING & BROADCASTING TV

The British General Post Office's CONFRAVISION service enables meetings and conferences to be held by groups of people sitting in their own offices in various parts of the country. Although, it is very expensive, it has brought massive and revolutionary changes that communication technology is bringing to all walks of life. The impending change was brought by the British Post Office's PRESTEL service, initially known as VIEWDATA. Cawkwell described PRESTEL system in a simple way.

"The system's potential for storing and retrieving information is virtually limitless. To receive specific data the individual subscriber to the service, uses a small hand-held push-button device, not unlike a pocket calculator, which is linked to the telephone/television adaptation, and with it instructs the computer to display required data on the television screen".

The range of data through PRESTEL covers news services, weather reports, current affairs and consumer news, radio and TV programmes information, etc.

The BBC developed teletext known as CEEFAX/ORACLE transmitted over the airwaves in a manner similar to conventional audio and video broadcasting, that can be received by any suitably modified television set.

4 TOOLS OF RESOURCE SHARING

The principal means used as vehicles of co-operation, themselves of the product of co-operative action are bibliographies, union catalogues, union lists, abstracts, indexes and directories. Bibliographies used in co-operation, merge into the wider field of bibliographical control. A union catalogue is an attempt to list in one sequence the holdings or part of the holdings of two or more libraies. The union list will disseminate information, upon what is available in an area or within a group. Abstracts and Indexes would appear to be an ideal field for collaboration `with the idea of making sure that as much as possible is abstracted once, and nothing more than once' to prevent duplication of effort and omission. Directories serve a referral function to resources on national, regional, local and subject lines.

41 BIBLIOGRAPHIC SERVICES

A number of notable bibliographic services are available. Some of them are discussed below:

1 **BLAISE:** British Library Automated Information service which includes both current and retrospective on line access to UK and LC MARC record, which was introduced in 1977.

2 **BRS:** Bibliographic Retrieval Service was introduced in 1976 in New York. The purpose was to provide innovative and cost effective on line search service. Its major service provides on line access to bibliographic and full-text databases. It also offers SDI service.

3 **ESA-IRS:** The Information Retrieval Service of the European Space Agency (ESA) at Frascate, Italy, offers on line search service in the early 1970s via a special telecommunication network ESANET. It provides access via on line process to more than 20 databases, mainly on nuclear and space sciences, which is the most used search service on EURONET.

4 **DIALOG:** The DIALOG information retrieval service is run by Lockheed Information Services at Palo Alto in California. It started in 1972. This search software was prepared from the RECON (Remote Console) developed by Lockheed for the National Aeronautics and Space Agency, USA.

It comprises 175 databases, of which half of them are scientific and technical and the rest includes humanities, social sciences etc. It contains over 16 million bibliographic citations, available on line, and these are constantly reviewed and updated. It has on line CAS and SDI services.

5 **OCLC:** Online College Library Center (previously known as Ohio College Library Center), USA and BLCMP (Birmingham Libraries Co-operative Project) services can themselves be pooled from international co-operative linkages enabling cataloguing and other bibliographic data to be swiftly and economically transmitted over long distances and across national and linguistic boundaries.

5 INDIA

The concept of library networking to aid information resource sharing and support activities in libraries has become a real necessity. In India, the library automation and networking movement in India, is surely catching on. The need for resource sharing has been well recognised. In today's world, we are going through a vertible information explosion. We need a system that can help us to manage, filter and access this information in a useful and efficient way. Networks will help us greatly by increased accessibility and great economy. The concept of library networking is to aid resource sharing, for better utilisation of resources within the limited budget and also for effective and efficient services. The accurate and speedy exchange of information across the globe has gained an immense importance in modern society. This need for information exchange, has taken us to the threshold of a new age, that of information exchange through high speed data communication links.

51 COMPUTER NETWORKS

Computer network is a large number of separate but interconnected autonomous computers for the exchange of information. The main goals of networks are resource sharing, high reliability, saving money and powerful communication medium.

511 LAN

Local Area Network are usually spread over a small area. It is a computer network having three characteristic features.

1 A diameter of not more than a few kilometers.

2 A total data-rate of atleast several MBPs and.

3 Complete ownership by a single organisation.

LANs generally have single communication channel that is shared by all the machines in the network. These operate in a promiscuous mode.

512 MAN

Metropolitan Area Network is a network that covers the entire city, but uses LAN technology.

513 WAN

Wide Area Networks are composed of number of autonomous computers that are distributed over a large geographical area. Transmission facility is generally through satellites. And it is owned by multiple organisations. All WANs have store and forward subnets.

52 IN IMPORTANT SPECIAL LIBRARIES

The main players in the area of library automation in recent years have been special libraries of the country. Many of these libraries/documentation centres are in the R&D institutions, under umbrella organisations like the Council of Scientific and Industrial Research (CSIR), Indian Council of Medical Research (ICMR), Indian Council of Agricultural Research (ICAR) and the Defence Research and Development Organisation (DRDO). Libraries belonging private sector, and public sector, industrial R&D organisations, such as BHEL, Steel Authority of India Limited (SAIL) and international organisations such as International Crops Research Institute for Semi-Arid Tropics (ICRISAT) have also made useful contributions.

521 NISSAT Aided

NISSAT funded several training programmes and software development projects, which helped in improving awareness of new technologies and their potential, and in transfer of skills and software to different special libraries in the country. The emphasis is most on the special libraries and their development of databases and information retrieval services. Some special libraries namely BHEL, SAIL, ICRISAT, INSDOC, DESIDOC, IIT Kanpur etc have successfully developed software for library automation. These libraries developed applications in the areas of book and serial acquisition, computer assisted cataloguing, union catalogue production, SDI and CAS.

53 ACADEMIC LIBRARIES

Unlike the UK or US, academic libraries in India are not in the fore front of developments and innovations in the application of new information technologies, with few exceptions like IIT Kanpur and Hyderabad University. However, the University Grants Commission (UGC) in 1989 took the initiative to plan for a country wide academic library and information network called INFLIBNET. This step made a significant impact on operational

efficiencies and user services in libraries in general and academic libraries in particular.

54 DESIDOC-SOFTWARE

Recently DESIDOC has built an integrated application using Micro CDS/ISIS, which is a major contribution in enabling small libraries in the country to realise the benefits of automation. The use of public-domain software like CDS/ISIS and common standards for database creation, bibliographic description, indexing and classification, etc act as a catalyst to improve sharing of resources among libraries in India. This has become more and more important, in view of the erosion in the purchasing power of libraries, and fall in the value of the rupee vis-a-vis hard currencies.

541 Commercial Software

In the last few years, there has been tremendous development of commercial available software for library automation like LIBSYS and TULIPS. Indian packages are mainly oriented to be used by librarians and information specialists and not by the occasional end-users unlike in the west, where there is a facility of 'end-user friendly interfaces' and the provision of 'on-line public access catalogues' (OPACs).

55 MAJOR NETWORKS IN INDIA

551 NICNET

Due to the further improvement of communication technology, we can inter connect computers using satellite lines and called this network as Satellite Based Data Network (SBDN). This is used for international and intercontinent data exchanges. In India NICNET, is oriented so that the integration of computer and communication and as well as globalisation of a network, is progressively implemented using the low cost technologies available in the international market. This network is planned during the Eighth Plan for various central and state government departments. Its main objectives are to promote collection, storage, analysis, transmission and exchange of data at districts, state head quarters and central government departments, ministries in the country, for the use of planning management and monitoring projects and government sponsored programmes.

552 INDONET

The CMC Ltd, a public sector undertaking has developed an integrated software package called MAITRAYEE suitable for a library network. This package can be used in a network of libraries in Calcutta ie CALIBNET. INDONET is a commercial distributed computer network, to provide access to the considerable computing and software resources of CMC Ltd. The

objective is to provide computing power and software to users who cannot afford or fully justify investment in dedicated hardware and expensive, specialized business and scientific software. It has three IBM mainframes at Calcutta, Bombay, Madras and smaller computers at Delhi and Hyderabad. It plans to mount public databases, on one or more of its computers.

553 INFLIBNET

The University Grants Commission (UGC) of India commissioned a broad based Interagency Working Group, to prepare a report for a project INFLIBNET. This network links libraries in universities and colleges in the country, and libraries in institutions affiliated to the CSIR, ICMR, ICAR, DRDO and other government departments. This will cover 184 universities and 23 institutions deemed to be universities, 6,100 colleges and over 200 libraries affiliated to other organisations. It will function with a national centre for managing, over-seeing and coordinating the networks, of holdings of libraries and databases of projects, institutions and specialists.

5531 INFLIBNET will be a multiple function/service network, providing the following services.

1 Catalogue based services,

2 Database services,

3 Document supply service (Fax/Non-Fax),

4 Collection development, and

5 Communication based services viz, referral, E-mail, bulletin board, audio/video/computer conferencing etc.

The aim is to pool, share and optimise resources, facilities and services of libraries and information centres in university sysems and R&D centres.

554 CALIBNET

Calcutta Library Network is the first library network conceived in India in 1986. NISSAT provided the finance. There are 38 science and technology libraries in this network. Each library is expected to automate its library operations by using MAITRAYEE software. The network centre will provide on-line access to the network's union catalogues and CAS & SDI.

555 DELNET

Delhi Library Network covers 35 libraries in Delhi. All participating libraries are using CDS/ISIS for creation of their databases with CCF. All databases are created co-operatively. They will be available on a central computer system and dial up access will be provided to all participatory

libraries. DELNET E-mail has launched in March 1991, to promote library mainly inter library requests, distribution of questionnaires, activisation of professional contacts, and also allow the access to national and international on-line services.

556 BONET

Bombay Library Network is aimed at promoting co-operation between libraries in Bombay. Bonet will offer training related to library computerisation and networking. Participating libraries contribute to make BONET funding self sufficient. It provides access to centralised catalogues and E-mail for its members. Bonet offers the following services:

1 Consultation on standards,
2 Staff training to member libraries,
3 On line catalogue of journals, books etc,
4 Inter library loan for books and periodicals,
5 Information retrieval services,
6 Computer network support for book ordering,
7 On line access to international databases,
8 SDI services,
9 Courier service for inter library loan, and
10 E-mail.

557 HYLIBNET

Twin cities of Hyderabad and Secunderabad have more than 100 libraries. These libraries cover a wide range of subjects in agriculture, engineering and technology, life sciences, languages, humanities and social sciences and management sciences. Potentiality of organised resource sharing among the libraries in twin cities has not been explored systematically. Initial studies show a greater scope for resource sharing in the twin cities. The core working group of HYLIBNET hopes that this network supports access to catalogues of not only HYLIBNET but also other networks like CALIBNET, DELNET, MALIBNET, BONET etc.

558 MALIBNET

Madras Library Network was registered as a society in Madras on February, 1993 which is going to network more than 50 important libraries in Madras. It will offter the following service.

1 Serials acquired in 25 libraries,

2 Full journal holdings of about 50 libraries,
3 Contents of about 1,000 important journals,
4 Specialised databases of abstracts of articles,
5 E-mail with global connections, and
6 Door delivery of documents on inter library loan.

6 FUTURE

61 SERVICE STILL A PROBLEM

In the working of the library networks, even in the developed countries difficulties, legal and otherwise have been noticed. Legal difficulties are often associated with copyright provisions, other difficulties relate to costs, slow service, uncertainity in location of material and lack of sufficient enthusiasm among library staff.

Herman Fussler observed "true costs are high, the speed of supply is relatively slow, the location of wanted material is often uncertain and the assurance of access, even when the location is known, is also uncertain."

Similarly David Weber of Stanford University Libraries observed "the weakest link in the system of shared resources, he said is the lethargy of the professional staff at the circulation and reference desks. Staff have not developed an aggressive attitude and latitudinal thinking in tapping resources, nor have library schools taught this type on thinking....

Adequate care has therefore to bestowed on these aspect in organising networks. Equally in pre-service library education and programmes of continuing education could also emphasise in the attitudinal aspect of library staff towards problems of resource sharing.

62 CENTRALISED DECENTRALISATION

The National Commission on Library and Information Science (Great Britain) recommended "a national network system for inter library loan 'with strong central planning and co-ordination but a highly de-centralized service program'. It envisaged three types of centres for inter library loans: 'bibliographical centres for an area verifying and forwarding requests, resource centres of strong collections in subject fields, and back-up centres for these resource centres'.

63 FOR INDIA

To facilitate free flow of information and access to resources throughout the country, the first step may be the identification of 'National Resource Centre' with appropriate 'regional centres'. Vigorous efforts have to be initiated by the library associations, parental organisation of libraries, university

authorities under the patronage of government, if the concept of resource sharing through broadbased networking (vertical and horizontal) has to take deep roots in Indian libraries and yield fruitful results. Only under such circumstances can Indian libraries hope to play their rightful role, in global networking of libraries and facilitate free flow of information and knowledge.

7 CONCLUSIONS

We would like our profession to embrace the new future and accept it to facilitate its arrival, and to exploit its potential. Network is a fledgling tool that will become an integral part of future lives–a tool that will help us cope with the vertible information explosion, with limited budgets. Only thus can we hope to bring self sufficiency within the realm of possibility.

8 ACKNOWLEDGEMENT

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RESOURCE SHARING OF INFORMATION IN ENGINEERING & TECHNICAL INSTITUTIONS–UTTAR PRADESH

SC SRIVASTAVA*

1 EDUCATIONAL INSTITUTION IN INDIA AND STUDENTS

After independence the growth of difference types of educational institute in our country are depicted in Table 1.

Table 1

Sl No	Institution	Year		
		1950-51	1980-81	1992-93
1	Primary	2,09,671	4,94,503	5,72,541
2	Upper Primary	13,596	1,18,555	1,53,921
3	High/Higher Secondary	7,416	51,624	84,086
4	Inter/predegree	370	3,421	5,334
5	College of General Education	208	1,317	989
6	University/Deemed to be University & Institutions of National Importance.	27	110	207

At present the enrolment of student in diferent types of institution are given below though they are not in sufficient number.

Enrolment of student in Educational Institution in India 92-93 (Table 2).

Table 2

Sl No	Institution	Boys	Girls	Total
1	Primary	6,04,54,320	4,49,15,896	10,53,70,216
2	Middle	2,36,93,267	1,50,15,314	03,87,08,581
3	Sec/Higher secondary	1,50,10,741	76,99,407	02,27,10,148
4	Higher Education	29,32,713	14,54,647	43,87,360

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11 EDUCATIONAL INSTITUTIONS

At present there are about 104 Universities, 25 Agricultural Universities & Research Institutes, 6 Institutes of National importance, 5 IIT's, about 20 crores of students from Primary to University & Technical Education level are studing in the country. There are following stages of education in our country: GURUKUL SYSTEM, CONVENTIONAL SYSTEM and DISTANCE EDUCATION system. At present the conventional system and distance education systems are popular.

12 DISTANCE EDUCATION

The first Open University (distance education) was set up in the United Kingdom. There are 95 countries having 714 distance education institutions which together offer 32000 courses of study. In our country many educated people believe that the distance education system is a weak alternative to the conventional system, and provides admittance to only those who are rejected by the formal system, though it is not so. Distance education, makes easy the evolution of education as suited personal needs. The Central Advisory Board of Education, Government of India, has recommended to set up at least one open University in each of the major states of the country, during eighty five year plan (1992-1997). It was only to accommodate, at least half of the expected incremental admission demand, of one million students at the tertiary level in distance education system.

2 TECHNICAL INSTITUTES IN UTTAR PRADESH

About 5 agricultural Universities and colleges are also establish in the state. 4000 students are getting technical education in UP every year in diploma/graduate and post-graduate level courses (Table 3).

21 TECHNICAL LIBRARIES

The libraries of above institutions are not in a position to satisfy the essential needs of reading materials required by their students, scholars and faculty members by their own resources, though the Government/UGC are

Table 3

Sl No	Name of Institution	Nos
1	Technical Universities, IIT	04
2	Engineering Colleges	13
3	Mahila Polytechnic	09
4	IIT (including private)	97
5	Polytechnic	80

expending every year more than Rs 3 crores for the purchase of books, journals & other reading materials. The research in Science and Technology has resulted in tremendous growth and development of information. Many scientific/technological institutes and research institutes are engaged in research and development activities, hence the National information policies are also developing suitably, to promote awareness and utilization of existing universal information resources.

22 TECHNICAL LIBRARY NETWORK

In order to have optimum use of library materials by the technological institutions of Uttar Pradesh, it is needfull to introduce the existing engineering colleges and technical institutes and to have co-ordination and co-operation programme in various areas. This will assist each unit of the network to share the resources of others. In the field of information science a network would mean, a formal organisation of group of a libraries and information centres, following the same common format or standard, to facilitate easy information exchange and communication, with a view to improve efficiency and effective economy in an over all manner. Networking promotes all the activities, relating to retrieval of information and their validity in a particular field without the loss of time.

23 AREAS OF RESOURCE SHARING

The areas of resource sharing are materials and services available in the library of engineering and technological institutes like acquisition, cataloguing, classification ,storage and preservation of the resource materials. Preparation of Union catalogue, current Awareness services (CAS), abstracting, Indexing, selective dissemination of information (SDI), bibliographic services, current contents service, inter library loan service etc. Though the resource sharing is the only solution for meeting the challenge of explosion of knowledge, Resource sharing is not so popular in developing countries like India. It involves coordination of existing resources and facilities into a suitable network, so that one library (Engineering & technological Institute) can draw upon the resources of others in the network, without incurring extra expenditure in a big way. This system provides following main advantages:

1 Existing resources of engineering colleges 'and technological institutions' libraries can be fully utilized,
2 It can be implemented immediately without effecting major change in the existing structure of the institutional libraries,
3 Services will be comprehensive.

4 COSTS WITHIN REACH

Hence there should be a resource sharing agreement among the partici-

pating technical institutions ie., Engineering Colleges and IITs of Uttar Pradesh, so that resources can be spared for others willingly in time. Bibliographic access can be possibile only if all the participants have information about the holdings of others. Every library should compile in a standardized bibliographic format and circulate the bibliography of acquisitions, like current awareness service, current content service, SDI services etc at the regular intervals and an union catalogue (books & journals etc) should be prepared so as to help identify the materials, their existence and located and also inter library loan facility should be introduced. It is also suggested that every participating library should have resource sharing & networking department, to see that the all the required documents are delivered in original, or its copy, to the needy person, as fast as possible.

41 SUCCESSFULL RESOURCE SHARING

Since the resource sharing is a cooperative venture, each participant is responsible towards contributing its share for full success, hence following should be done:-

(1) Legislation or Agreement for sharing of resources including Inter-library loan, exchange of publications should be made.

(2) Loan of other materials may be periodically discussed and decided.

(3) Inter library loan code and ILL form, for unformity and smooth services should be made by participating libraries.

(4) Microfilm, reprographic/photocopies of documents should be made available to all.

(5) Efficient postal and communication facilities should be provided at reduced rates.

(6) Union catalogues of participating libraries should be prepared upto date with the help of computers. Now a days computer should be available in every engineering & technological Institutional libraries.

(7) A data bank may be established at a chosen centre by mutual consulation.

(8) Provision for using all libraries facilities (Engineering Colleges, IITs) of Uttar Pradesh by the readers of participating Institutions should be made for the success.

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RESOURCE SHARING THROUGH NETWORKS: Current Scenario

DR (MRS) D RAJYALAKSHMI*

0 INTRODUCTION

01 TECHNOLOGICAL ADVANCE & FINANCIAL CONSTRAINT

Powerful inflationary trends on the one hand, coupled with increasingly effective technological and resource sharing capabilities on the other hand, are causing all libraries to undergo a fundamental reassessment and reorientation, of their traditional collection development goals and service strategies, as the transition from the affluent sixties to austere seventies, eighties and nineties.

02 IMPOSSIBLE SELF SUFFICIENCY

Through all the centuries since Alexandrian library, the aim of librarians and the hope of scholars has been to amass in a single library, all the resources for research, in any branch of knowledge. The doctrine of self-sufficiency is finally coming to be realized, for what is a "Will-O'-the Wisp. We are visualizing the gradual abandonment of this creed, even for the very largest of libraries, that any library could provide all the resources for research required by its readers, is now generally recognized by scholars and librarians as an unbelievable aspiration.

03 SHARING RESOURCES

Accordingly, sharing of holdings among libraries is increasingly accepted as an ineluctable necessity and as the only realistic means of providing the full range of resources needed for scholarly research. Resource sharing denotes a mode of operation, whereby library functions are shared in common by a number of libraries. Objectives of resource sharing are to provide the net effect.

04 RESOURCE SHARING OBJECTIVES

Inflation and budget reductions are the primary forces that lead to resource sharing in libraries. Consortium, network and organizational arrangements are main concerns for achieving a variety of resource sharing objectives:

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1 Reciprocity-that is bidirectional movement is again needed if resource sharing is to be meaningful.
2 Bibliographic access-has become increasingly interesting as the labour of cataloguing books which are acquired in many libraries, is distributed rather than replicated, through shared cataloguing.
3 Resource sharing requires, access to circulation of information to avoid disappointment, and to accelerate the process of locating the required information at another library.
4 If resource sharing is to be deamed successful, it must occur with the desired material in hand, well before need has evaporated.

05 FEASIBLE AREAS FOR RESOURCE SHARING

Inter-Library Loan

Union Catalogues

Co-operative acquisitoin

Co-operative cataloguing

06 FACTORS MAKING RESOURCE SHARING A NECESSICITY

Exponential information growth

Increasing cost of information materials

Technological advancements that offer newer methods of information processing, retrieval and dissemination

Increasing emphasis on avoidance of wastage due to un necessary duplication of information sources

1 CHANGING CONCEPTS OF LIBRARIES AND LIBRARIANSHIP

11 COMMUNICATION

The new media of communication plays a very important role, not only in bringing the patron, the required information in a variety of new forms, but also in expediting inter-library coordination, by forging ever more strongly, the bonds of cooperation that will eventually make available the total intellectual resources of a nation at any one point of need.

12 HOSPITALITY TO CHANGE

Architecturally, the library of tomorrow must be functional rather than monumental in form, in which changes can be incorporated quickly and economically, in anticipation of rapid obsolescence. We don't built for the future, by architecturally crystallizing or ossifying the present; change is the only contact.

13 GLOBAL LIBRARY

The libraries of future may not be in a single building, but a complex of interrelated structures which provide not only for all the acquisition, utilization and dissemination of traditional library materials, but also are true "Information Banks", dedicated to the fullest possible use, of recorded human knowledge, in whatever form. There is no limit to the potentialities of the 'library of tomorrow', except the boundaries of the human imagination and our willingness to work. No longer is the library a social embellishment for the preparation of local or personal patronage.

14 OBJECTIVES OF RESOURCE SHARING THROUGH NETWORKS

The combination of computer and communication technology applied to libraries, has expanded the horizons of the individual library, far beyond its own resources, and the concept of resource sharing on a broad national scale available for consideration. The computer networking has opened the possibility of sharing the bibliographic systems and the databases of libraries. Recent progress in electronic transmission, has been a major impetus in the development and expansion of library network, in the areas of:

Optimization of collection in libraries with limited budget

To promote and support adoption of standards in library operations

To improve efficiency of house keeping operations and

To generate new services and to improve the efficiency of the existing services.

2 PREREQUISITES FOR NETWORK ORGANIZATION

1 Agreements for implementing cooperation

2 Establishment of facilities for sharing little used materials

3 Agreements on acquisition policies to ensure consistent development of holdings to avoid redundancy

4 Agreements to share the currently owned materials, with protocols, limitations and prioritis, carefully spelled out

5 Schemes for intelligent organization of data/documents

6 Methods of adequate delivery of resources to users (the output media)

7 The subject interest area should be a common one among the centres being connected

8 Compatibility between the computing systems available with the organizations to be netted is essential

9 To ensure the ability of network among the resource sharing libraries, a compatible record format is higlhy desirable.

10 Standardization of policies and procedures across the net work and adhered, to by all participants, in order that these tasks could be performed in shared and efficient manner

11 Adequate means of information dissemination

12 Formal established organizational cooperation

13 Established and functioning communication linke (telephone, telex, fax, satellite communication channels).

3 IMPACT OF TECHNOLOGY ON RESOURCE SHARING

31 CHANGING CONCEPTS

For a number of reasons, the tradition, the lack of resources and a reluctance to accept change, is still considered necesary for different approaches and systems to be used, for various categories of information. But there is a new outlook on the horizon and a climate in which an appreciable degree of interaction is beginning to take place, between people working in different sectors. Areas in which co-operation is feasible are being actively sought, and there is increasing evidence of attempts to joint evaluation of new systems and techniques.

32 DISTANCES CONQUERED

The impact of electronic computer on library service is dramatic. Distances over which data can be transmitted, range from a few meters through a word processor, coupled to an adjacent computer, and used for input and editing routines, to intercontinental traffic using carrier-networks.

33 MACHINES TAKEOVER & ACCESSIBLE

The machines have taken over all the routines of selection, abstracting, indexing and cataloguing, previously done by professional information officers and libraries. The steadily growing range of commercially available, subject oriented current awareness services in hard copy forms, devalued the importance of the inhouse bulletins. As the computer capabilities increased and newer and more convenient to use peripheral equipment made its appearance, online access to information that user needs will be only a telephone connection away from him. Instead of phoning the library for information, the inquirer will be in a position to dial the appropriate file, from his terminal.

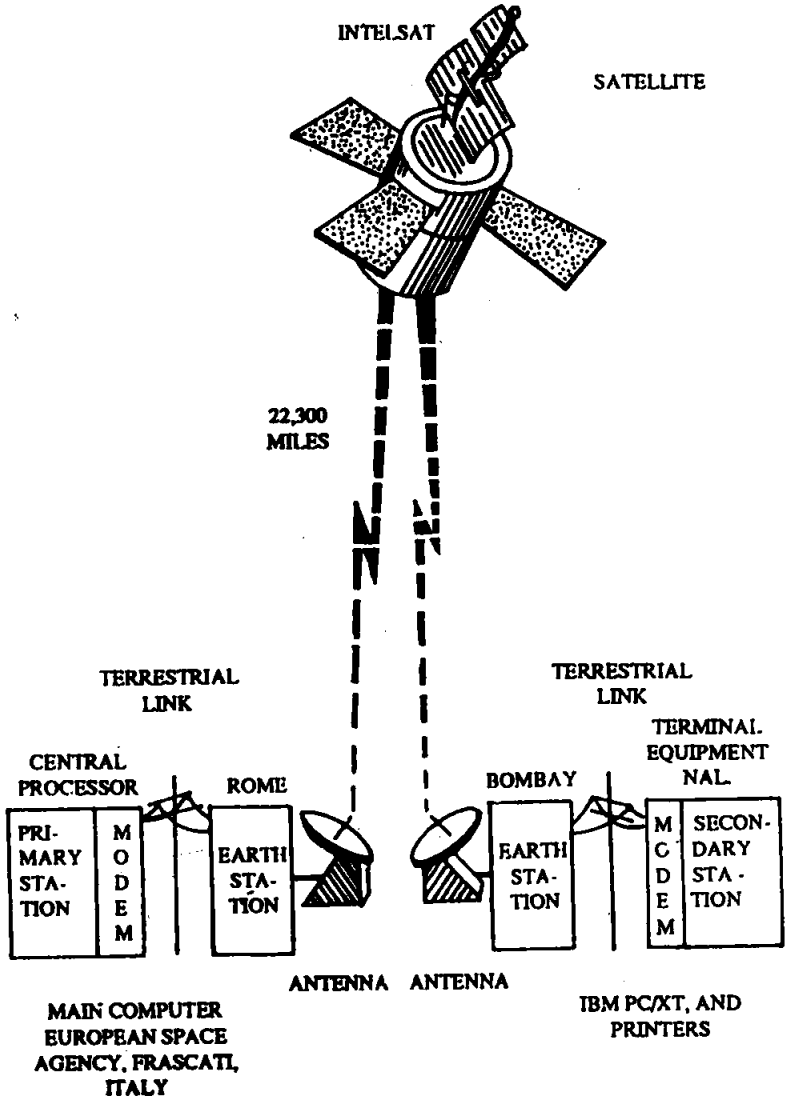


Fig 1 Mode of Satellite Link-up

4 NETWORK ORGANIZATION

41 DEFINITIONS -- NETWORK

The term network can be used in different ways. It can be loosely defined to refer any kind of formal cooperative arrangement, where people agree to exchange information or resources. Many of the library networks in existence today, are largely based on exchange arrangements.

42 ONLINE

Online Library network, is a group of libraries linked together in a complete and communications system for the purpose of participating in a common system or service. Online library networking emerges as a speciality which requires knowledge of library and information science, computing, telecommunications, information technology, economics, marketing, business, public service administration and behavioural science.

43 COMPONENTS OF RESOURCE SHARING NETWORKS

* Resources
* Directions
* Communications
* Users
* Management

5 GLOBAL ONLINE NETWORKS

51 ORIGINS

The evolution of computerised library networks can be traced back to 1901 with the beginning of Library of Congress Card production and distribution services. During the first fifty years of the century, formulation of biliographic control was the main point of interest, which laid basis for sharing of data among institutions through a network mechanism.

52 BIBLIOGRAPHICAL FORMAT TO ON-LINE

During 1950's and early 1960's the possibility of using data processing equipment for libraries was ruled out. The design of a format for 'Machine-readable bibliographic records' resulted in the acceptance of the machine-readable format interntionally. The development of this format, for communicating bibliographic information, led to the On-line computerised information networks of this day.

53 HUMAN MEDIUM

For comprehensive retrospective search and in the process of seeking

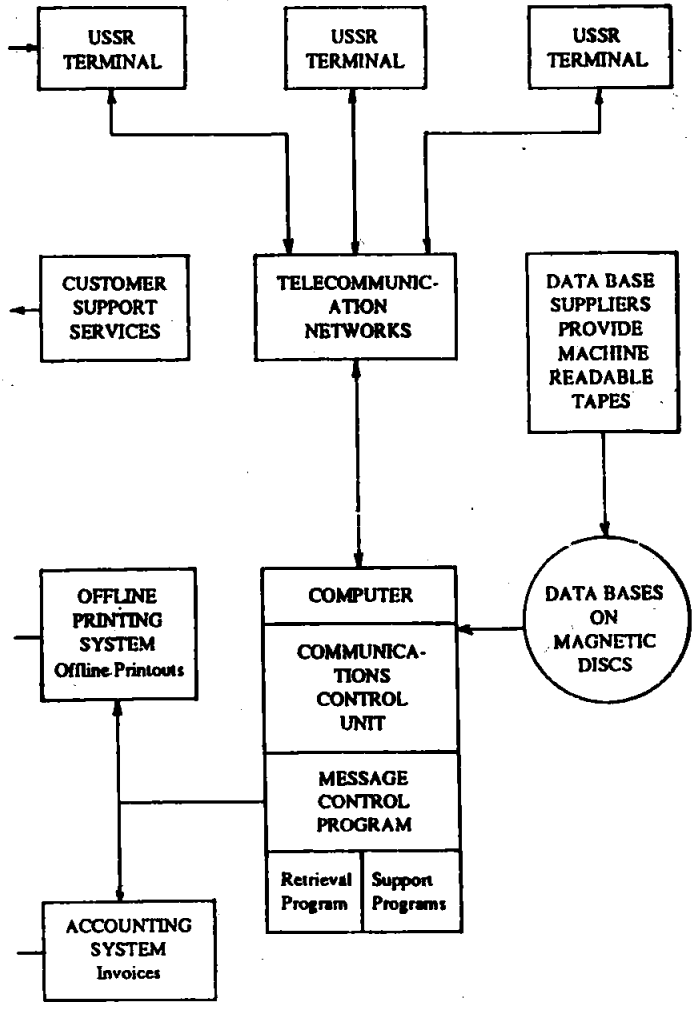


Fig 2. Network Configuration in an Interactive On-line System

answers to complex problems, there will be a place, an important one for a human agent, between the inquirer and the store of information that can satisfy his need.

Three factors play major role in this

* increasing volume of information
* broadening of information requirements and
* erosion of information monopolies

54 WORLD AT YOUR GRIP--CLARKE

In the language used by Arthur Clarke "With these satellite systems, we will be able, remaining in our drawing rooms, to see all the Museums in the world, read any book and call up at will the knowledge of the ages stored in the memory-bank of giant computers. Communication satellites are here, to mark the end of the age of isolation. Thanks to a few tons of electrogenic gear placed 20,000 miles above the equator, ours has become the last century of the savage. For all the mankind, the stone age is over".

541 Categories of Networks

Online library networks can be categorized by the types of services they provide

* Search services: Provide multiple databases for online searching
* Customised-service networks: Offer graphic and other files for users, to search and modify for their own use. These services have been developed for cataloguing, circulation and inter library loan activities.

55 INTERNATIONAL NETWORKS

SNo	Network	Host Organization	Features/Services
1	LC (1969)	Library of Congress	Machine Readable Catalogue cards
2	OCLC (1971)	Online Computer Library Centre Ohio	Quick Information retrieval by sharing & saving cataloguing costs to Industrial libraries
3	WLN (1972)	Washington Library Network, Washington State University	800 institutes are participating and sharing the resources
4	SOLINET	South Eastern Library Network, Louisiana	10 states are Participating in this network

SNo	Network	Host Organization	Features/Services
5	RLG 1974	Research Library Group	Cooperative collection development, preservation conservation, inter library lending and acts as research libraries Info network.
6	EURONET (1979)/ DIANET (1980)	European Economic Community	Access to large number of Databases, & resource among member countries of European Economic Community
7	SCANNET (1976)	Scandinavian Council for Applied Research	Scientific Info & Doc Network with nodes at Copenhagen, Goteborg, Helsinki, Oslo, and Stockholm. 250 orgn use this facility
8	TELENET	Bolt Barmark & New man USA	Online network with access to SDC and Lockheed Databases in European Countries
9	TIMENET (1977)	Tymeshare Inc USA	World's largest data carrying network with 630 microcomputers connecting 220 host computers

56 SUBJECT ORINETED INFORMATION SYSTEMS & NETWORKS

SNo	Network	Host Organization	Features/Services
1	MEDLINE	National Library of Medicine USA	Batch processed database on Medical Services
2	AGRICOLA	Agriculture Online National Agricultural Library	Access to the needs of of agricultural clientele
3	INFOTERRA	International Referral service for Sources of information on Environmental issues World Centre, Nairobi	Referral service on sources of Info on Environmental problems

SNo	Network	Host Organization	Features/Services
4	ICDET	Int co-operation in the field of Transport Economic Documentation OECD	Document delivery system in UK along with 109 cooperating countries
5	IRRD	International Road Research Documentation System OECD	Cooperative database building by 119 member countries
6	IAEA	International Atomic Energy Agency	Information on Nuclear and Atomic energy, 60 countries participate in this network
7	ESA/IRS (1973)	European Space Agency Information Retrieval System	Online Information retrieval services
8	INIS	International Nuclear Information System IAEA, Vienna	Access to INIS index
9	ERIC (1966)	Educational Resource Information Centre	Dissertations Abstracts of Master & PhD Thesis in the field of Education, Humanities and Sciences
10	Eurydice (1980)		Supplies information on Educational matters to policy makers
11	APINMAP	Asia & Pacific Info Network on Medicinal and Aromatic Plants	Information services on Medicinal & Aromatic Plans. 13 Member countries use the facility
12	IFIS (1968)	International Food Information Services	Information retrieval to Food Sciences Databases
13	ASTINFO (1983)	Retional network for exchange of Information in Sc Tech in Asia & Pacific	Consists of National centres for Regional information services & associated countries

6 INDIAN NETWORKS

61 GENERAL NETWORKS

SNo	Network	Setting up Body	Service & Functioning
1	NICNET	National Informatics Centre, Planning Commission, New Delhi	Provides computing & Communication infrastructure to aid planning & monitoring the decision making activities, facilitates flow of Info among 32 state and 439 district nodes. Evolved as a MIS to cater tothe needs of Govt Depts and agencies
2	INDONET	CMC Limited Hyderabad	Commercial Computer Net Work, designed for intra city communication of Data transmission. It operates in a star net work with control point at Delhi, using packet switching technology
3	VIKRAM	Department of Tele Communications Govt of India	Consists of 8 switching nodes & 12 remote access points with its centre at New Delhi
4	PSDN (1986)	Packet Switched data Network; Dept of Tele Communications	3 nodes network providing message transfer

62 RESOURCE SHARING THROUGH NETWORKS IN INDIA

621 NISSAT & INSDOC

In India the creation of NISSAT (National Information System for Science and Technology) to coordinate with the sectoral information system, is a step towards cooperation in resource sharing. INSDOC is the national body which is providing and promoting information services nationally and internationally. Centralized acquisition of foreign periodicals (CAP), document delivery and compilation of Union Catalogues, are the main contributions of INSDOC towards resource sharing.

622 Patents

Ministry of Industry and Civil Supplies have setup a sectoral centre on Patents Information.

623 Integration

Centres like National Medical Library (NML, New Delhi), Indian Agricultural Research Institute (IARI, New Delhi), The Defense Science Documentation Centre (DESIDOC, New Delhi), Bhaba Atomic Research Centre (BARC, Bombay), Small Scale Industries Documentation Centre (SENDOC, Hyderabad), are expected to integrate with NISSAT sectoral system.

63 PROPOSED NISSAT ACTIVITIES FOR EIGHTH PLAN PERIOD

SNo	Activity	Services Provided
1	Promotion of Information Resource Sharing	
	(a) Metropolitan Library Network	9 Cities
	(b) Universal Libray Network	6 Cities
	(c) Consultative Committee Mechanism	16 Cities
	(d) Indegenious database Development	15 Databases
2	Manpower Development Programme Research and Development	300 Programmes
3	Integrated Information Market	One Facility
4	Information Technology Application	6 Software
5	Information Referral System	8 Databases
6	Information centres on Specific Products, Discipline or Mission	15
7	NACIDS & SDI Custom search	7
8	Access to On-line & CD-ROM Databases	30
9	Library Automation & Retrospective Conversion	7
10	Monitoring and Coordination	

64 LIBRARY NETWORKING DEVELOPMENT IN INDIA

The library network development in India was diversified in three broad directions.

641 Development of Metropolitan Area Networks (MAN) like:

BONET (Bombay)

CALIBNET (Calcutta)

DELNET (Delhi)

MALIBNET (Madras)

PUNENET (Pune)

ADINET (Ahmedabad, Proposed)

HYLIBNET (Hyderabad, Proposed)

642 Development of country wide networks like:

NICNET

INDONET

VIKRAM

INFLIBNET

DESINET

643 Development of Sectroal facilities like:

BTISNET (Biotechnology Information System Network)

ONGCNET (For Oil and Natural gas, Management Science & Environment; Proposed Net work)

ENVIS NET (Environmental Information System Network)

65 ONLINE NATIONAL ACCESS CENTRES TO INTERNATIONAL DATABASE SERVICES

SNo	City	Host Institute
1	Bangalore	National Aeronautical Library (NAL)
2	Calcutta	Indian Association for Cultivation of Science (IACS)
3	Madras	Central Leather Research Institute (CLRI)
4	New Delhi	Indian National Scientific Documentation Centre (INSDOC)
5	Pune	National Chemical Laboratory (NCL)

Note: National Access Centres to International Database Services use International Carriers Via Gateway Packet Switching Services (GPSS) at Bombay.

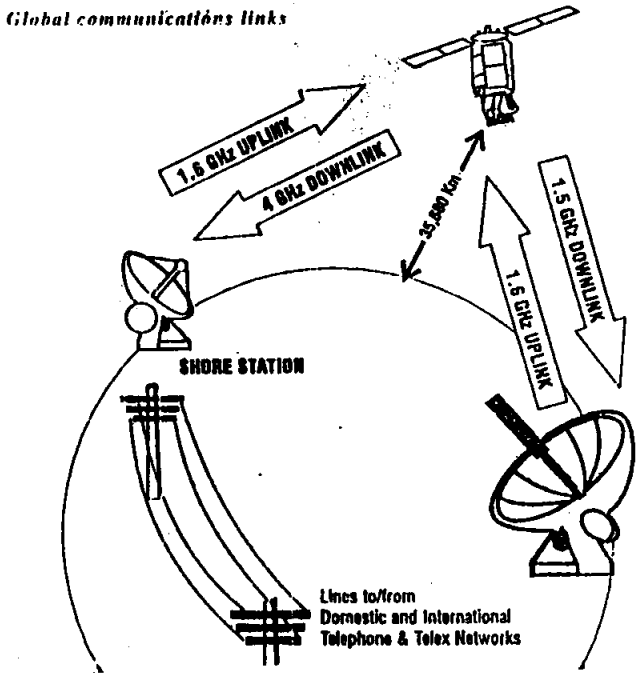
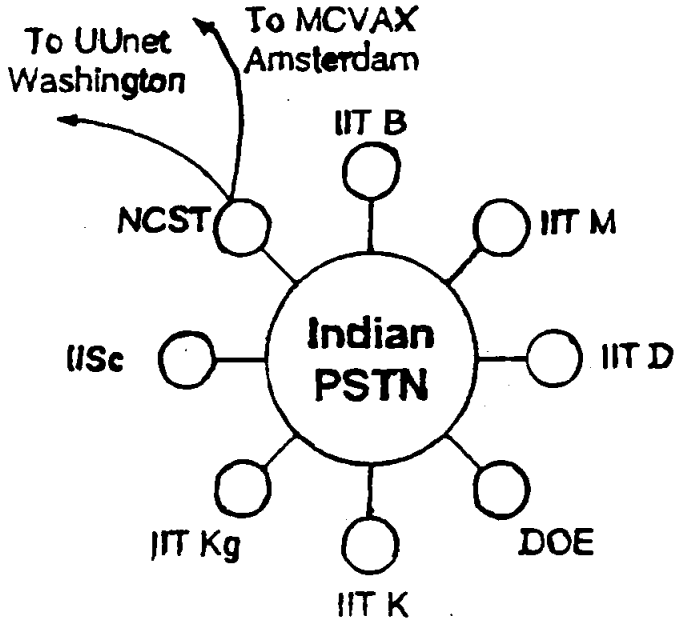

Global communications links
1.6 GHz UPLINK
4 GHz DOWNLINK
35,800 Km
1.5 GHz DOWNLINK
1.6 GHz UPLINK
SHORE STATION
Lines to/from
Domestic and International
Telephone & Telex Networks

Fig 3



Another view of the E-Mail Network

Fig 4

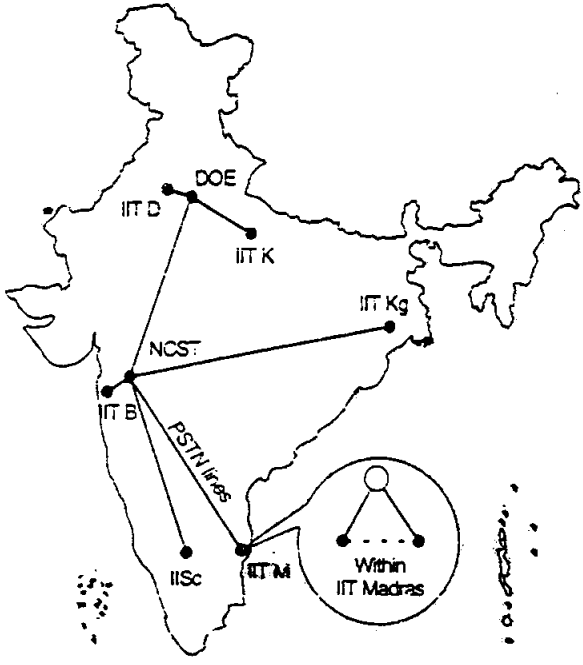
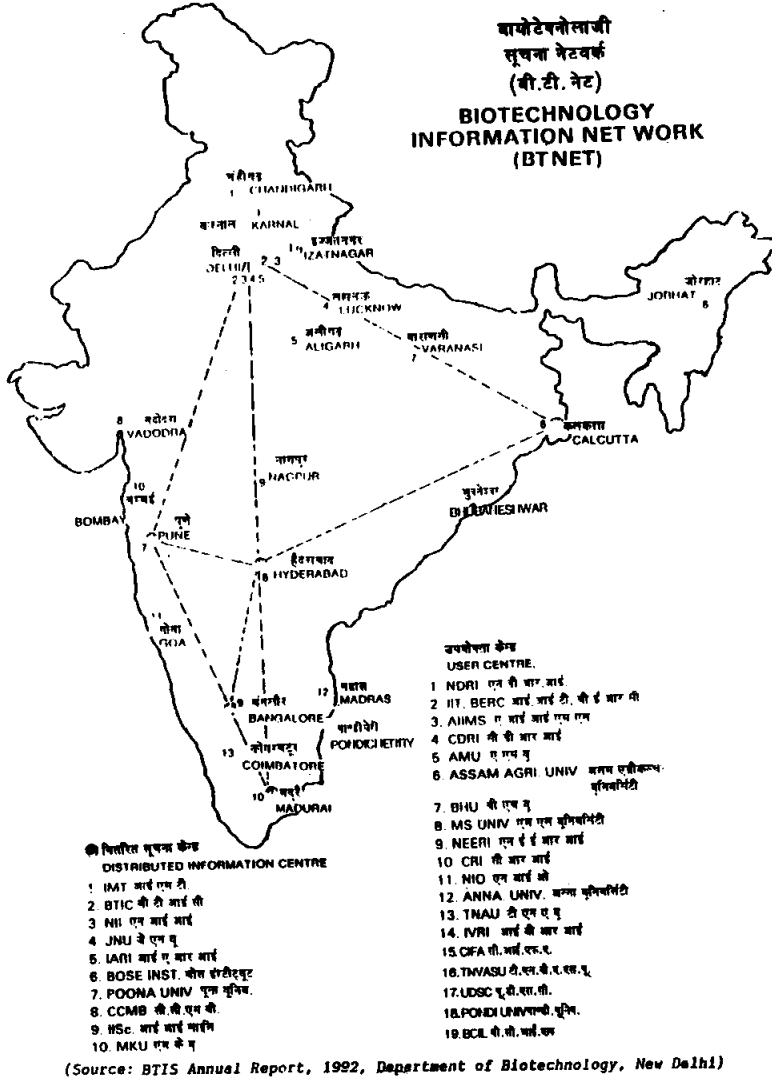

DOE
IIT D
IIT K
IIT Kg
NCST
IIT B
PSTN lines
IISc
IIT M
Within
IIT Madras

Fig 5



(Source: BTIS Annual Report, 1992, Department of Biotechnology, New Delhi)

Fig 6

66 SPECIALIZED INFORMATION SYSTEMS & NETWORKS

SNo	Network	Setting up Body	Service & Functioning
1	BTISNET Biotechnology Information System Network	Department of Biotechnology, Govt of India, New Delhi	9 Disc, DBT Apex body 23 Discs, to Facilitate the access to user centres identified at Educational and R&D institutions. BTIS has been established to serve as a networking and database management organisation in six identified areas involving to specialised centres connected by microearth stations.
2	CALIBNET	National Information system for science & Technology	Metropolitan network to ensure better utilization of science and technology information resources through resource sharing. Links 38 libraries in Calcutta metropolitan area.
3	DELNET	NISSAT/ CMC	Connecting Delhi Libraries: Scientific and Academic
4	CSIR Net	Council of and Industrial Research DSIR, Govt of India New Delhi	40 odd laboratories going computer communication network. Apart from accessing international databases through NACID's indigenous online database access on different subjects, like leather technology, food technology, natural products, chemistry, radio physics and medicinal plants.
5	DESNET	DESIDOC New Delhi	Bibliographic & Information Net Work for defence covering unclassified and technical information.
6	ERNET		Computer Network for Academic & research community with 7 leading institutions likes IIT's (5) Indian Institute of Science, National Centre for Software Technology 2 DOE. It offers Electronic Mail file transfer, remote log on, database access, and bulletin board.

7 RESOURCE SHARING-MANAGEMENT

71 ADVANTAGES OF RESOURCE SHARING BY NETWORKS

* Cost sharing
* Reduction of cataloging costs through Cooperative Cataloging
* Inter library loans are made easier by the reading availability of upto date union catalogue
* Sharing of a larger resource/s than an individual organization can afford

72 PROBLEMS OF RESOURCE SHARING BY ONLINE NETWORKS

* Incompatibility between computing systems often limits cooperation between networks.
* The computer networks that make resource sharing are not cheap.
* Accessing information from international networks, is a costly affair for libraries of India.

73 USERS CONCERNS REGARDING RESOURCE SHARING

1 If all libraries turn to resource sharing, none will have books to lend.

2 If resource sharing proves unworkable, the library will be left further behind.

3 Major defects of resource sharing proposals are, that technology and organization structures are not presently available, to provide the level of service, comparable to that available today with existing methods.

4 The cost of obtaining access to materials, may some times exceed the cost of purchasing the same, from local collection.

5 Resource sharing will effect the economics of publishing, by increasing unit pricing, as library orders decline.

6 A large library may become a lender (rather than a borrower) of material, causing resource sharing to be a drain, rather than a source of addition materials.

8 CONCLUSION

Networking & Online information retrieval system, form an inevitable necessity for the future. An overview of comupterised library networks at national and international level reveals, that much progress has been done in the western countries. As far as India is concerned, inspite of launching several satellites during 1980, it is difficult to peep into the future and predict,

when will the various plans actually come into implementation and the user will have access to all information generated and available in the country. A lot of efforts for communication networks technology implementation, and successful automation of libraries to make their records available in machine readable form, for exchange of information in a standard forma, can only bring the efficient online resource sharing by networks.

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RESOURCE-SHARING AND COMPUTERISED LIBRARY NETWORKS IN INDIA

GOLAM AMBIA

0 INTRODUCTION

Information is a prime resource and is required at every stage of development. The increase in information generation at an estimated rate of 13% per annum has made the task of collection, organization and retrieval of Information very difficult. In addition, the escalating costs of Information products and services have made it mendatory for libraries to automate their services, and share the resources through networking. This is important for developing countries with severe constraints in financial resources. In India, the need for resource sharing has been recognised and suitable options are being explored. Resource sharing can help in avoiding unnecessary duplication of costly books, periodicals etc.

01 NATIONAL POLICY

In 1986 a national policy on library and Information system was formulated wherein it was recommended that the national libraries should form an integrated system for a better coordination of their activities and services. The planning commission had set up a working group on modernisation of library and Information Service for the seventh five year plan (1985-90) to suggest measures to network important libraries in the country, so that their resources could be shared for optimum utilisation. The outcome of this was the UGC report on Information and library net work (INFLIBNET) which proposed a mechanism to establish a network connecting universities, colleges, documentation centres, etc. in the country through the use of computer communication technology.

02 SECTORAL INFORMATION SYSTEMS

In India the creation of NISSAT (National Information Systems for Science and Technology) to coordinate with the sectoral information systems is a step towards cooperation in resource sharing INSDOC is the national body to provide and promote information services nationally and internationally. Centralized acquisition of foreign periodicals (CAP), document delivery and compilation of union catalogue are the main contributions of INSDOC towards resource sharing. The National Information system for Science and

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Technology (NISSAT) under the Department of Scientific and Industrial Research (DSIR) initiated a feasibility study for the automation and networking of about 38 libraries in Calcutta and 35 libraries in Delhi by CMC Ltd, a public sector company.

1 NETWORKING-DEFINITIONS

11 NECLIS

The National Commission on libraries and Information Sciences (NCLIS) in its national program Document (1975) defines a network as:

"Two or more libraries and/or other organization engaged in a common pattern of information exchange, through communications, for some functional purpose. A network usually consist of a formal arrangement whereby materials, information and service provided by a variety of libraries and other organizations are available to all potential users. Libraries may be in different jurisdictions but agree to serve one another on the same basis as each serves its own constituents. Computers and telecommunications may be among the tools used for facilitating communication among them."[1]

12 ALPHONSE F. TREZZA

Defines as ".... a formal organization among libraries for co-operation and sharing of resources, in which the group as a whole is organised into subgroups, with the exception that most of the needs of a lirbary will be satisfied within the subgroups of which it is a member".[2]

13 CHARACTERISTICS

Library networks have the following characteristics:

Data :	Bibliographic records (MARC) frequently[3]
Retrieval :	Author/title/number (subject) (Key word/Code)
Access :	Telecommunication network/private network/ Hard wired network
Users:	Librarians (Public)

131 Features

The above classification shows that library networks have the following features:

–one type of data
–committed user base
–high professional needs
–low end-user needs

2 DEVELOPMENT AND CURRENT STATUS OF NETWORKS IN INDIA

Initially, these were information retrieval networks on agro-economic, Socio-economic and administrative data. Preference was given to food and agriculture, industry, water, electricity, oil, transport, health and education. Among the important data networks established in the past two decades are NICNET, INDONET, VIKRAM and ERNET.

21 NICNET

The National informatics centre (NIC) was established in 1975 with the following objectives;

1 To design, develop and implement advanced computer-based methodologies;

2 To promote adoption of computer-based data management techniques;

3 To generate specialised man power in the field of informatics; and

4 To build intra-city and inter-city Computer networks for interconnecting various ministries/departments of the Central Government and autonomous organizations for a distributed Governmental information system.

211 Linkages

With these objectives in mind NIC established NICNET in 1977. It links for regional modes at Delhi, Pune, Bhubaneswar and Hyderabad and has established 32 nodes at State and Union Territory levels and 439 nodes at district headquarters. NICNET is based on speed spectrum multiple access techniques and uses c-200 series micro-earth stations. NICNET has by 1991 achieved success in the creation of data bases and networking.

22 INDONET

INDONET is an integrated information management and distributed data processing facility. It is a commercial network with nodes at Calcutta, Bombay and Madras on IBM 4361. It is connected to other cities like Ahmedabad, Bangalore, Delhi and Pune through MUXS/cluster controllers. The network uses IBM's system network Architecture. It is planned as a geographically dispersed computer network linking scattered organization in the country.

23 VIKRAM

VIKRAM, a packed-switched public data network is to be established by the Department of Telecommunication. Some experiments have been made but its application to bibliographic data is yet due. The network management

centre will be in Delhi, and switching nodes at Bombay, Calcutta, Madras, Bangalore, Hyderabad, Ahmedabad and Pune with 12 remote access points all connected by leased or dial-up lines.

24 ERNET

ERNET mail was established by the Department of electronics during the Seventh Plan (1986-91) to provide academic and research institutions with electronic mail facilities. It is currently used by DSIR Labs, research centres and academic institutions.

25 INFLIBNET (INFORMATION AND LIBRARY NETWORK)

India has 184 universities and 23 institutions deemed to be universities. About 6100 colleges are attached to these universities. The institutions of higher learning have 3.58 million students enrolled for graduate, post graduate and research degrees. INFLIBNET is a Co-operative networking effort of the University Grants Commission, and is a computer communication network linking libraries and bibliographic information centres all over the country. INFLIBNET is expected to improve information trnasfer and provide the scholars and researchers an easy access to information. Major institutions of higher learning and national organizations like Council of Scientific and Industrial Research (CSIR), Indian Council of Agricultural Research (ICAR), Defence Research and Development Organization (DRDO), Indian Council of Medical Research (ICMR), Department of Atomic Energy, Department of Electronics, Department of Telecommunication (DOT), Indira Gandhi National Centre for Arts, etc. are participating in INFLIBNET.

251 Services

INFLIBNET is a multi-service networking, offering

–Catalogue based services

–Data-base Services

–Document supply services

–Communication based services, etc.

2511 Levels

And operating at four different levels:

–National

–Regional

–Sectoral

–Local

2512 Planning

The national centre will coordinate the activities and services of the network.

25121 Regional Centres

Each of the four regional centres will be hosted in the University libraries of the region and will maintain union catalogues of the libraries in the region.

25122 Sectoral Centres

The Sectoral Information Centres will take care of the maintenance of retrospective bibliographic databases in specific mission or subjects.

25123 Local nodes

The end users will be served mainly at the local level, i.e. the nodes at Colleges, departments, universities and R&D Institutions. 400 such nodes are planned initially.

25124 Research centres

Separately, 100 document Resource Centres in various university and R and D institutional libraries are proposed to be set up for document delivery service.

252 Communication System

A hybrid version of satellite and terrestrial networking will be used as its Communication System. The Communication System will have a central node and 400 ground terminals at 150 university libraries, 50 autonomous colleges and 200 other institutions including R and D institutions. The Document Research Centres and Sectoral information centres are to be interconnected via Satellite links. Nodes in a city will be connected through local Ara network (LAN). About nine million unique catalogue records of 179 university libraries will be unified into a common catalogue database.

26 CALIBNET (CALCUTTA LIBRARIES NETWORK)

CALIBNET is envisaged to cover 38 science and technology libraries, big and small, in Calcutta Metroplition area. From the point of view of spatial distribution, most of them are found to be clustered in the Jadavpur, Chowringhee, Rajabazar and Ballygunge areas. A few libraries such as the Medical libraries, the National Library and the library of Indian Statistical Institute (ISI) are located outside these clusters. The Constituent libraries of the proposed network are expected to be first automated and then networked.

261 Sequence in Automation

Within the individual or nodal libraries, the functions that are to be automated are cataloguing, serials control, acquisition, fund accounting, circulation and local user services. The network centre would provide services such as current awareness, SDI and union catalogue, and access to National and International networks. The main features of CALIBNET are–on line/offline input, editing and retrieval of records. Users will be able to access databases in real time using real time software. System will allo online requests for documents.

262 FORMAT

MARC format and AACR 2 are recommended for creating the in house catalogue records and CCF, which is compatible to the ISO–2709 for exchange of bibliographic data among the participating institutions.

263 Phases

CALIBNET has been envisaged as a Metropolitian area network (MAN). Entire network is proposed to be carried out in two phases. In phase I, institutions in the Jadavpur and Rajabazar clusters are to be covered.

In Phase 2, all other clusters and stand alone institutions will be connected to the network. The library network at Calcutta will be connected to similar networks in Delhi, Bombay, Madras and other major cities using intercity PSDN. The network will have access to the International Gateway of Videsh Sanchar Nigam Ltd (VSNL), a Government of India enterprise, Bombay through Indian Public Switched Data Networks (PSDN).

27 DELNET (DELHI LIBRARIES NETWORK)

The main objectives of DELNET are optimum utilisation of funds through sharing of resources, creation of commonly usable databases and communication between libraries with the help of automation and networking.

271 Switching

A packet switching network has been proposed for online communication requirements. The Library Systems are proposed to be connected to the packet switch with respective X.25 network interface units and to use the corresponding software.

272 Transactions

The following transactions are envisaged among libraries within the network:

–Remote login;

–Batchmode;

–Interlibrary loan service;

–File transfers; etc.

273 Coverage

At present 35 libraries are expected to participate in DELNET. All the participating libraries are expected to create the databases of monographs and serials using CDS/ISIS and CF. A database of Union catalogue of serials available in the participating libraries has been created at JNU. A Central hub has been established at NISSAT. At present the libraries can make use of E-mail facility through dial up modems.

28 SIRNET (SCIENTIFIC AND INDUSTRIAL RESEARCH NETWORK)

SIRNET is proposed to interconnect all the CSIR laboratories and other R and D institutions of India. The main objective of SIRNET is to harness the vast S&T Information resources available with national laboratories and inculcate the habit of resource sharing among them. The ultimate aim of the SIRNET is to link the entire Scientific Community of the nation with the national library system and the interntional links to achieve efficient Scientific Communication.

3 CONCLUSION

The concept of resource sharing provides an alternative for increasing access to periodicals and books. It saves lot of money through cooperative acquisitions. Networking will be a necessity in future. An overview of the computerised library networks at national and international level reveals that much progress has been made in the Western countries in the field of networking due to technological advancements. So far as India is concerned several communication networks such as INDONET, NICNET, VIKRAM and ERNET are important as well as INFLIBNET, CALIBNET and DELNET. Although it is the desire of every information professional that India too should have on-line library networks such OCLC, BLAISE etc. Yet Library automation is not being given necessary priority in several libraries. Computerised library networking will be successful, only when the holdings of all the libraries are available in machine-readable form. We should try our best to provide information efficiently and promptly, in spite of all the barriers and an effort must be made to develop computerised library networks as quickly as possible.

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SCOPE FOR INFLIBNET IN BIHAR A STUDY

DR BN MISHRA*

0 LIBRARIES IN BIHAR

The number of libraries in Bihar are as follows:

Public	*Academic*	*Special*	*Private*
4,000 (State central to village level)	5,000 (High Schools & 2,000 University & College	100	50

01 IMPORTANT LIBRARIES

These are the important libraries among them in the present:

	University	*Public*	*Government*	*Special*
A	Traditional	1 Gopal Ngr	1 Ranchi	RMIMS, Patna
	Patna, Bihar	Public	2 Dhanbad	IGIMS, Patna
	Magadh, Bhagalpur	Library,	3 Chaibasa	Bihar
	LNMU, Dharbhanga	Bharatpura	4 Dumka	Rashtra
	Ranchi, KDSU	2 Sinha	5 Purnea	Bhasa State
	Darbhanga, BN	Library	6 Govt Urdu	Archives
	Mandal, Madhepura	Patna	Library,	RIT, Jame-
	Jaiprakash, Chapra	3 Khuda Bux,	Patna	shedpur
	Binoba Bhave,	Oriental,		ANS Institute
	Hazaribagh,	Patna		Patna
	Sidhu Kanhu,	4 Sharda Sadan,	Xavier	
	Dumka	Lalganj		Institute of
	VKS, Arrah	5 Bhagawan		Social Studies,
B	Technical	Pustakalaya,		Ranchi
	Rajendra Agril	Bhagalpur		LNM Institute
	Birsa Agril	6 LP Library,		of Business
	ISM, Dhanbad	Darbhanga		Management
	BIT, Mesra	7 Seva Sadan		Patna
	BIT, Sindri	Monghyr		

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02 OTHERS

In addition to the above libraries there are nine medical college libraries, two veterinary college libraries and quite numbers of post graduate libraries in the state.

03 RESOURCE SHARING

In this age characterised by knowledge explosion, no library can claim to be self-sufficnet and capable of meeting from its own collection all the information needs of its users. An efficient and effective communication system coupled with advanced library and information science techniques, will give quick and easy information science techniques, will give quick and easy information about the location of the required documents, and facilitate sharing of resources.

1 NETWORKS

Although networks have been developed in certain specific industries such as COALNET, SAILNET, BHEL, NTPC, NICNET, Air India and Indian Airlines Network, no attempt has been made so far to link university libraries and Research and Development units. Consequently, most university libraries have been functioning in isolation without much interaction among themselves. This has resulted in wastage of scarce financial resources due to duplication of reading materials.

11 NEED IN UNIVERSITY FOR NETWORKS

There are many university libraries which are poor in terms of document collections. In recent years, there has been an increase in the cost of books and periodicals. Owing to this, many of the university libraries are unable to meet the demands of the academic community. A large number of them had to slash their periodical subscriptions, particularly the foreign ones. Lack of facilities for scholars to communicate quickly with their counterparts in other institution for sharing information and to have access to the documents available is proving to be another handicap.

12 INTER LIBRARY RESOURCES

One of the most pressing problems faced by the university libraries is the lack of comprehensive location tools such as union catalogues. For instance, if a researcher wishes to refer to an article in the periodical `Phonology' then major libraries in the country have to be contacted which is time-consuming and tedious.

2 INFLIB NET-ORIGIN

Realising the need to encourage resource-sharing for optimum utilisation of resources and for avoiding unnecessary duplication of acquisitions, the

University Granst Commission (UGC) had set up a Committee on National Network System for universities/libraries in April 1988 with Prof Yash Pal as chairman. This Committee constituted a Working Group consisting of information scientists, communication technologists and librarians to prepare a detailed project report. After reviewing the present library scenario, the Working Group prepared a comprehensive report entitled, "Development of an Information and Library Network".

21 RECOMMENDATIONS

It recommended establishment of a computerised communication network of libraries and bibliographical information centres known as INFLIBNET (Information and Library Network) during the Eighth five Year Plan period, 1990-1995. INFLIBNET will link up about 400 institutions 150 university libraries, 50 autonomous colleges/PG centres and 200 other R&D units, document supply service centres and sectoral information centres-through a communication satellite. Many leading libraries attached to institutions such as CSIR, ICAR, DRDO, ICMR, ICSSR and DOE are expected to joint this network. INFLIBNET is a giant step in the direction of building a national information grid for mutual exchange of information and maximum utilisation of resources. Based on the recommendations of the Working Group, the UGC had constituted six Task Groups to work out finer technical details regarding the network design.

211 Guidelines

The Working Group has provided elaborate guidelines on various aspects of the network such as its nature, services, functions, standardisation of operations and services, functions, standardisation of operations and services, retrospective conversion of catalogue records, personnel requirements, finance, management and implementation. It is estimated that INFLIBNET project would cost around Rs. 150 crores (Rs. 103 crores for non-recurring and Rs. 47,7 crores for recurring expenditure).

22 SERVICES

INFLIBNET will offer a wide variety of services such as shared cataloguing, preparation of union catalogues, on-line catalogue, catalogue card supply service, catalogue supply in book/machine-readable form, bibliographical searches-both retrospective and current-selective dissemination of information, current supply, collection development, referral, electronic mail, bulletin board, fax, etc.

23 STRUCTURE

It will be hirerarchial in its organisation structure with a National Centre

at the top to take care of the management, monitoring and coordination of activities and services. At the next level, there will be four Regional Centres (RCs), one for each geographical region and a number of Sectoral Information Centres (SICs). The Working Group has recommended that the National Centre can start its operations from the JNU campus (New Delhi) and also the Regional Centre (North) can be located here.

24 REGIONAL CENTRES

The other three RCs are proposed to be based at the Indian Institute of Science, Bangalore (South), Jadavpur University, Calcutta (East) and University of Poona (West). All the RCs are to be inter-connected through communication links, each one maintaining up-to-date information on holdings of libraries not only within its region but also in other regions. With such arrangement, a scholar can contact his nearest RC to know about the availability of documents required by him in the country in no time.

25 SECTORAL CENTRES

SICs are discipline-oriented and will maintain retrospective bibliographic databases in their respective areas. A few examples of the SICs are UGC Information Centres for science, social sciences and humanities; NISSAT Sectoral Centres, DESIDOC, INSDOC, IARI Library and National Medical Library, SICs will provide national level services to country-wide users irrespective of their place of working.

26 STANDARDISATION

The Working Group has rightly stressed the crucial role of standardisation of operations and services for achieving compatability and inter-connectivity among the participating units. It has provided detailed guidelines on the standard to be adopted for information handling. INFLIBNET is likely to economise on costs and time. Also, this would ensure improvement in the quality of our library services.

27 ARCHITECTURE

As for the network architecture, it will be a hybrid of satellite and terrestrial network, with about 400 unique nodes located in participating libraries. Another significant feature is the proposal to convert/unify about eight million unique catalogue records of 179 university libraries now held mostly in card form into a common catalogue database in machine-readable form.

28 PHASES OF GROWTH

The implementation of INFLIBNET is be taken up in two phases. In the first (April 1990-March 1992), it is envisaged to complete, among others, formation of INFLIBNET Society, establishing a National Centre and North-

ern Regional Centre, Installation of Computers in RCs, 90 university libraries and 100 R&D centre, setting up communication network, retrospective conversion of catalogue records, preparation of union catalogue of serials, library automation of current acquisitions and training.

281 Second Phase

During the second phase (April 1992-March 1994), the reminaing activities such as satellite communication, preparation of union catalogues of monographs and non-book materials, referral services and establishment of three additional RCs are to be completed.

29 MODERNISATION

The INFLIBNET Project has been welcomed by a majority of the university librarians. They feel that this project will provide an opportunity to modernise the library practices and improve services through computerisation and application of modern communication technologies.

291 Effects

After becoming operational, INFLIBNET will be the largest academic and special library network in the country. It will aid in bringing about the much-needed qualitative changes in our library and information services. It will break the institutional barriers, in the free flow of information and provide optimum access to documentary and information sources to our scholars throughout the country and what is more, reduce costs considerably.

3 RESULTS IN BIHAR

In Bihar, the IGIMS, Patna, the RAU, Pusa, the Patna University, the Khuda Bux Oriental Library, the ISM, Dhanbad, and other libraries have computer facilities but very few of them linked with the `on line' library networking system. These are yet to linked with our major lunching of DELNET, CALIBNET, PUNENET, BONET and other library Networking system. The objectives of the proposed system are:

(*a*) Better utilisation of funds through sharing of resources by creation of commonly usable databases and communication between libraries.

(*b*) Automating the functions of individual libraries at a local level for effective and efficient services to the users.

31 POOR STATE OF LIBRARIES

It is sad to mention that in Bihar the libraries (earlier mentioned) suffering from whether university, public, Govt or special they are paucity of funds. In traditional university libraries, not a single university library is in a position to subscribe a single periodical (foreign) for teaching and research.

The public libraries are not getting any grant to purchase even daily newspapers. The Govt libraries though getting their monthly salareis are doing nothing for want of funds. The technical/special libraries controlled by ICMR/ICAR/ICSSR/ICHR or the Central Govt are subscribing to Indian and very few foreign periodicals. The other technical/special libraries financed by the state Govt are on the same line.

32 SCATTERED INFRASTRUCTURE

In principles, all the above libraries accept Inter library loan system but they are not maintained. They lack resource sharing work with each other. Some of these libraries serve their readers with SDI/CAS services but they are not cooperating with each other. The Indian School of Mines, the Rajendra Agriculture University, Patna University Library and Khuda Bux Oriental Public Library have their computer facilities, but these are still to be linked up with INFLIBNET. In Bihar some of the important libraries are still waiting for xerox facilities for the readers. Most of the university libraries are working without the librarians. The Gopal Narayan Public Library at Bharatpura holds seventh position, up to date but working without a librarian.

321 State Centre Library

The Sinha Library is the State Central Library and occupies the highest position in public libraries in the state. Therefore, the Sinha Library should be linked with the all public libraries of the state ie. from top to bottom. The university library should be linked with the all colleges for the networking information facilities. The special libraries also require the same for more effective and serviceable.

4 CONCLUSION

Planned structure and development is needed in Bihar. Sectoral development should lead to Regional development and networking. A model regional development, should lead to effective plans and immediate use of resources, where literally needed. But nothing could function, without a competent librarian at the helm of each library.

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THE INFORMATION SERVICES-CHANGES IN THE 21ST CENTURY

DR AK BARADOL*

1 INTRODUCTION

11 THE ON RUSH

The advancements in information technology, communication technology and information (literature) explosion all together have forced the libraries & information centres to go in for the changes in the information services. The use of CD-ROM database is fast becoming popular in the university libraries, libraries of professional colleges viz medical, dental and engineering and the libraries of other research and development organisations. Since last ten years, a few special libriies are using the on-line information retrieval for rendering the information services. In the 21st century many libraries are likely to use the on-line information retrieval facility for the services.

11 INFORMATION SERVICES

The information services include the current awareness services and such other services. The Glossary meaning of information service is "A service provided by, or for, a special library which draws attention to information possessed in the library or information department in anticipation of demand; this is done by preparing and circulating news sheets, literature surveys, reading lists, abstracts, particulars of articles in current periodicals, etc which it is anticipated will be of interest to potential users of the service".[1]

111 Spread to all Libraries

Although the glossary meaning of the information services gives an idea that these are rendered by the special libraries, these services no more are restricted to special libraries. These services are now rendered by the libraries of higher and professional educational institutions, and a few public libraries. An attempt is made here in this paper to study the information services in the 21st century.

2 ABSTRACTING SERVICE

21 DELAY

The abstracting service which is an important area of information

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service, is likely to have changes in its basic structure in the 21st century. At present the abstracts are being prepared and published in the form of abstracting journal by libraries, professional societies, some private and government agencies etc. There is a delay in the preparation of abstracts. The printing and publishing of abstracting journals takes some more time. By the time the abstracting journals are received by the users, there is a delay of about six months.

22 LIKELY CD-ROM DATABASES

Even if the abstracting Journal is published at local library level, it takes time to cover limited number of journals. The amount required is also more in relation with the benefits the users get by the local abstracting journals. Hence the only way out is to go in for the readymade material. The information services so rendered, specially the abstracting services, is going to be taken by, the CD-ROM data base producing commercial agencies in the 21st century.

23 PAPER MEDIA-SOME MORE LIFE

Some library and information professionals are of the view that the print media in the information services is inevitable. Rajasekharan says, "The electronic media and related technologies are in many a case compensating for their printed equivalents, but they cannot replace the later. Agricultural libraries utilizing the recent computer-based technologies for information retrieval, can not avoid the subscription of printed abstracting services like that of CAB (Commonwealth Agricultural Bureau) products".[2] It is a transitory stage. Hence some more years, the print media will continue in some cases.

24 DB ON CD-ROM--MORE DETAIL & QUICK RETRIEVAL

Bourne observes that, "The print equivalents of some of the CD-ROM products (for example, abstracting and indexing publications) are available in the developing countries. Thus the basic information is available. However the on-line services and the CD-ROM products often contain more sources than is available in the corresponding print product. Thus computer-based searching of a database (on-line or CD-ROM) can provide an answer, that might not be found in a search of a printed index, for example, because a particular index access point like report number or contract number is not provided in the printed index, or it might provide an answer in minutes to a topic, that would take hours to search in the equivalent printed index. This is a great way to increase the productivity of a limited number of skilled professionals."[3] The use of CD-ROM databases and the on-line information retrieval are expected to help a lot, for information services in India, to increase the maximum productivity, which is very essential.

25 TRANSLATIONS DB--ON CD-ROM

The Unesco publication which is meant to inform about the availability of the translations ie. 'Index Translationum,' which was so far available only in the print form, is now available on CD-ROM. To quote from the publicity brochure of Unesco, "It comprises over 600,000 references covering every subject (literature, social and human sciences, natural and basic sciences, art and history etc):[4] It is important to note that this CD-ROM replaces the paper edition. This is the example of the highly used publication from the international agencies like Unesco publishing the information on the CD-ROM. It is expected that many such publications from international agencies/ organisations will be in the form of CD-ROM databases.

26 CHANGE IN USE PATTERN

The procurement of information service products in the form of CD-ROM database naturally results in the discontinuation of their print equivalents. At the same time it may not be possible to get these in the same periodicity, as it would have been in the print medium. Hence a change in the use pattern of information services also is expected.

3 COMMERCIALLY AVAILABLE CURRENT AWARENESS PUBLICATION

31 CURRENT CONTENTS--ON FLOPPY

A few current awareness publications by commercial agencies firms are now available in the computer readable floppy form. The 'Current Contents' publication of Institute of Scientific Information, Philadelfia, is now available in both ie print form and floppy form. This is the change in the physical form of commercially available current awareness publication. Some libraries are subscribing to the 'Current Contents' in the form of floppy. Many more such commercially available current awareness publications are likely to be issued in the form of floppies. This will necessitate many libraries to go in for the purchase of required computer hardware.

4 COMPUTERISED DATABASES DEVELOPMENT IN INDIA CERTAIN

The information services in the 21st century will depend on the computerised databases. At present in some cases the information services are being rendered with the help of the print media of information ie., from the periodicals and other such primary sources of information using the manual methods. In some information centres, the information services are being rendered by the computerized databases. The example of the National Information Centre of SNDT Women's University, Bombay, NCSI, Bangalore

and all the sectoral information centres of NISSAT could be cited. Apart from these, a few libraries/information centres are also rendering the information services through the computerised data bases. But in the 21st century it is anticipated, that the information service will be rendered only through the computerised databases. The information service will totally depend on the computer database. The computer technology and communication technology have changed the overall structure of the information services. To quote Rajagopalan, "Computer Communication, micrography and audio-visual technologies have made a tremendous impact on the organisation and provision of library and information services".[5] A large number of computerised databases will be developed in different libraries in 21st century. These will use the computer communication for rendering the information services. It will certainly be a more efficient information service than at present.

5 STANDARDIZATION

The standardization in any thing/activity/service is always advantageous. Same is true of information services. The users of information services finds it difficult to use the information products which are not standardised. The standardization in future will be of great use, if the library/information centre starts functioning as a centre of the library/information network. There are different information/library networks being set-up in the country like INFLIBNET etc. If the database is created in the standardised format, it is easy to render the information services. The standardization is required more now than earlier. The libraries functioned as almost independent units earlier. But that does not hold good these days. The libraries/information centres will have to depend on the other libraries/information centres for the information services and be a part of the networks.

6 INFORMATION SERVICE DIRECTLY BY THE GOVERNMENT DEPARTMENT

The information services were till recently rendered only through the libraries. But now the situation has changed. Information retrieval is also being done by the Telecom Commission (Department of Telecommunications, Government of India). The facility which hitherto was not available through such an agency, is going to yield better results. The national and international databases are being accessed through the network facility. To quote, 'Public databases (national and international) which have a repository of almost unlimited type of information ranging from news, business, stocks and shares, science and technology, medical research and tecnical information, etc can be connected to I-NET for easy and cheap public access".[6] When once any service is rendered at a cheaper cost, it is certainly going to be used by many persons. It is true with the information service also.

Information retrieval by the government directly through Telecommunication department is expected to be most popular in future.

7 INFORMATION SERVICE THROUGH PRIVATE AGENCIES

The public sectors directly owned by the government have not been fully successful in India. Hence the government has come up with an alternative ie privatisation. The Electronic Mail (E-Mail) service on a commercial basis was launched recently by the Madras based private firm viz ICNET. This firm has been granted licence from the Department of Telecommunications, Government of India, to render the E-Mail service.With this the acquisition and passing of information is expected to be speedy. The following few private agencies have ventured in the information services.

71 INFORMATICS (INDIA) PVT LTD, BANGALORE

This agency which started in the early 1980s has now developed into a massive organisation rendering the information service for the industries, R&D organisations or any individuals. It has on-line information retrieval facilities. This renders the information services on a commercial basis.

72 GLOBAL INFORMATION SYSTEM TECHNOLOGY PVT LTD, BANGALORE

The Global Information System Technology Pvt Ltd (GIST) with its headquarters at New Delhi and regional offices at New Delhi, Bombay, Bangalore and Calcutta has started rendering the information service in India. The GIST provides variety of information services. To quote, "We are a leading information services company in the country providing variety of information products and services, both in print and in electronic media".[7] One of the products of the information services is entitled as Global Conference Alert. Such private agencies are expected to render the information service in a competitive manner.

8 CONCLUSION

To make the maximum use of the existing information structure to render the information services, the libraries have to be modernized. The computer applications to library and information services is a must. The computerization of libraries and information centres is going to be inevitable for the purpose of rendering the information services in the 21st century. All those libraries who don't follow suit will lag behind. The CD-ROM databases are likely to play a key role in the information services in future. The use of on-line information retrieval is likely to be more popular. The information services which were rendered by the libraries/information centres so far, are likely to be supplemented by the public sectors and private compa-

nies to a greater extent. There will naturally be a change in the information use pattern by the users in 21st century.

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THE ROLE OF MULTIMEDIA IN INDIAN LIBRARIES OF THE FUTURE
Some Observations

DR C SASIKALA*

1 ALL MEDIA & INFORMATION WORK

A significant trend in library and information services is the increasing provision and use of modern Audio-Visual (AV) materials in addition to print materials. The objective of this paper is to provide an understanding of various forms of the modern Audio-Visual media and their uses in information work. It also examines the requisite factors in planning for their use in the existing and the future library and information services besides reporting briefly the existing scenario of multimedia in Indian context.

2 IMPORTANCE AND IMPACT OF MULTIMEDIA

While predicting the impact of non-conventional forms of information sources on future libraries, Lancaster (1980) stated "By the year 2000, fifty percent of the existing indexing/abstracting services will be available only in the electronic form. The ninty percent level of conversion will not be reached until late 1990s. By 1995, fifty percent of issues of new technical reports will only be available in electronic form."

21 PHASES OF LIBRARIES

Keeping in view the above prediction while discussing the technological bases of library operations and library materials, Buckland (1981) envisages three phases of developmental aspects of modern libraries as follows:

Phases	*Library operatoins*	*Library materials*
Phase I	Paper	Paper
Phase II	Computer	Paper
Phase III	Computer	Computer

22 NO ACCESS

But it has been observed that most of the libraries of the world especially

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in developing countries are not providing a balanced stock of appropriate information materials to meet its users needs in newer formats. Even the libraries having some of these new information formats are hiding them either in basements or in some locked rooms and refuse to publicize their availability. Many of these libraries are not permitting the users to use the few materials they have by putting so many restrictions.

23 PHYSICAL SHAPE IRRELEVANT

As observed by Shifrin "the multimedia library is largely the result of an attitude of mind; an attitude which has bypassed the irrelevancy of the materials having different physical shapes." Such would be an ideal library for an ideal world.

24 USE BY PEOPLE

Between knowledge and format, it is knowledge that counts and comes first. However one can not even neglect formats irrespective of the barriers they create. We should use formats in a positive way. We have to accept the fact that the format on which the knowledge is recorded in, will in most cases be the deciding factor as to whether or not the information will reach and be understood by people. That is, knowledge is most likely to be acquired when it is in a format that people can use or prefer to use.

25 AN MEDIA POPULAR

Library users prefer sometimes to use newer formats to know about a topic or subject than conventional printed form of material. The impact of AV materials on the public can hardly be over emphasised. For example, earthquake tragedy in Maharashtra touched largely the hearts of the world, when they were shown on TV. Another example is the success of audio cassettes in communicating the policies of political parties to the masses in some states.

3 CATEGORIES OF MULTIMEDIA

31 PASSIVE

Multimedia has been categorised in many ways by professionals. From the user point of view we can classify them as passive multimedia and interactive multimedia. Passive multimedia, as the nomenclature indicates only facilitates passive observation. All kinds of conventional audio and visual materials can be grouped under this category. Whereas interactive multimedia, facilitates the involvement of the user, rather than passive observation.

32 INTERACTIVE

Interactive multimedia has been defined as "A specifically designed way

of combining sound, still and motion pictures, graphics and animation, and data and text, together with the interactive capabilities of a computer." It is predicted that this new media is going to impinge on innumerable aspects of our everyday lives in coming decades. It will have a marked impact on the processes of storing and presenting information. The application of multimedia, in general are possible in any area where the user can interact with, use or learn from the combination of sound, vision, text and graphics.

33 PRINT VS NON-PRINT MEDIA/MULTIMEDIA IN INDIAN LIBRARIES

Unfortunately most of the libraries in India have not given due importance to multimedia collections. Still print media occupies the major part of the resources in these libraries. It is considered to be the most important, cheaper and traditional means for mass communication. Among different kinds of print media, books, newspapers and journals were found to be more popular forms of information both for the librarian and the public, from the beginning of the eighteenth century. In the medieval part of Indian history, the possession of books became a matter of prestige for some sections of the society. Even in the twentieth century, books are considered as the significant media handing down the rich heritage of culture and literature to posterity.

34 LIBRARY PROMOTION OF MEDIA

The Government is also keen to promote the brisk production and distribution of books than other formats through various activities like establishment of literary prizes, book exchange difficulties, the lowering of custom tariffs, establishment of book exchange centres, adherence with copy right, enactment of Book Delivery Act (1954 & 1956) etc.

35 EXHIBITIONS

Most of the professional associations in India are also organising Book Festivals and National Library Week during 14th to 20th of November every year to "stimulate widespread attention on reading and on the importance of libraries of all kinds from the book-shelves of their homes to the vast collections in public, school, college and university libraries" (Bhatia, 1982).

36 DISSEMINATION

The importance of print media, especially books as main sources of knowledge for the people of India was also stressed even by our late prime minister Smt Indira Gandhi, while addressing the delegates of ILA Conference, 1976 at New Delhi in the following words "Books are the containers of knowledge and the libraries of the country should carry the knowledge to the masses. This should be an important service to the nation in fulfilling its 20 point programme" (Trehan, 1982).

37 PRINT MEDIA'S PRIMACY

The above discussion clearly shows the clear predominance of print media over non-print media as the mostly used and consulted sources of information in Indian Context. The same conditions prevail even in 1990's mainly because of the following reasons:

(*i*) Books are cheaper taking price and quanitity of information into account, compared to other media in India.

(*ii*) There is a well established infrastructure for selection and acquisition of printed material which is not so in the case of other media.

(*iii*) It is cheaper and easier to make copies of books and other printed matter in India compared to other media.

(*iv*) Commercial availability of relevant material on different subjects at different levels and in different local languages and forms makes the print media the most popular medium of communication.

(*v*) Limited and restricted access to other media necessitates the use of printed media.

(*vi*) The negative attitude of the professionals who insist that knowledge in print format is more important than knowledge in other formats, regardless of their users' preferences.

38(a) STATUS OF OTHER MASS MEDIA LIKE TELECOMMUNICATIONS

Though print media still dominates the collections of different libraries in India, the other communication media like radio, television and telephone are making significant strides in communication of information which inturn has major implications for the new changing library environment. Television was introduced in India in 1959 with the establishment of a centre at Delhi as a pilot project. Later the gateway system was setup in cities like Bombay, New Delhi, Madras and Calcutta. International telex and telefax services also have been firmly established. Videsh Sanchar Nigam is the agency looking after the international operations.

38 COMPUTERS AND THEIR IMPACT ON INDIAN LIBRARIES (OTHER THAN PUBLIC)

Within a decade of introduction of computer technology, it showed its impact on social, cultural and economic aspects of Indian Society. Computers are now being used in various sectors like Banks, Railways, Airlines, Industries, Commercial firms, Hospitals, Educational Institutions etc. In the field of libraries though the computers have not been fully exploited there is a growing awareness among library professionals about the applications of computers. The impact of computers can be clearly seen in the case of

special libraries whereas it is almost non-existant in Indian public library services. A fair number of academic libraries are in the process of automating their operations.

381 Organisations

The Government of India has initiated a number of programmes and launched a number of projects in order to make India an information rich nation. Establishment of National Information Systems for Science & Technology (NISSAT) and National Information Centre (NIC), National Centre for Telematics are only some examples of the efforts of the Government in this regard.

39 ADVANTAGES OF CD-ROM

Just like any other media CD-ROM has its own unique cost structure, characteristics and advantages for particular applications in library and information work. The advantages of CD-ROMs include massive storage capacity; economical when produced in moderate quantities; durable; on-site use; unrestricted access; fixed costs; end-user oriented interfaces; powerful search capabilities; value-added information; portability; microcomputer based and acts as a effective multimedia. Moreover, CD-ROM is likely to find as prominent a place in the developing countries at it already occupies in the developing countries because existing information infrastructures of these countries are more compatible with CD-ROM than with Online technology.

4 PLANNING THE MULTIMEDIA COLLECTIONS

Keeping the existing conditions and available facilities, library professionals have to carefully plan and utilise various non-print media and media channels for the maximum benefit of their users. They have to interrelate all kinds of media, in a more balanced fashion, keeping in view the individual advantages and disadvantages of each media. While planning the multimedia collection development, policy decisions are to be made regarding: attitude towards multimedia collection of both management and library staff; rationalization in the selection of media depending on the reliability and suitability of the material; exploitation of acquired media to the optimum level; staff education and training in the use of media; user education and familiarisation; in house production of multimedia programmes and the physical planning of multimedia collections.

5 IMPEDIMENTS

But still much is to be done in the field of library and information centres in India to take full advantage of the computers. Kumar (1987) has listed out

the following problems faced while planning computerization in Indian libraries:

(*i*) There is a fear in the employees that computerization will lead to large scale retrenchment.

(*ii*) The initial cost of establishment of a computer system is prohibitive and is beyond the capacity of many organizations and institutions.

(*iii*) Cost of computer time and back-up activities too, is high.

(*iv*) The cost of software is steadily increasing and will continue to increase further.

(*v*) Standardization and use of established standards is very essential for compatibility, ease in exchange and economy in costs and efforts.

(*vi*) Lack of cost benefit studies before embarking on automation.

(*vii*) Library personnel in general have an inadequate knowledge about the potential of computer and its exploitation in library and information work.

(*viii*) Regular and comphrehensive training programmes in the areas of library computerisation for library and information professionals are lacking.

(*ix*) Lack of communication and cooperation among various institutions engaged in computerised library and information activities is a major impedement for furtherance of computerization.

(*x*) Lack of proper interaction among library personnel and computer specialists at the time of plannign and implementation.

(*xi*) Program packages for various library operations are not available in India. The packages available are not fully suitable for local library operations.

(*xii*) The most important problem is the superiority complex, reluctance to help others, and guarding their work from inspection by fellow professionals, by a majority of those who have made a beginning towards the computerisation.

6 CONCLUSION

61 AV MEDIA ADVANTAGES

Non-print media or multimedia are found to be unique forms for accumulating, interpreting and communicating information. They can perform certain tasks that are beyond the scope of the print materials. Visual impact

is important in many subjects areas and can not be replaced by print media. Hence the planner and management of different kinds of libraries in India should give due weightage to non-print materials while developing their collections.

62 IMMENSE REACH

In the changing concept of public librarianship, challenges, nonprint media has an important role to play. It can be effectively applied in reaching the illiterate, neo-literatre and literate population for meeting different targets like mass literacy programmes, family welfare programmes, community social and health care programmes and soon.

63 UPGRADING LEARNING PROCESS

Academic libraries can enhance their traditional learning, teaching and research materials and methods by including different kinds of non-print media and technologies.

64 REPACKAGING

In special libraries, as clerical and housekeeping duties become increasingly routine, and as access to information files continues to grow, the great need will be for individuals who are able and willing to analyze, interpret and repackage the bewildering array of information sources for application to specific problem solving. This can be done effectively only with the application of latest media available to them for various purposes.

65 PROFESSIONAL PLANNING

Library professionals also carefully plan and make attempts to solve the problems of acquisition of different kinds of multimedia in the absence of a satisfactory system of bibliographical control.

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VILLIBNET
A Proposed LAN for Sharing Resources

G SURYA RAO*
GEP ABBULU**

0 INTRODUCTION

In recent times there is an enormous growth of literature in every field of knowledge. At the same time the number of potential users for a variety of information is also being increasing, consequent upon the realisation of the fact that information is an important resource for overall development of a nation. It is now realised that no individual library or any other information centre, however bit it may be, it unable to meet the demands of its users. The situation has led to the establishment of networks of libraries and other information centres having some sort of coordination and cooperation among them, in an area for maximum utilization of their resources economically. The network is a chain of libraries controlled and operated as one unit.

01 MUTUAL AGREEMENTS

The idea of networking of libraries is not new. Nutual cooperation for sharing of information resources has been in operation since several decades in the form of interlibrary loan among the libraries. But this kind of library cooperation is informal and voluntary, and is largely depending upon the willingness of the individual libraries. While it is so, the concept of network of library and information centres is based on formalized mutual agreements, to ensure efficient and effective services to all the users of the cooperating libraries and information centres in the system.

02 DEFINITION

Network of libraries is therefore, a formal association of libraries and information centres, having the same or interrelated services or objectives. The individual libraries act together as one organisation, with set responsibilities required of all members.

1 THE SCOPE OF THE PAPER

This paper draws an outline of the concept of library networks, various factors involved in planning the structure, functions, resources and services

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of them. The references to the documents from which the information is gathered are given at the end.

11 ASSISTANCE GIVEN

Also the authors are extremely grateful to Prof G Madhusudhana Rao, Department of Electronics and Communications, Andhra University College of Engineering, and Co-ordinator of UGC Unit, Andhra University, for his permission to have access to the correspondence and the proceedings of the meetings so far held with regard to the proposed VILIBNET. In fact the first author of this paper actively participated in the deliberations of the aforesaid meetings, which enabled him to put forward his observations in his paper.

2 NEED FOR ESTABLISHING NETWORKS

The following factors force library and information centres to form into networks:

1 Access to timely, reliable, and precise information, which is crucial for the developmental activities of a nation is possible.

2 The world literature in all fields of knowledge, can be scanned regularly and relevant information from the point of view of research workers and R&D personnel can be selected, processed, organised and supplied.

3 The effects of financial constrains of the individual libraries and the increasing prices of the reading materials, will not hamper access to information sources.

4 More users can be served.

5 Several libraries acting in coordination, can eliminate some purchasing and processing costs as well as avoid unnecessary duplication of documents.

6 With the application of computer and communication technologies, access to international data bases and information centres could be possible through networks.

7 The expertise and the new techniques developed in library services and information handling can be fully utilized, far more than one library can offer, all alone.

8 The networks are offered as a solution to bridge the gap between the available information, and the users of that information spread far and wide.

21 FACTORS FOR CONSIDERATION IN PLANNING A NETWORK

It is useful to take into account the following factors in planning an information network:

1 Identification of the libraries and other ifnormation centres that form the network system.

2 The objectives and functions of the network.

3 The growth and development of the network in future.

4 A general information policy, reflecting the needs of all the participating libraries.

5 Organisational pattern and structures of the libraries taking part in the network.

6 Assessment of the information resources and services available, in the libraries joining the network.

7 The present and future resource requirements of the libraries grouping in the network.

8 Availability of expertise manpower.

9 Financial sources and other physical facilities available.

10 Switching capability to have interfacing with other library networks.

11 Availability of good communication facilities such as telephone, telex, E-mail, Fax etc, for taking users to the network of information centres, as well as for linking within the network.

12 Availability of reliable access tools, such as union catalogues, referral directories, to mobilize the resources and services.

13 Adequate training facility, capable of coping with the modern developments in the information field, as well as meeting the changing needs of the users.

14 A feed-back system to improve the existing services of the network from time to time.

23 OBJECTIVES OF THE NETWORKS

The objectives of an information network may be stated in general as:

1 Provision of literature relevatn to and adequate for meeting present needs and capable of development to meet future needs of the generators, processors, disseminators and users of information.

2 Optimum utilization of existing library and information systems, their resources and services and development of new area-where necessary.

3 Provision of precise and exhaustive information accessible with mini-

mum delay, presented in a manner conveient to the respective users, at a reasonable cost.

4 Promotion of research, development and innovation in information technology.

5 Moderation of expenditure of each information centre by avoiding duplication of certain common information sources.

6 Development of facilities for education and training in library and information science.

24 FUNCTIONS OF THE NETWORK

The library network is responsible for coordinating, organising and providing information services covering a wide range of subjects. In order to achieve its objectives the network performs the following functions:

1 To coordinate and communicate the resources and services of the components of the network.

2 To facilitate efficient and economic interlending of information resources.

3 To provide reprographic and translation facilitieis.

4 To establish centralised data banks for quick information service.

5 To provide adequate comptuer facilities for fast information access and retrieval.

6 To establish compatible standards for information techniques, procedures, processes and services for use of the libraries forming the network.

7 To keep liaison with other regional, national or even international centres engaged in information handling.

3 STURCTURE OF THE NETWORK

There should be a suitable organisational structure consisting of a central focal point to provide for planning, policy framing, financial allocation, programme development, coordination and monitoring. An ideal situation for a network with a group of libraries and information centres is, that none of which hold a significant overlap of resources with any other.

31 GAIN

Each participating library, while working independently under direct control of its parent organisation, has access to several other sources in the network, thereby facilitating better information services to the users.

32 TECHNOLOGY CHANGES

The network system must be capable of adopting itself to the environmental technology changes, such as introduction of new technologies, document reproduction techniques, changes in the nature of research activities, emergence of new disciplines etc, which condition the performance of the system.

4 THE NETWORK MODEL

41 KINDS

Networks may be classified as Cyclic, Decentralised (Non-directed), Centralised (Directed), and Hierarchical.

42 PURPOSE

One model may be more effective and suitable than another for a given purpose of the network.

43 NODES FOR ALL

The simplest is the non-directed network. In this system all the nodes (participating libraries) are independent with inter-communication links. Each node (participating library) is directly linked to all other ensuring a multi-directinal flow.

44 NODAL CENTRE

In the case of directed network system one of the libraries or information centres acts as a "nodel centre", undertaking the overall responsibility for monitoring and developing necesary infrastructure with regard to men, material such as computers, reprographic machines, communications like E-Mail, Fax etc. This system undertakes referral services, that is, informing the user, the centre from which he can obtain the required information.

441 Number of Nodes

The total number of links that can be derived in the network are: $C = n(n-1)/2$, where C is 'links', n is number of 'nodes'. For instance, if 8 nodes are linked to each other, there would be 28 communication links. Inter-library loan transactions in an area is an example of this type.

5 RESOURCES OF THE NETWORK

51 EXISTING

The existing resources of the network include, the existing libraries and information centres, their information resources, manpower resources and financial resources, their physical facilities and services for access to information; facilities for training of personnel in library and information science.

52 SURVEY

To determine the information requirements of the potential users, surveys are to be conducted to assess the actual and potential number of users, at different levels, belonging to different libraries/information centres of the network, with indication to which library they belong, their reading habits, the kind of information they require.

521 Result

The information requirements may be forecast on the basis of trend, in number and level of users; trends in the increase of knowledge and its utilization and trends in education, research and development with due regard to trends in national socio-economic development.

5211 Resource Sufficiency

The identification of the number and level of potential users in various libraries in the network of the locality, and their information requirements, will indicate the required information resources and the kind of information services etc.

5212 Finance

The financial sources of the network consists of financial contributions made by the cooperating libraries and information centres. At times voluntary contributions are also received. The optimal use of available resources is not possible without an analysis of the costs. The average cost per unit of utilization of the network will help in determining the pattern for future financing.

6 VILIBNET

The Vilibnet is Visakhapatnam Local Library and Information network system. This network system is proposed to be established in confirmity with the general theory of `Information networks system as outline above.'

61 PANORAMA OF EDUCATIONAL AND INDUSTRIAL ESTABLISHMENT: VISAKHAPATNAM

Visakhapatnam and grown into an industrial, educational and research centre of importance. It is the headquarters of the Eastern Naval Command, a major defence establishment of the country. It is the seat of the Andhra University, a premier institution of higher learning in the country, devoting itself for teaching and research activities. The city includes many major industries such as Bharat Heavy Plate and Vessels Limited, Coromandal Fertilisers Limited, Dredging Corporation of India Limited, Hindustan Petroleum Corporation Limited, Hindustan Polymers Limited, Hindustan

Shipyard Limited, Hindustan Steels Limited, Hindustan Zinc Limited, Visakhapatnam Dock Labour Board, Visakhapatnam Port Trust, and so on. In aid to these establishments several hundreds of ancillary industries are also coming up which enhance the industrial importance of the city.

62 THE INFORMATION NEEDS OF THESE ACADEMIC R&D INSTITUTIONS AND INDUSTRIAL ORGANIZATIONS

Conservation and propagation of the Universe of knowledge through teaching and research is the aim of academic instutions. Hence they need reading materials in all disciplines. The industries require easy access to scientific and technical information, managerial information, and marketing information, to enable themselves to contribute more actively to the national economy. The individual members of the society, require the kind of information that develop their social, intellectual and cultural accomplishments.

63 NEED TO ESTABLISH VILIBNET

While University and other institutions like the NSTL have their libraries with considerable collections to cater to informational needs of their clientele, the industries and the other organizations have not developed their libraries, to provide adequate information, to mee with the needs of their members. They have only a traditional library facilities but not modern documentation services. These libraries have no liaison, planand coordination. There is no plan for developing a local information infrastructure in Visakhapatnam until recently.

64 ENVISAGED VILIBNET

In terms that regulate networks of libraries and information centres the attention of the parent organizations and institutions was drawn, mainly with the initiation of the authorities of the Andhra University in the beginning of 1994.

641 Organization Meetings

A series of meetings of the representatives from various establishment, including industries, technological laboratores, educational institutions, public sector offices, Department of Telecommunications, Port Trust etc, were held. The coutcome of these meetings is the unanimous acceptance to establish an information network with the libraries of various industries, scientific laboratories, educational institutions etc, located in Visakhapatnam city for exchange of information by means of computer communication through P&T lines. The set of conditions qualifying the formal agreement of cooperation, constitute the structure of the VILIBNET. This network is to be called as VILIBNET.

642 Objectives of VILIBNET

The environment of the VILIBNET is characterised by the objectives of education, research and development and production of commodities. The networking is to provide an efficient and effective information services to the potential users of the libraries and information centres proposed to come under the purview of the network.

643 Structure and Model of the VILIBNET

To start with, the VILIBNET consists of, the libraries of the Andhra University, the NSTL, Steel Plant, Naval Ship Design and Research Centre, BHPV etc. It is envisaged as a `directed network' system. In this system the AU Library acts as a `nodel centre', while libraries of other participating institutions and organisations are nodes or components. Being the `nodel centre', the AU Library will be entrusted with the overall responsibilities for coordinating and developing the necessary infrastructure of the system, initially out of the finances made available from the budgets of the participating institutions, industrial concerns and the organisations, as contributions. When once it comes to a stage of functioning the users will pay the average cost per unit of utilization of the services under the network. Besides functioning as any other node it undertakes the referral services. The nodes interact with each other and the nodel centre, that is, AU Library. The nodes are to be coordinated, in acquisition of periodicals and books, and the interlibrary loan.

644 Infrastructure Development

Each centre has to concentrate to acquire the specific information sources according to the core needs of its users. The users will have access to the sources of all these centres. The centres have approaches from all possible communication and transport systems. The authoriteis of the P&T are approached to help in this regard. The AU has already established E-mail and Fax systems. Some of the libraryes like the Andhra University Library and that of NSDRC in the network are already using computers.

65 THE STRENGTH OF COLLECTIONS OF THE LIBRARY COMPOSING VILIBNET

On personal survey of these libraries initially coming under the purvuew of VILIBNET, it is observed that the holdings existing at present are as shown in the Table.

Thus the collections comprise of current periodicals and back volumes, reports, conference proceedings, patents, standard etc. Duplications may be there in the collection of these individual libraries. Even ignoring duplications, these collections if used on the basis of resources sharing can satisfy

Table
Number of Books, Periodicals, Standard Patents and Annual Budget

Name of the Organisations and Institutions	Books Periodicals (vols)	Periodicals Subscriptions (Annual)	Standards Patents, Design, Drawings, Codes	Budget Annual in lakhs Rs
Steel Plant	16,700	130	18,00	10
NSDRC	2,600	75	945	5
BHPV	12,000	250	40,000	8
NSTL	15,00	125	5,000	10
Andhra University Library	3,92,000	1200	1,36.000	115

the information needs of the local users of Visakhapatnam to a larg extent.

66 SERVICES OF THE PROPOSED VILIBNET

The services that are expected from information centres are:

1 Answer on telephone for queries;

2 Bibliographic service–preparatoin of lists on request and also in anticipation;

3 Literature search;

4 Reference and referral service;

5 Current awareness service, and Selective Dissemination of Information;

6 Abstracting service and publication of abstracts bulletin;

7 Reprographic service; and

8 Translation service.

67 FUNCTIONING OF THE PROPOSED VILIBNET

Subject to overall control of the nodel centre, in AU Library, each centre will function independently for receiving and executing orders. The users where they have access to `union catalogue' can sent their requisitions to the centre nearest to them. In case the centre does not held the title, the requisition is to be sent to the other centres where the documents is found available with a note a respond the requisition directly to the user's address. If the document is available in more than one centre, the user can opt his choice or

send it to the centre nearest to him. As a last resort, in the event of its non-availability in any of the centres, the concerned centre will interact with other regional or national networks. The maximum time required to fulfil the request can be fixed as one week from the date of receipt of the requisition for the sources available within the local area. For the requisition to be procured from outside, it takes about 2 to 3 weeks.

7 CONCLUSION

71 WORK AHEAD

Many libraries are yet to be brought within the fold of this Network. The District Central Library, the Regional Library of Government of Andhra Pradesh. The Medical College Library, the Library of the Nurses Training college, the libraries of well established colleges like M/s AVN College, the different libraries established by the Naval base and other identifiable ifnormation centres as nodes.

72 INFRASTRUCTURAL GROWTH

It is hoped that the VILIBNET will emerge as a functional cooperative network, incorporating documents in all the disciplines as science and technology, social sciences and humanities in its fold. Each participating library will follow the common standards with regard to library procedures and services. Each library will have computers, with on-line terminals. Communication facilities like telex, Fax, E-Mail etc, so that the network as a whole can interact with the regional, national and even international information networks.

73 ESSENTIAL ECONOMY IN QUICK DEVELOPMENT

With the present available financial sources as observed in each of these participating libraries, it may not be possible to acquire all needed documents, keeping pace with the proliferation of literature in every discipline on the one hand and the escalation of prices of documents on the other. The concerned Ministeries of the parent organisations, and institutions of these libraries have to provide substantial grants to speed up growth of VALIBNET. It is suggested that the UGC, the National Information System for Science and Technology (NISSAT) and the voluntary organizations have to come forward in aid of the proposed VILIBNET, so that on reaching its final stage of development, it will be used by not only the potential users of Visakhapatnam but also the users of the country in general.

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COLLECTION DEVELOPMENT OF PUBLIC LIBRARIES IN KARNATAKA

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0 INTRODUCTION

Public library is a free public organisation with a sound infrastructure of socio-economic, cultural and recreational institution, without the artificial barriers, such as preventing its use by the community people. Hence it is rightly called as People's University. To carry out its functions effectively and efficiently a well balanced collection of reading materials is a pre-requisite. The Public library consists of three components–collection–users–staff. These components are complementary to each other to achieve the growth of a public library.

1 SCOPE

There are many factors which are responsible to achieve the spirit of public libraries. In this paper an attempt has been made to identify the role of financial resources in relation to collection development in Public library system of Karnataka State.

2 COLLECTION DEVELOPMENT

The collection in a library plays a very vital role. The image of the library, therefore depends upon its varigated collection of reading and other kindred materials. That is why it is said that the foundation of the library is its collection.

Public Library is described as the "Peoples University", so the first and foremost function of the public library is to provide all kinds of informational documents needed by the public at large. People belonging to all professions visit the public library and search for the information which is essential for their work. User's informational requirements are diverse in nature. It is the duty of the staff to provide the required information and satisfy the clients. To do so the library will have to have a sound and well balanced collection on all subjects. Hence, the collection development is the

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backbone of the library services. It is, therefore, of prime importance to develop the collection in an organised way.

21 FUNCTIONS OF THE BOOK SELECTION

The task of book selection is more complex in nature in public libraries, because of the diverse interests of the public at large. The public library must take into consideration the following factors of the community, while selecting books:

1 Size of population-rural and urban, literate and illiterate, women and children and disadvantaged etc.

2 Number of educational institutions–schools, secondary schools, colleges, universities and such other allied organisations.

3 Cultural background of the community it serves.

4 Number and types of industrial establishments in the vicinity.

5 Reading habits and tastes of the library users.

22 STEPS IN COLLECTION DEVELOPMENTS

There are many steps in collection development of books in public library system, some of the important ones are mentioned below:

1 Users' Survey or community analysis

2 Selection and Acquisition policy.

3 Standards for collection development in Public library system.

4 Financial resources.

The collection development requires systematic planning, taking into consideration of existing collection of reading materials. On the basis of this, such development and growth requires adequate financial support, coupled with availability of space as well as trained professional staff.

Hence, collection development of Public Library System falls in tune with the Fifth Law of Library Science, 'Library is a growing organisation', enuntiated by Dr SR Ranganathan. In accordance with this Law public libraries should acquire books and other reading materials judiciously to satisfy the needs and aspirations of the community people.

3 PUBLIC LIBRARY SYSTEM IN KARNATAKA

The Karnataka Public Libraries Act (KPLA), 1965, is an improvement upon the existing Acts of Tamil Nadu (1948) and Andhra Pradesh (1960). The KPLA has incorporated all the essential features required for an over all development of a Public Library System (PLS).

In accordance with KPLA, 1965, the following structure of PLS is established and is working as under:

1	State Central Reference Library (SCRL), Bangalore	1
2	Public Technical Library (PTL), Bangalore	1
3	City Central Libraries (CCLs)	15
4	District Central Libraries (DCLs)	20
5	Branch/es	487
6	Book Delivery Stations	487
7	Mandal Libraries	551
8	Mobile Libraries	8

31 FINANCIAL SUPPORT

Sections 30 to 33 of the KPLA, 1965, indicated the financial provisions for the PLS.

311 Library Cess

As public libraries are established and maintained in order to cater to the needs of the citizens, finance plays a vital role in the growth and development of Public libraries. It is one of the important factors on which depends the future development of PLS.

The KPLA, 1965 has made provision of a library cess in the form of surcharge on tax on lands and buildings. This cess is levied in areas with in the jurisdiction of every city and district Authorities at the rate of 3 paise per rupee of the tax so levied.

Now the Government is kind enough to raise the cess rate from 3 paise to 6 paise since April 1994.

Further, the State Government has to provide annually a grant to every District Library Authority of an amount equal to three percent of the land revenue collection of the district.

The amount, the provided is to be exclusively spent on establishment, maintenance and development of public library services in the State.

The salary of the staff is paid from the consolidated fund of the State.

However, SCRL is solely financed by the State Government without any allotment of cess collected.

4 EXISTING SITUATION OF COLLECTION OF BOOKS

The total book collection in the Department of Public Libraries as on today is 60 lakh titles. This includes the multiple copies of the some titles.

The Directorate of the Public Libraries has framed rules for constituting Book Selection Committee, guidelines for purchase of books and Government orders for expenditure for the SCRL, CCLs and DCLs in the State.

41 BOOK SELECTION COMMITTEE

It consists of the following members:

1 The Chairman of the LLA will be the Chairman of the Book Selection Committee.

2 Two Authors in the Locality–one male and another preferably female.

3 One Educationist in the jurisdiction of the libraries.

4 The Chief Librarian is the member Secretary of the Committee.

42 BOOK PURCHASING GUIDE LINES

The following are the guide lines issued by the Directorate under circular No. ED. 21/LBP-93 dated 4.8.1993.

1 The Firm should be a registered body under Department of Labour and Commercial Tax, Government of Karnataka.

2 GOC rules should be followed while purchasing of foreign publications.

3 Purchases be made directly from the Author/s and publisher/s.

4 Discount rate is fixed at 10 per cent minumum.

5 Purchases be made every year four times, June, September, December and March.

6 Budget distribution for purchase of books would be as under:

(*a*) 60 per cent for books in Kannada language;
(*b*) 40 per cent books in English and other languages.

7 Rs 25,000.00 is the maximum limit for purchase of books from any particular book seller.

8 Jnanapeeta award and any other award books must be purchased.

43 GOVERNMENT ORDER FOR EXPENDITURE

To rationalise and to bring about a standard pattern on spending money in the PLS, the Government of Karnataka evolved a formula in 1975 and fixed the percentage for spending on various budget heads under GO No 38/SLS/70 dated 06-08-1975. The details are as under:

431 State Central Reference Library (SCRL), Bangalore

45 per cent for establishment charges (Salaries of staff)

15 per cent for TA & DA to State Library authority members.

30 per cent for Development charges (Purchase of books & periodicals)

5 per cent for Miscellaneous charges

5 per cent for Reserve fund.

Explanation

The Government is providing grants for running of the SCRL. However, 5 per cent of the cess collected from CCLs and DCLs of the State is also provided for SCRL under special directives of the State Government (Annexure II of above GO).

432 CCLs and DCLs

20 per cent for staff salaries & other welfare schemes.

5 per cent for towards SCRL fund.

45 per cent for purchase of books.

15 per cent for subscription of periodicals

15 per cent for equipments.

Subsequently, the State Government modified the earlier GO No 38/ SLS/70 dated 06-08-1975 as far as CCLs and DCLs are concerned. Accordingly, a modified GP No ED/PML/78 dated 31-12-1986 was issued. The details are as under:

20 per cent for staff salaries and other welfare schemes

60 per cent for maintenance charges (purchase of books, periodicals and equipments etc,)

5 per cent for Public works reserve.

5 per cent for SCRL fund.

44 EXPENDITURE ON BOOKS AND OTHER READING MATERIALS DURING 92-93

The figures available at the Directorate of Public libraries are as under:

(*a*)	CCLs	Rs 72,82,883.00
(*b*)	DCLs	Rs 13,63,397.00
	Total	Rs 86,46,280.00

As can be seen from the above figures fifteen CCLs have spent on purchase of books and periodicals Rs 72,82,883.00 and a total amount of Rs 13,63,397.00 is spent by twenty DCLs during 1992-93. The amount spent by CCLs is five times more than the amount spent by twenty DCLs. The reason for this is the cess collection in CCLs is much more as compared with the cess collection made by DCLs.

The total amount spent on purchase of books and periodicals by the PLS is Rs 86,46,280.00 which works out to Rs 00.19 per head of population.

441 Expenditure of DCL on Books and Periodicals

The following is the amount spent by a DCL selected at random. Expenditure on books and periodicals for three years:

	1990-91	1991-92	1992-93
(*a*) Books	99,153.00	99,937.00	1,64,705.00
(*b*) Periodicals	1,95,170.00	1,49,988.00	1,79,989.00
	2,94,323.00	2,49,925.00	3,44,694.00
This works out per head per annum	0.08	0.07	0.09 Expenditure

5 TOTAL BOOK COLLECTION IN THE PLS OF KARNATAKA

It is also to be noted that a total of 60 lakh titles is available for a population of 4,48,06,468. This works out roughly to 13 books available for reading among 100 persons.

These figures do not augur well and present a gloomy picture of the collection development in PLS in Karnataka.

6 OBSERVATIONS

With the help of the above discussion, one can say that a number of factors have to be considered for collection development.

Finance is number one factor and plays a vital role in collection development. Where financial resources are on sound footing one can develop the collection scientificially and systematically to cater the needs of the public at large.

With the help of the experience gained, it may be said that the provision of money earmarked/sanctioned is not adequate and not helpful to develop the collection. More over, the release of such money is uncertain because it is always inadequate for PLS depends soleley upon the cess collection in the State. The reasons are as under:

61 SCRL

The SCRL is at the apex of the PLS in the State. The SCRL is functioning as a reservoir of books and other kindred materials for the entire state. It is wholly financed by the State Government according to KPLS, 1965.

The development grant sanctioned by the Government to the tune of Rs 2 to 3 lakhs every year is quite inadequate.

The account rules contained in GO dated 06-08-1975 regulating the expenditure of the money issued by the Government are not based on logical principles.

(*i*) 45 per cent is set aside for establishment charges on staff salaries and other welfare schemes. This provisions in account rules is taking major share as compared to the provision of only 30 per cent for purchase of books and other reading materials.

Actually, the KPLA, 1965 prescribed under sub section 3 of Section 15 that the staff salaries, allowances, pension and other welfare schemes are to be met from the consolidated fund of the State.

(*ii*) 15 per cent for TA and DA to State Library Authority members, which also reduces allotment of funds for purchase of books and other reading materials.

(*iii*) 5 per cent for reserve.

It is very difficult to understand the minds of those who framed such rules.

62 CCLS AND DCLS

The sole source of income of DLCs and CCLs is cess collection in their respective jurisdictions. Experience shows that there is decrease in cess collection every year as octroi has been abolished.

(*A*) The account rules issued in 06-08-1975 were modified on 31 December 1986. According to these rules the expenditure statements mentioned in it are unreasonable, illogical and further reduces the purchasing power of the CCLs and DCLs as far as books and other reading materials are concerned. The reasons are:

(*i*) According to this order, an amount equal to 20 per cent of the total amount collected can be spent on staff salaries and other welfare schemes. This is not advisable as it reduces the funds for purchase of reading materials. The salaries etc., are paid from the consolidated fund of the state.

(*ii*) The rules further prescribe a contribution of 5 per cent of cess funds, towards the SCRL fund. This is undemocratic as the SCRL gets full financial support from the Government for its operations. Such rules do not help to build up a good collection of books and periodicals. On the contrary, they check their services to the public at large.

(*iii*) The modified rules issued on 31-12-1986 should be improved on the earlier one, but it is not so. It further reduces the purchasing power of CCLs and DCLs.

(*B*) Reduction of Cess

(*i*) In spite of the revision of the cess rate from 3 paise to 6 paise is not sufficient to purchase the required documents, because of the reason the price of the documents have increased many fold. This has resulted in naturally in the reduction of purchasing power of the funds allotted to the CCL's and DCL's.

(*ii*) The State Government has provided more concessions to Agriculturists, resulting reduction in land revenue of the State. This has adversely affected the source of funds for the DCLs.

(*iii*) Abolition of octroi or tax on entry of goods by the Government in 1979 has adversely affected the finances of the CCLs.

(*iv*) The contribution of 5 per cent of cess collected by CCLs and DDLs towards the SCRL impoverishes the former.

(*v*) The deduction of 10 per cent as collection charges out of the cess collected by the authorities, again reduces the income of CCLs and DCLs.

(*vi*) Finally, the cess collecting authorities–civic authorities and State Government are not releasing the cess amount collected promptly and in time.

63 BOOK PURCHASING GUIDE LINES

The Guidelines issued by the Directorate under GO dated 04-08-1993 are general rules, which are not helping for the collection development.

Under these conditions, it is difficult for the PLS of Karnataka to develop an effective collection of books and other reading materials. The over all expenditure on collection development shows a gloomy picture. As stated earlier the per capita expenditure is as low as 0.19. And in regard to books the figure is 13 books per 100 population. It is needless to state that such a dismal situation requires to be remedied as quickly as possible.

7 CONCLUSION

The public library is a democratic organisation providing good reading materials to one and all in the community. For this money is urgently required to improve the collection development and provide library services on the modern lines.

The State Government should take the entire responsibility of financing thePLS in the State and secondly, the Directorate of PLS should introduce a standard formula for collection development and expenditure on books.

In the light of the above discussions, the following issues are to be considered:

(*i*) The collection norms for the public library system be introduced.

(*ii*) The professionals should unite and propose to the Government to take the entire responsibility of running the public libraries.

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EMERGENCE OF TELE SOCIETY
A Vision of 2000 AD

RC GAUR

0 ON-LINE SHOPPING

In Financial Times of June 23, 1994, there was a feature by Louise Kehoe entitled" On-Line for speedy Sale- Sales of goods through on-line services in the US". In Developed Countries this feature will be of routine news item, but in Developing Countries like India, it is a topic of great interest. According to this feature, the largest US Publishers and retailers are rushing to offer their products on-line, as the demand for online shoping is increasing. On-line shoping in USA is becoming popular not because of its fantasy but because of its various advantages over routine shoping. Economically on-line shoping is cheaper than off-line retail sale, and also it is more convenient to the customer, as one need not to go to market for shoping. Just switch on your computer and place an order for the required items. By the way, on-line shoping has its own problems, such as bargain, you can not see products physically etc. On the basis of study of trends in information technological developments, such as Multimedia Technology, we may see a bright future for on-line shoping.

01 TELE WORKING COMMUTING

"Remote Working One Step Nearer" is the title of an article by Richard Shephard, published in December 1993 issue of "Telematics India". According to Mr Richard Shephard, Teleworking is a system, by which a person can work at home, away from a fixed Office environment, and avoid the cost, inconvenience and loss of time involved in communting to work. British Telecom is doing a 12 months experiment in telecommunity, to find out feasibility of teleworking or telecommuting.

02 IDEA'S TRAVEL TO INDIA

Now coming to India, in Hindustan Times of dated August 18, 1994, there was a news item "Telecommuting's Exciting World' by Mr Satyan Mohapatra. According to the news, Telecommuting is the exciting possibility opened by new information technologies, where one need not commute to one's office, but sitting at home can perform all official works with interactive computer facilities providing Video data, text, image etc.

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03 IN LIS FIELD

Library and Information centres ae not far away from these technological developments. Mr Blaise Gleny in his article "Managing Information Resources in Telecommuting Environment", published in Winter 1994 issue of `Special Libraries', had explored the practice of telecommunting in LIS field and its effects on both employees and their parent library organisation.

04 EMERGING TELESOCIETY

On-line shopping or on-line ordering or Tele-ordering, Telecommuting or Teleworking, Telebanking, Teleconferencing, Video Conferencing, Cable TV, Audio Conferencing, Radio Paging, Cellular Telephone and Computer and Communication Network Services, are some names of the information technology based services, being used in our day-to-day works. The above instances are clear indications of emergence of a new society, in which the way of communication of information is on-line, media of communication information is electronic media, and majority of the industry belongs to automization. One may call this society as paperless society or Tele Society. This paper will explore the idea of Paperless Society or Tele Society and also how we are moving from Information Society or Knowledge Based Society to Paperless Society. Idea of Globalization, or Common Trade or Global Economy is incomplete, without computer networks and other modern telecommunication and ifnormation facilities.

1 IDEA OF PAPERLESS SOCIETY OR TELE SOCIETY

11 A SOCIAL REALITY

Telecommunications has entered very deeply into the human life through the Telephone, Satellite, Broadcasting Services, FAX, Telex, Tele Printer, Gram and particularly through Value Added Network Services (VANS). Value Added Network Services are the result of marriage of Computers with Telecommunications. Latest developments in the form of Multimedia Technologies such as Hypertext and Hypermedia have revolutionazed the way of living of human society.

12 BECOME THE BASE ITSELF

Combination of Computer Technology, Telecommunications Technologies and Multimedia Technology, have transformed traditional Telegraph `and Telephone system into one of the Electronic Highways, for the transportation and dissemination of Information. Telephone and Radio Broadcast, have been greatly integrating societies, but newly developed information technologies have revolutionized the global information activities. In today's society electronic media have became the very base for lives of the people.

13 ACCESS TO GLOBE WITHIN MEANS

Computer Networks have linked every office in a city, every city in a state, every state in a nation and every nation into a one World. A person having/owning a Personal computer, can have access to the information available in any part of the globe. Another reason of the popularity of on-line service is, the drastic decrease in the price of computers. Now a days computers are available at the price of a colour television.

14 PREFER TELE SOCIETY

Idea of paperless society is not acceptable to a large section of society as well as to me also, that's why I have choosen a name "Tele Society", as it is very difficult to remove paperwork from human lives. One may see some sort of reduction in paper work, and also some changes in types of 'paper'–used. Paper print is more convenient and reliable in comparison to electronic storage media. In one way electronic media is a barrier to information communication process, as one could not read a matter available in a Floopy Diskettes through naked eyes, without using a computer. The idea of paperless society is acceptable to some extent, in terms of reduction of paper work. The idea of paperless society is a myth. During last two decades information technologies have entered in every walk of human life, even though demand for paper has been increasing. Even in fully computer based information environment, there will always be a need for a paper print copy or hard copy.

2 TELE SERVICES

There are various types of tele services that have been used in day-to-day work. Some of the important services are as given below:

1 Voice Communications–ie., Telephone, Teleconferencing, Office Mail System, etc.

2 Data Communications–ie., On-line services, Resource Sharing, File and Data Transfer

3 Text and Message Communications–ie., Telex and E-Mail, etc.

4 Image Transmissions–ie., Fax, Video Conferencing

5 Information Retrieval–ie., Video Text, Bibliographic Databases

3 SOME IMPORTANT TELE SERVICES

31 TELE-ORDERNING OR ON-LINE ORDERNING

Tele-ordering refers to an on-line ordering system by which one can order any goods to/from any part of the world, with the help of local, national

or internatioanl computer and communication network services. Teleordering can be used for on-line shopping. In the libraries and information centres tele-ordering can be used as a tool for collection development, purchase of library stationary and other material.

311 Information Networks

With the emergence of various library networks in India such as DELNET, CALIBNET, and INFLIBNET, and communication networks such as NICNET, INDONET etc and various international networks such as I-Net libraries are coming close to each other at local, national as well as international level. Computer networking is a pre-requisite for tele-ordering.

311 Technology Required for Tele-orderning

(*a*) Hardware

(*i*) PC/XT with

640 KB Ram

40 KB HDD

5.25" FDD

25 MHz Speed

one Serial, and one Parellel Port

101 Keys Standard Key Board

Soft white Monitor

(*ii*) Line Printer

(*b*) Softwares

(*i*) Word Processor

(*ii*) Communication software

(*iii*)System software

(*c*) Modem

(*d*) Telephone

32 RADIO PAGING SERVICE

Under this service information received from Banks, Railways and other Enterprises, is to be in a Computer and pages are to be indexed according to service classifications. The text data formatted into a standard coding structure, then to be converted into digital data, and modulated before being

added to the main sound programme, to be broadcast over an FM transmitter. Radio Paging Service is used, for the transmission of data signals through the FM broadcast network, to select audiences without interrupting the programmes.

321 Technology Required for Radio Paging Service

(*a*) At broadcating end;

(*i*) A Radio Text Encoder

(*ii*) Computer

(*iii*) FP Transmitter

(*b*) At listing end;

(*i*) FM Receiver

(*ii*) A Radio Text Decoder

(*iii*) Monitor

(*iv*) Printer

3211 Bombay Experiment

In India, All India Radio is braodcasting Radio Paging Service in the city of Bombay. The service has proved to be very popular, as about 2000 pagers have already been installed within a span of less than a year.

33 TELEWORKING OR TELECOMMUTING

Over the last few decades, fundamental changes have taken place, in layout, and functions of offices brought about by the newly developed information technologies. Today's offices are equipped with telephone, computer, FAX, Telex, Photocpier, audio and video systems, and many more new technologies to improve quality and quantity of work. Inventions in multimedia technologies and new value added services such as video conferencing, E-Mail, Teleconferencing, Electronic Data Interchange (EDI), and desktop publishing and printing, have revolutionised the workplace. In the near future, we are going to see a most dramatic change in the office environment in the form of telecommuting or teleworking.

331 Teleworking-staff & Office

Teleworking is a system in which one need not attend a fixed company office or workplace, as in this system a person can work at home. Teleworking is new to India, but not to the world, as British Telecom have completed a 12 months experiment introducing a section of its employees to

telworking. Teleworkers can be parmanent or temporary employees of a company or self-employed or consultants. A well equipped home with latest computers, multimedia and telecommunication facilities, a modern office or workplace, where all types of facilities, mainly computer and telecommunications facilities must be available, and vehicles for transportation of raw material and finished products, are some of the pre-requisites of teleworking. Teleworking can save time as well as money. According to teleworking consultant Noel Hodson, commissioned by British Telecom, teleworking can save an average person money equal to £ 535 a year, and save an extra 440 hours a month on average. Without any doubt one can say that teleworking is not a substitute for traditional way of working in a office. Teleworking may be beneficial in terms of time and cost factors, but certainly not in terms of social interaction, office discipline, competetive working environment, chances of learning by doing, measurement of work performance of the employee and many more. Teleworking may be a good idea for short term projects but in the long term process, people will prefer to work in the fixed office only. In India MTNL is doing an experiment on teleworking at Nehru Place, New Delhi. Teleworking can be applied to library and information activities in the areas of indexing, abstracting, classification etc.

34 TELECONFERENCING

Teleconferencing is the technology responsible for human interaction via electronic networks. It is a most exciting development in human communications. Teleconferencing is applied to conferencing of three or more persons at different locations interconnected electronically. Growth of teleconferencing in the last few years is remarkable. Library and Information professionals are not far behind in making use of teleconferencing. The American Library Association has presented key sessions in 62 cities. Because of its many advantages such as reduced travel, time and distance, quick dissemination of information, immediate feedback, increased communications frequency, etc, teleconferencing is becomng popular day by day.

35 E-MAIL

E-mail stands for electronic mail service. It is a generic term referring to all forms of electronic transmission of letters, file, data and other textual matter. Type a letter into your computer and command it to send to a specified person on specified computer into any part of the globe. It will be delivered to the recipient's electronic mailbox, of his computer, in about a few minutes.

351 The Process

The messages sent through E-mail are in digital form. They are transmit-

ted over telephone network with the help of modem. The modem transforms computer data to a form which resembles telephone signals. At the receiving end, another modem transforms the signals back to computer data. Role of modem in this process is, to convert message from digital to analog and vice versa. E-mail has many advantages, over traditional mailing, as it reduces time and the probability of reaching the address is, about 100%.

36 ON-LINE INFORMATION RETRIEVAL

In an on-line Information Retrieval System, user is directly involved in a conversation mood, and he/she immediately gets response for his/her querries. To access an on-line system from a computer terminal, one needs to make a telephone call to the on-line system through a computer and communications network service. It is typically smillar to making an international telephone call. Retrieving of the information from the data stored in a computer installed at remote distance, with the help telecommunication network services, is known as On-line information retrieval. To establish access to databases at DIALOG, on-line services are required. On-line search can be carried out within your office, city, state, country and also to any part of the globe.

4 TELE SOCIETY AND INDIA

On the basis of past performance, India is not far behind in adopting the ideas regarding new innovations. Computer was invented in late fifties, and the first computer came into in India in early sixties. But computer culture came into India in 1990s only. It is easy to adopt any new technology, but its sustainable development is very difficult, and more difficult in Indian working environment. In India, there is always a good beginning, in terms of keeping pace with technological development, but there is total failure in the sustainable development of these technological developments. There are various reasons for that, but most important reason is attitude of the decision makers of this country.

41 IMPEDING FORCES

Lack of knowledge at the top management level, fear in the mind of Indian workers that they may loose their jobs after the adoption of new technologies (although it is a fact that from the invention of the Steam Engine to latest information technological developments, there is always an increase in employment opportunities), non-adaptability of Education System in India, and availability of manpower at cheaper rates. Poverty and high rates of Illiteracy may be some other reasons, as these areas are of primary concer in a developing country like India. Coming to use of Tele Service in India, India's approach is more strong and realistic in comparison to past.

42 ELECTRONIC HIGHWAY-USE IN INDIA

To make maximum use of Telé Service–available world-wide, an "Information Highway" or "Electronic Highway" in India has been set up by National Informatics Centre (NIC). The Highway will initially connect 14 cities in the country. Twenty more cities will be connected by early next year. The facility will be used for export promotion by installing NICNet terminals with exporters and export promotion organizations. This highway will improve trade networking of India, with the world trade network. One more step in this direction is setting up of trade information centre at Indian Trade Promotion Organisation (ITPO) at New Delhi, development in India in the field of Tele Services includes computer and communication Networks such as NICNET, ERNET, INFLIBNET, SIRNET, etc, availability of telecommunication and satelite facilties such as GPSS, etc for international hooking up, Radio Paging Service, availability of indegeneous technologies, reduction in the prices of computers, popularity of computer culture, availability of trained manpower in the field of information technologies, and many more steps have been taken in India, towards adoption of On-line information technologies available world-wide.

43 FAST PROGRESS–AWARENESS OF LONGWAY TO COVER

The steps taken in India towards use of on-line or tele service are indication of a bright future, but at the same time, one can not say that India has entered in Tele Society. Where Poverty Alleviation Programmes and Education are still in the top of the agenda of Govt of India, there is a long way ahead, to reach the gates of Tele Society. But the future of tele services in India looks promising enough. If the term of Rajiv Gandhi and Sam Pitroda initiated the winds of change, the other team of PV Narasimha Rao and Manmohan Singh have increased the rate of process of change.

5 CONCLUSIONS

Computers and Telecommunication technologies have given us tremendous capabilities for the efficient and effective communications of information. Idea of paperless society is acceptable, only in terms of some amount of reduction in the paper work. Printing has its own impact on human life, which can not be removed so easily, as it has a life of its own. Latest development in the field of publishing and printing, have improved power to print in terms of quality and quantity, for effective communication of information. But at the same time, no one can argue against the popularity of tele services. It is expected that at the end of this century, there will be a 60:40 ratio between electronic media and paper media. On the basis of such predictions emergence of tele society is inevitable.

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INTEGRATION OF RURAL LIBRARY SERVICES WITH ADULT EDUCATION & ILLITERACY ERADICTION

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1 NEED FOR RESTRUCTURING OF PLS

Our Central Government is trying to restructure the rural areas in all five year plans. The result of the plans shows that there is an improvement but it is not as expected as in the plans. There are many factors involved in restructuring the rural communities. One among them is to establish the libraries at rural areas to provide right information to the right person at the appropriate time. The other factors are:

(*i*) The present working of PLS is to be restructured immediately, and

(*ii*) The present financial limitations do not allow the existing PLS to gain rapid growth. This demands improvement in financial resources.

2 INTEGRATE DIVERSITY OF RURAL LIBRARY SERVICES

Funds for Adult Education and Illiteracy eradication are proving in, without being united with PLS in Kernataka lapsing into illiteracy of neoliterature is as important a problem as dropouts in Elementary and Secondary Educaction. The Rural library services and the slum development services of urban areas, assume a very important role Funds scattered, without building a base for continuing education for Neoliterates, is a defect on Planning. In fact the total social movement of Adult Education and Illiteracy eradiction, could be build around the Public Library system, combined with use of Radio and TV. The very structure and objectives of PLS is canducive to meet social needs.

3 OBJECTIVES OF LIBRARIES

The main aim of the rural libraries are:

(*a*) To infuse awareness among rural people of the sources of information and encourage them to make use of information which are available in the library.

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(*b*) To take care of economic, educational, social, cultural and informational needs of the local people.

(*c*) To convert uneducated / illiterate and neo-literate into potential users.

(*d*) To provide information on all aspects such as agriculture, financial, public hygiene, family planning, legal matters etc.

To achieve all these the PLS should co-operate and co-ordinate with other social organizations and institutions in the community and create a comprehensive collection of reading and graphic materials relevant to the rural community.

31 SERVICES OF LIBRARIES

The rural library should provide the timely, accurate and reliable informational services to the rural community. It should provide the informational services on

(*i*) Local history, commerce and industries, agricultural products and industrial products.

(*ii*) Funding agencies for housing, commerce, agriculture and industries.

(*iii*) Career development information.

(*iv*) On employment opportunities.

(*v*) Information about population.

(*vi*) Guiding and counselling on all matters such as, agriculture, public health and hygiene, family welfare, legal matter etc.

(*vii*) Audio-visual materials should be provided to the illiterate and childrens.

(*viii*) Arranging lectures by eminent persons of the community on different subjects.

(*ix*) Exhibitions should be arranged on proper time, such as festivals and fairs.

4 SCATTER OF RESOURCES

Panchayat libraries, Block development libraries, Municipal libraries, frother away scatter resources, and achieve only on duplication of material. The very fact that they could not meet the need, nor grow adequately, is the cause of PLS, through State Acts.

5 CONCLUSION

While restructuring the PLS and to satisfy all the objectives mentioned

above which helps to improve the socio-economic conditions of the rural communities. This in the long run makes the rural people habitual reader of the library. They realise the value of libraries, and develop library morale, library culture and discipline in them, which is very much need of the hour for the success of the five year plans, thereby takes an effective action in nation building activities. But integration of finance Adult Education, Illiteracy eradication, Panchayat Libraries, Block development libraries, Municipal libraries etc when pooled, an impressive RLS will emerge.

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PROBLEMS OF GREY LITERATURE FOR FUTURE LIBRARIANS–SOME SUGGESTIONS

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0 INTRODUCTION

The term "GREY LITERATURE" was coined for the first time in York Seminar in December 1978 organised by the European Economic Community in co-operation with the British Library. "Grey Literature" is that in the libraries which is not "white" (available, catalogued, classified) or "black" (not available, unknonw, not obtainable, secret). "Grey Literature" is dynamic, its make-up will constantly change because new uncomplicated conditions of availability will remove certain elements whilst others will be added.

01 DEFINITION

It can be defined as literature not issued through the normal commercial publishing channels and therefore, which is in most cases difficult to access. According to David Wood, it is literature, which cannot be readily obtained through normal book selling channels. It is sometimes referred as non-conventional, informal, ephemeral, invisible, fugitive, unpublished and not commercially available literature.

1 CHARACTERISTICS

The important characteristics of Grey Literature are:

(1) They are usually very difficult to obtain.

(2) They are very rarely come under bibliographical control. These research sources are not regularly covered by any service in library and information science and are not widely disseminated.

"Grey Literature" can consist of amongst other things, reports, conference proceedings, thesis, standards, research & development bulletings, official publications, trade literature, translations, technical recommendations or rules, magazines, newspapers, travelogues exhibition publications, posters, leaflets, teaching materials, press and radio services. The most important

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categories of grey literature useful for researchers and scientists are discussed below in detail.

2 SCIENTIFIC AND TECHNICAL REPORTS

It is a document whch gives the results of the progress with a R&D investigation. These are issued by any R&D information centre usually the practical work of R&D Information centre is reported in these reports. It is rare for the ordinary book trade supplier to obtain roport publications more quickly than by direct application. National security restirctions prevent the general dissemination of the data of the reports. These are available even after sometime from the date of their publication. Issuing agencies are the various bodies initially responsible for preparation and distribultion of reports at national and international levels.

21 NATIONAL TECHNICAL INFORMATION SERVICES (NTIS)

It is one of the world's largest specialised information service organisation, responsible for bibliographic control and distribution of American and foreign technical report literature etc. All these reports are available for sale as paper copies or microfiche. NTIS has a comprehensive plan called SRIM (Selected Research in Microfiche) to supply maximum number of reports at a comparatively low cost in microfiche. SRIM is offered in more than 40 subjects categories.

22 GOVERNMENT REPORT ANNOUNCEMENTS AND INDEX (GRAI)

The reports distributed by NTIS are announced in their periodical GRAI. Its coverage is comprehensive and contains abstracts arranged under the subject categories.

23 SPECIALISED ORGANISATIONS

231 STAR

Aerospace activities can keep up to date through STAR (Scientific and technical Aerospace Reports) prepared by the Scientific and technical Information office of NASA. European Space Agency (ESA) issues series of technical reports – Scientific/Technical Reports, Scientific/Technical notes, Scientific/Technical memoranda etc.

232 ERA

The source covering Energy field is ERA (Energy Research Abstracts) prepared by US Energy Research and Development agency and for Nuclear energy–INIS Atomindex.

233 ERIC

A product of the ERIC in the education field is–Resources in Education.

24 BLDSC

Report clearing house in England–The technology reports centre and the BLDSC have very large collections of un-classified British and foreign Government technical reports including those distributed by NTIS.

25 INDIAN SOURCES

In India it is made available from NTIS, BLDSC, LC. Library and Information services division of BARC bring out Bibliography of current reports. Most of the Research/Technical Institutes, different departments of universities, many societies and Associations etc published and sell their research and technical publications. For example – Ministry of Railways, Research, Design and standard organisation, ICMR, CSIR, INSDOC, ICAR, BARC etc.

3 THESES/DISSERTATIONS

Thesis is a piece of work written by one who has graduated in the field of learning, and has carried out research usually in a university, and under the guidance of an experienced scholar. These are by their nature meant to report some original work in a specified field.

31 BIBLIOGRAPHIC CONTROL IN INDIA

In India, and abroad, this literature is generated only in Universities and academic institutions. Hence, the collection canbe easily identified. But at the same time, there is noproper bibliographic control particularly in Indian Universities, because, they are treated as confidential documents or remain hidden literature, and are not available for reference to outsiders, because most of them are unpublished. In some university libraries, these are kept under lock & key, and the Director or Registrar's permission is to be saught for consulting them. Due to this restriction,this literature remains with the author of the thesis only, though CSIR or UGC has sponsored and spent public money on this research work.

311 Publications

There are few sources available.

1 Bibliography of doctoral thesis in Arts & Sciences accepted by Indian universities published by Inter University Board of India.

2 Bibliography of doctoral dessertations in social sciences and humanities, published by Association of Indian Universities.

3 Doctrates awarded by Indian Universities in Social Science by ICSSR.

4 Madras University publishes a journal, the "Journal of Madras Univer-

sity", devoted primarily to the publication of abstracts of Research Papers from various departments of the Universities and its affilicted colleges. Annamalai University also publishes catalogue of thesis submitted to Annamalai, but they are incomplete and inadequate.

32 USA

In USA, University Microfilms International is an important source efficiently disseminating information about the thesis of varoius universities through its periodical "Dissertation Abstracts International" devoted to Social Sciences, Science & Technology.

33 UK

In UK, British Library keeps stock of all British doctoral dissertations and has an exchange arrangements with European agencies, for acquiring European Doctoral dissertations. Both UMI & BLDSC are seeking co-operation from all universities in the world to make their thesis available to them, so that each thesis can be converted into Microfilm/fiche and preserved. Current research undertaken in various British Universities, Polytechniques and colleges is reported in the publications "Research in British Universities, Polytechniques & Colleges".

4 CONFERENCE PROCEEDINGS

A conference means, a meeting of individuals or representatives of various bodies for the purpose of discussing and framing of policies on topics of common interest. The findings or results of a conference are known as Conference Proceedings.

41 PROBLEMS

The problems encountered in location of sources, acquisition and processing of conference proceedings are much more than technical reports. Conference papers are not published in good number, and as such, are not available if not procured in time. There is no guarantee that even after obtaining the conference proceedings, the required paper is available eg., American Society of Mechanical Engineering, does not include all the papers presented in their Design Engineering in their conference proceedings. These papers are cited as ASME Papers, and do not contain reference to the journals where they are published.

411 Announcement of Conferences

The problems can be overcome by the libraries. Almost all learned societies have realised the importance of notifying the forthcoming conferences, symposia, seminars etc in their professional journals and newsletters. Librarians can go through them and arrange to procure the proceedings in

time wherever required. Contacts through membership with learned societies will also helping knowing the publications issued from time to time.

412 Bibliographic Control

"Index to conference proceedings" a monthly with a cumulation published by British Library Document Supply Centre, is a good source of conference documents. The conference index is also available online through BLAISE (British Library Automated Information Service) special issues of certain science & technology journals are devoted to conference proceedings. Other sources are World Meetings, Interdoc Directory of Published Proceedings, the ASLIB Publications,–forthcoming Internationa Scientific & Technical Conferences and the Directory of Conventions. In India, since the conference proceedings are not published by trade publishers, the information about them is not available in trade catalogues. There is practically no bibliographic control to this literature. Department of Science & Technology has come up with a publication "Directory of forthcoming Seminar, Conferences, Symposia etc" but the data is not complete and suffers due to delay in publication.

5. GOVERNMENT PUBLICATIONS

A government document is any publication ie., printed at government expense or published by authority of a governmental body. They include reports, statistical analysis, manuals of instruction, recording of proceedings, bibliographies, directories, speeches, rules and regulations, travel information etc.

51 ADDED DIFFICULTIES

The concept of "Confidentiality" associated with whatever documents are prepared in the government (official records) is the greatest obstacle to the accessibility. The identification and acquisition of publication fromthe ill-organised publishing and distribution sources, is highly complicated, and discouraging. The other important problems are

(1) Inadequate bibliographic control.

(2) Unorganised and low placed publications units.

The publishing activity gets a very low priority as compared to the printing work and the supply of the stationery in the states.

(3) lack of proper sales promotion and distribution system.

511 Solutions

Some Possible solutions to the problems of local government publications:

(1) Improvement in local government publishing practice.

(2) Imroved coverage by index/abstract services.

(3) The creation of a national agency to collect and record local government publications.

In India, in the absence of a central organisation for official publishing, there is no integrated catalogue of govt. publications at the centre or state levels similar to the monthly catelogues produced by the Government Printing Office in the United States and Her Majesty's Stationary Officer in Great Britain.

6 TRANSLATIONS

It means the act of translating of foreign language literature. In special libraries, to overcome thelanguage barrier, they will provide 'translation service', using either a staff translator or an outside agency, for the literature published in foreign languages. 60% of the world literature in science and technology is published in other languages.

61 INDEXES

These form a vital link between the countries, the translation services have received special attention all over the world, which is visible by the number of translation indexes published. International translation centre at Delft, Netherlands, is a major source for the dessimination of information about translations. In USA, John Crerar's Library's two important publications are the Consolidated Index to Translations into English & the Translations Register Index. The Joint publications research service offered information on translations.

611 UK

In UK, ASLIB, London, as part of its information services, maintains an Index of unpublished translations, which is available to its members. British Library Document Supply Centre keeps stock of translations, acquired through exchange with international translations centre and ASLIB.

612 India

The situation in India, regarding the sources of generation of translations is slightly better, when compared to the other forms of grey literature. INSDOC collects information of translations generated by different R&D institutions and universities in addition to its own translations, based on this information "National Index of Translations" is being brought out. Many of the R&D institutions have been setting up their own in-house translation

units eg., ISI, BARC, BHEL, ONGC, IIS, CSIR, DESIDOC, IIT, Bombay, Madras, Vikram Sarabhai Space Centre, Trivandrum etc.

7 MARKET RESEARCH REPORTS

The market research society defines Market Research Report as the "Collection of information by means of the interrogation or observation of samples of the relevant populations, that population comprising either inviduals or firms."

71 TYPES

(1) Published confidential to specific group of people.

(2) Reports to be purchase by individuals and companies.

(3) Freely available to public libraries.

72 PROBLEMS

This type of literature posses problems, because most of these reports are too expensive, particularly when one considers that the useful shelf-life of such reports canbe very short. Many publishers refuse to sell to libraries at all, especially libraries with unlimited public access. Although, these are a category of material in high demand, are not widely available to the general public.

73 UK

Reports available to Public Libraries are enormously costly, from those that are relatively cheap, to those costing many hundreds of pounds. Number of major public libraries in the UK, do have small collection of relatively cheap ones. The publishers who will sell reports to public libraries, most often do not permit any photocopying or lending.

731 Efforts at Bibliographic Control

Although, availability is the greatest problem associated with market research reports, bibliographic control is also a significant problem. The British Library working group on business information recognised this problem and recommended that the British Library provides a comprehensive, current bibliographic listing of all market research reports, which sould also specify any restrictions in their availability in libraries.

8 HOUSE JOURNALS

These are defined as serial publications produced by Industrial Organisations, business houses, the public service and similar organisations, for the benefit of consumers and/or their employees.

81 CATEGORIES

Thompson classified these journals into 3 categories.

(1) Prestige journal, which is equivalent in almost every respect to the standard technical journal.

(2) Magazine–This contains general non-technical information and possibly some mention of company products (but no technical details).

(3) Periodical catalogue–which is similar to trade literature, differing only in that, it has a recurrent title so that it may be treated as a periodical.

811 Difficult to Get

Although, house journals are generally free of charge or atleast inexpensive, and companies are usually willing to distribute copies to libraries, they are an elusive form of literature. Some public libraries collect these especially from local companies, and similarly special libraries collect titles relating to their speciality.

812 Back Issues

Back issues of house journals particularly if the company concerned no longer exists, and also any issue for foreign companies can be often be very difficult to obtain. Even if a library can be identified that has the journal title, there is no guarantee that the library will have an unbroken run of issues. Irregular publication patterns and poorly maintained mailing lists, results in libraries receiving issues haphazardly.

82 BIBLIOGRAPHIC CONTROL

There is no single source which lists house journals in an accurate manner possibly because of the diversity of this form of literature. Some of important commercially available bibliographies of house journals are:

(1) Benn's Press Director, Vol. 1, UK Publication.

(2) British Association of Industrial Editors Membership Directory, UK.

(3) The Standard Periodical Directory, New York.

(4) The National Research Bureau. The Working press of the Nation, Vol. 5, USA.

821 Remedial Measures

The British Association of Industrial Editors display a large collection of current issues of house journals. The British Library, Science Reference Library has recently begun to broaden its intake of house journals and in particular is adding non-technical titles from UK.

9 TRADE LITERATURE

Trade Literature produced by manufacturer for imparting useful information about their products, come in various form & formats. They include various types of catalogues mannuals, guides, house journals etc.

91 LOCATION DIFFICULTIES

All the problems of availability of house journals apply equally to trade literature although, the problems are even greater in the case of trade literature. Because the volume of trade literature published, the diversity of its form and the impossibility in most cases of knowing exactly what is available from different companies.

92 UK COLLECTIONS

The first collection is that of the property services agency (department of environment), which consists of a large and well indexed collection of the construction industry trade catalogues. The second collection is based on the Science Reference Library and consists of a broad collection of catalogues mainly from UK companies.

92 BITHOGRAPHIC CONTROL

Trade Literature is not received by legal deposit. So except for those few companies that efficiently maintained mailing lists, the science reference library has to write to all companies, for which trade literature is required. There are a number of consolidated catalogues and commercial trade catalogue services eg.,Consolidate catalogues–The Thomcat Section of the Thomas Register of American Manufacturers and Architects standard catalogues. Commercial trade catalogue service–one of the largest and best known UK services is, that provided by Technical Indexes Ltd., Some trade journals include a regular feature devoted to new trade catalogues for example Engineer & Engineering Materials & Design. There is negligible coverage of trade catelogues by secondary abstracting and indexing services.

921 International Efforts

The importance of grey literature in social science literature and socio-economic decision making process has been emphasised. The DEVSIS study team emphasised the need for international efforts, in capturing as much "grey literature" as possible, by a co-operative information system.

922 EEC

An exclusive grey literature information system has been introduced on an experimental basis by the commission of the European Economic Communities (EEC) called SIGLE (System for Information on Grey Literature in

Europe) in Jan. 1981. This is oriented to Science & Technology.

9221 Aims of Sigle

(1) To improve the detection, identification and collection of literature items in each country.

(2) To provide a document delivery service for each item recorded in the system.

(3) To set up a European grey literature bibliographical data base, which could be available through Euronet/DIANE and to publish grey literature index.

9222 Publication

Silver Platter Information Ltd, UK Publishes SIGLE database on CD-ROM. It focuses on information documents, such as, research reports discussions, & Policy documents working papers, conference papers and Thesis, which emphasise scientific and technological information generated in Europe. SIGLE database is offered by BLAISE–LINE.

93 INTERNATIONAL EFFORT

Some of the International organisations are creating systems for making information sources, including "Grey" literature available. For example UAP, IFLA, FID, UNESCO, Even national and international system supply categories of grey literature of certain scientific fields. For eg. INIS–ATOM-INDEX, INFOTERRA (International Environmental Information Network, Nairobi). National systems like National Technical Library & Information Centre, Budapest, Individual libraries also supply certain categories of grey literature eg., BLDSC, Studsvik Energy Library in Sweden possess a report collection of energy libraries.

10 CONCLUSION

Much progress has been achieved for access of grey literature now than ever before. The reasons are:

(1) Rapid development of science & technology.

(2) Modern methods of copying.

(3) Advancement of Telecommunications.

(4) National and International Organisations of collections of grey literature.

(5) Rapid procurement by clear legally regulated arrangements such as those in the socialist countries and through an intimate knowledge

of the "grey" producers. Also through individual contact, the regulation of selection criteria and solid bibliographical work.

(6) Registration, the necessary free condition for a comprehensive utilisation of collections and the registring of individual titles in information systems.

(7) Storage under orderly condititions.

(8) Use of interlibrary lending as an absolute necessity for the use of the collections of any given library.

101 INDIA NEEDS BETTER CONTROL

In India, much of these literature are not accessible, but not because all of them are confidential. It is important and timely that sufficient attention is now devoted to making them more exposed and utilised.

102 ATTENTIVE LIBRARIANS

The need and importance of grey literature must be felt by all those who are working in R&D environments. Then only it is possible to improve the existing situation. But to a great extent, the efforts of identification of sources of grey literature and the acquisition of it lie entirely with the librarians and information scientists.

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PUBLIC RELATIONS ACTIVITIES IN KARNATAKA STATE PUBLIC LIBRARIES

SL SANGAM*
PV KONNUR*

1 INTRODUCTION

Public Relations (PR) work has become indispensable to almost all human activities. It started as a management technique to establish better relations among management and employees of a company and the public. Of late, it has been applied to all fields where the concept of marketing is involved, whether for profit making or otherwise. PR is not advertising, marketing, sales promotion and propaganda. It is the management function which evaluates public attitudes, identifies policies and procedures of an organisation, keeping in view the public interest and executes a programme of action and communication to earn public understanding and acceptance. Modern public libraries are encouraged to accept the concept of PR in order to achieve their objectives successfully. PR work in public libraries can be said to have two main functions: (1) Creating a healthy atmosphere for promoting public library services, and (2) influencing favourably public and government attitudes and opinions regarding public libraries. In this paper an attempt has been made to highlight the current status of public relations activities in Karnataka State Public Libraries.

2 NEED FOR LIBRARY PUBLIC RELATIONS WORK IN PUBLIC LIBRARIES

Being a public institution, a public library has to keep contact with the public and it is required to cater to the main aim of PR work in a library is to communicate the essence of the library to the people to whom it has so much to offer, and to fix the library in their mind as a source of incalculable value.

The following are some of the basic objectives of library public relations work:

(*a*) to build the image of the library;

(*b*) to eliminate misunderstandings about the library;

(*c*) to increase awareness about the library;

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(*d*) to increase the effective use of the library; and

(*e*) to improve communication between the library and its public.

Unesco public library manifesto has described library as "a democratic institution for education, culture and information". The first section of the manifesto states: "The public library is the principal means whereby the records of man's thoughts and ideas and expression of his creative imagination are made freely available to all". Public libraries also have a statutory obligation to encourage the use of their services, under the terms of the Public Libraries Act.

3 KARNATAKA PUBLIC LIBRARY SYSTEM: A SCENARIO

Karnataka State has a wide network of public libraries. The Department of Public Libraries came into existence on 1 November 1966 consequent upon the implementation of Karnataka Public Libraries Act, 1965.

The network of Karnataka Public Library System is as under:

State Central Library, 1, Public Technical Library 1, City Central Libraries 11, District Central Libraries 20, Branch Libraries 354, Mandal Kendra Granthalayas 451, Services Stations 150, Book Delivery Stations 300, Mobile Library Units 8, Grant-in-aid Libraries 40, RRLF Centres 1922 and other Libraries 52 and total 3,313.

31 STAFF

The department has a total of 1.121 sanctioned posts; 1,100 persons are working in different cadres. In addition several employees working on contract basis look after the Mandal Kendra Granthalayas.

32 FINANCE

The Financial requirements of the Department are met in to ways: (*i*) government grants; and (*ii*) collection of 3% cess on land revenues made under Karnataka Public Libraries Act.

For the year 1990-91, the government grant was as under:

Non-plan Schemes	Rs 3,43,53,000.00
Plan Schemes	Rs 50,00,000.00
Octroi Compensation	Rs 15,00,000.00
Total	Rs 4,09,53,000.00

The city and district central libraries collect the cess amount from their own district or city library authorities. For the year 1990-91, the cess collection was:

City Central Libraries	Rs	79,09,452.41
District Central Libraries	Rs	24,42,709.70

With the existing infrastructure, it is very difficult for the department to develop. The income sources are very limited and are dependent on the land revenue collection which is most of the times uncertain and Government grant is being spent on salaries and meeting other administrative expenditure of the department. On the other hand, there is a constant demand for opening branch libraries in the rural areas.

In the light of this problem, it is necessary to amend the existing act and create necessary income avenues.

4 PUBLIC RELATION ACTIVITIES IN KARNATAKA PUBLIC LIBRARY SYSTEM

There is a very thin and microscopic visibility regarding the PR activities being conducted in public libraries in Karnataka State. Most of the Programmes are conducted only during the National Library Week celebrations and on Other national festivals. Further a majority of the programmes are conducted by the City Central Libraries. Among the City Central Libraries, Bangalore, Dharwad and Belgaum city Central Libraries have conducted more activities than others.

Only 12 libraries have been allocated funds towards PR activities in their budgets out of which, seven are City Central Libraries, six are District Central Libraries and one State Central Library. The remaining libraries manage such expenditure from their contingency funds.

City Central Libraries, Bangalore and Dharward are organising the year spread PR programmes by arranging frequent book talks, lectures, story telling sessions, etc. These programmes have gained response from the public.

Though it is very rare for libraries to advertise their concept or services, library publicity is very much in vogue in Karnataka Public Libraries. The Chief Librarians use this avenue to seek better coverage in the press or an opportunity to deliver, radio talks, etc.

The State Central Library, two City Central Library and four District Central Libraries have their own film projectors and borrow films from other agencies. Though they do not have a scheduled screening programme, they do screen films and documentaries on special occasions. Those libraries which do not have projectors seek the help of Information and Publicity Departments and get films screened on such occasions.

City Central Libraries, Bangalore and Dharwad are equipped with VCR

and TV facilities and borrow video tapes from British Council Library. Among the District Libraries, Kodagu District Central Library has got VCR and TV. They have fixed them along with the mobile unit, which in turn screens programmes at its mobile stops. Mobile library is the best way of giving publicity to the public libraries. It not only publicises the library but also reaches the library services to the far flung areas of city or remote villages.

51 MULTIMEDIA ACTIVITIES

Audio-visual materials serve as aids to the human sensory organs to perceive more from the graphic literature. They help not only the literate community but also the illiterates and neo-literates of the rural areas.

Film projectors, radios, TV and VCRs make vital impact on the rural public. They attract the public towards the library and also educate them extensively. It is necessary to supply them knowledge in a capsule form through films, radio/TV programmes, etc.

Audiovisual aids play an important role in imparting higher learing also. They are particularly useful in developing in children the urge to acquire knowledge.

52 EXTENSION ACTIVITIES

Extension acitivities serve to encourage and influence the user community to use the resources of the library. Notable among these are: Adult Education Programme, Fairs, Festivals. Exhibitions and Cultural Programmes, Children Activities, Competitions and Debates, and Mobile Library Services. National Library Week celebration is a good opportunity for any librarian to project and his ideas. Entire one week from 14th to 20th of November every year, the libraries can do conceptual promotion of public libraries. Advertising and publicity, illumination of libraries and organisation of various extension programmes during this period would give a festive look to the libraries and create impact on the users.

53 EDUCATIONAL ACTIVITIES

Activities of Library Meeting type figure prominently in the library PR programmes. They vary in scope from the modest library club to a major series of celebrity lectures and from the odd half-hour talk for a dozen people after the library classes to seminars and conferences spread over ten days together and attracting thousands of readers. These activities can include lectures, talks, groups discussions, seminars, conferences, etc. The main purpose of these gatherings is to motivate the readers to take interest in reading materials and to draw their attention towards library activities.

5.4 OTHER PR ACTIVITIES

Along with some of the above scheduled library public relation activities, there are a few more which have not attracted the attention of the practicing librarians. Among these are: Drawing the attention of the government towards what is lacking in libraries; Seeking the cooperation of follow college librarians; Establishing contact with different voluntary organisations and conducting career guidance and employment information services.

Converting non-user of the library into regular user by convincing them about what is available in a library is a very simple task compared to the task of convincing the authorities and government about what is lacking in libraries and what improvements are to be undertaken. This task should be taken as PR work. Its main thrust should be to systematically organise and communicate the message to the authorities about the role of libraries in the contemporary society and its importance to national development.

Cooperation of fellow librarians also helps the public librarians to a greater extent. Organization of fellow schools and college librarians meetings will help public libraries to take leadership and to foster the professional cause and thereby establish links between public libraries and the academic community.

Contacts with different voluntary organisations like Youth Clubs, Mahila Mandals and organisations like Lions, Rotary, etc. help the libraries in attracting their users to the maximum possible extent. Hence, programme in collaboration with these organisations will be quite useful for the public libraries.

6 CONCLUSION

The scheme of PR activities proposed for the Public Library System will remain on paper so long as the Karnataka Public Libraries Act is not amended. The financial constraints must be reduced and PR work enforced in a statutory manner so that PR activities can be conducted along with the regular activities of public libraries.

Librarians of Public Libraries if they are properly trained in PR work can do a lot in communicating the essence of the library to proper audience.

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21ST CENTURY LIBRARY
A Glimpse of the Future

KEYA BASU*

0 INTRODUCTION

If Napoleon's advisors had a library with details of information on the climatic hazards of snow clad Russia then, Napoleon would not have faced the humiliation of defeat against Russia, nor started on the Russian expedition. The success of a developing nation, depends largely on the efficient documentation and retrieval of information, used by the whole cross section of population, from a farmer to the technologist and planner. A state of the art information dissemination system, is the base of all developmental project. The preamble to a development project is literature survey, and without a proper back up from the library and information system, we will not be able to prepare a modern India to enter the Twenty first century.

01 LIBRARY & INFORMATION

The information Age is here. To cope with the information explosion and data communication revolution of the world is the main problem of the developing country like ours. Society has gone through various stages of development, from a primitive stage to a sophisticated computerised world. Information is considered to be the basic resource for national development. The physical volume of knowledge and its rapid growth in number will require planned and increasingly skilled organisation, to make it accessible to the users at their needs. Here lies the importance of the library and information centres. In India, concept of library dates back to the ancient age, but it was not fully utilised. Even now Govt and people of our country do not realise the importance of library service. The world is now passing through a revolution in the growth and dissemination of information. The information resources can not be properly utilised, due to lack of proper library system and poor organisation. A planned and organised library system can create reading habit, make people aware of the importance of information and library service or aware about the benefit that can be drawn out of the library service.

* Geological Survey of India, Eastern Region, CGO Complex, Salt Lake City, Calcutta-700 064.

02 NEW FORMAT

This information is now not only available in traditional format like books or journals, but also in modern packages like films, tapes, discs or computer. India, being a developing country, sharing of resources is more and more important, and so is the interdependence on the other libraries. No library can afford to buy all the books, journals etc due to lack of funds and other financial constraints. The quality and sophistication of the demand of the library users are increasing day by day. The development of interdisciplinary study and research, requiring larger and larger collections of specialised knowledge, at the same time requiring application of more precise methods in selection, acquisition, processing and control. Fragmentation of familiar subjects into narrower and more highly specialised categories is causing added problems in bibliographic control and service to the researcher at the time of their needs. This growing demand is being experienced in all types of libraries–public, special and academic. Consequently procedures have to be upgraded and subjected to continuous study in order to make adjustments in time, to meet the everchanging and growing demands of the library users.

1 PROBLEMS

11 FINANCIAL PROBLEMS

It is the most crucial problem for third world countries like ours. Inflation in Developed countries, erodes the stock of foreign exchange of third world countries. Library and Information centres in our country receive an inadequate foreign exchange allocation due to our limited foreign exchange reserves, and so are forced to cancel subscription to titles which are very much needed by the users, and purchase fewer titles of books. Mainly in the field of science and technology the problem is severe. In this field literature growth is very rapid, and the prices of publications are also increasing very rapidly. So it is very difficult for our library and information centres, with a very small budget, to maintain current coverage of even, most essential information sources.

12 PROBLEM IN COLLECTION DEVELOPMENT

In the developing countries like ours, source of information is only the Libraries and Documentation Centres. These centres are mainly dependent on the foreign publications. All of which are not affordable due to increasing prices of publications. Due to our foreign policy and shortage of manpower, these centres can not purchase those publications directly, since there are so many formalities in dealing with the foreign publishers. So we have to depend on the local agents, selection of titles are made from Agents catalogues which are not complete, and do not always include recent publications. Due to this problem libary collection can not meet the requirements of the user

because of this inconsistent, haphazard and inadequate list. In the case of journals this problem is worst. Delays in receipt of journals due to transportation and postal negligence, and for this delay we are unable to claim missing issues from the publisehrs since they (publishers) insist the claims be made within 2 to 3 months, which is not possible in most of the cases. So our stocks always remains incomplete.

13 THE SHORTAGE OF PROFESSIONAL LIBRARIANS

In most of the libraies in rural India. School and College libraries are not upto the expectation of users. Neither the Union Govt nor the organisations at state level, consider it essential to have a trained librarian for each library. Inadequate and irregular financial assistance, lack of man-power are common problems of these libraries. Most of the professional librarians, are invariably engaged in, "clerical functions", which leads to the misue of manpower. Most of the libraries are unable to meet the increasing demands of their users–because of: (*a*) The increasing price of publication, is acute in the case of purchasing journal of foreign publishers. (*b*) Increasing backlog of requests and of materials pending for processing, due to shortage of manpower, (*c*) Resulting deterioration in the services from an information centre.

2 NEEDS

To meet the inforamtion need of the society in 21st Century, India should have a National Information and Library Policy to guide and control information systems in India. Such a policy would improve the progress and development of Librarian and Information Centres in our country. In India there are rural libraries equipped with a few books and an unskilled librarian and there are libraries which are now thinking of creating an international Network. So preparing libraries for 21st century in our country with this diversity, where library services has not yet reached all the corners of the country. India has variety of different problems.

21 THE VARIETY

In rural India due to Public Library Acts, we have rural libraries in villages. The picture is not the same all over India, because all the states do not have Public Library Acts. Due to shortage of funds these rural libraries have the lowest priority in the allocation of grant. Concept of resource sharing can help this problem. To take library services to the underprivileged section of the people and to develop reading habit among the people, there should be some scheme of assistance from Govt towards development of "rural book deposit centres" and "mobile library". Here district libraries and other selected libraries will serve as the base libraries from which books will be circulated to the 'Book deposit centres' or 'book delivery stations'. The

mobile library unit will act as a connector between participating libraries. There should be appropriate policies so that unnecessary duplication of costly materials can be avoided. They have to see that some of their own collections which are not used at all or less used, may be made available to users of other libraries through co-operation. These libraries are welfare organisations. It should render useful services to the rural mass for promoting education, culture etc. Ours is an agricultural country, the rural libraries can provide the proper knowledge of farming process, the new techniques and new developments. In remote areas `mobile library service' can serve the purpose.

22 CITIES

In cities and towns the picture of public library system is not so bleak, though there also deficit funding and shortage of man-power exist. Here users demand is more sophisticated. So libraries have major responsibility for information transfer and for providing all types of materials, specially research materials to scholars who desire them. But libraries and documentation centres have problems in providing the services expected from them. Growth of literature, increasing cost of publication and equipment, rising personnel cost are some of the reasons. Users are not happy as they are not able to get sufficient material on the topics of their interest, easily and in time. Libraries have always tried to meet the information needs of their users. Today's demand is such that no library is `information-self-sufficient'. To meet these everchanging and growing demands of the user, all libraries must co-operate with other libraries, of all types, because this growing demand is being experienced in all types of libraries–Public, Academic, Speical. The challenge can be met to a great extent by developing library network. There are many problems and constraints involved in network implementation in our country. This cooperative activity will require additional funds for library materials above the regular budget.

23 USERS

To work toward achieving our goal ie., preparing libraries for Twenty First Century we must not lose sight of the principal focus–the users, their needs as they perceive them–not as we interpret them. A nationwide network will be capable of meeting the individual needs of users realistically, and conveniently in our country.

231 Components

Following are some components of a nationwide full service network:

1 *Resources:* that include all types of media and format such as serials, monographs, documents, newspapers, prints and non-print materials and online data bases,

2 *Activities:* that include identification, acquisition, processing, preservation, and delivery of all bibliographic entities,

3 *Resource Sharing* through cooperative acquisition, broad and direct patron access to resources and sharing of staff and facilities,

4 An *Integration* of services of all types of libraries and segments of the information and library community, including abstracting and indexing services,

5 *Education and training* in areas of planning and evaluation, the use of online data base services, (both those for library material processing and those for user information services), in the philosophy of cooperation and sharing, the understanding and ability to use new technological developments, and in educating the user to exploit the library as an educational, informational and recreational centre,

6 *Research and Development:* to keep up with the impact on library and in information centres and providers of the rapidly changing and expanding technologies in the fields of communication, computers, micrographs, home delivery of information services etc, and

7 The *development of standards* required for linking systems computer operations, for data description, data collection etc.

3 RECOMMENDATIONS

31 NATIONAL COMMISSION ON LIS

In order to develop a nationwide network system ,a National Commission on libraries and Information services shall be established which will advice the Govt to design, implement and review the national policy. National Commission on Libraries and Information Services (NCLIS) will evaluate the information needs of the country by conducting workshop– seminar and will develop overall plan for meeting the needs effectively. Access to the nationwide system will be available to anyone who desires it.

32 NATIONAL NETWORK OF LIS

The national network of libraries and Information Centres will consist of several sub-systems:

1 State-wide Network
2 Regional network
3 Multi-State Network
4 National Network
5 International Network

These sub-systems may be further divided by their institutional focus

(*a*) Public library Network
(*b*) Academic library Network
(*c*) Special library Network
(*d*) Inter-type Network

33 RURAL LIS LINKED TO PLS

Special efforts have to be made to rural, tribal and remote areas for under privileged masses by establishing rural libraries, mobile library services. In this case, district library will act as the base or main library, which will select titles for purchase, and other libraries will act as the member library which will share their resources. A meaningful step in this direction was announced on 22nd August '94 by the HRD Minister at the meeting of the Consultative Committee of Members of Parliament attached to the HRD Ministry. It is planned to set up, during the current financial year, a chain of five hundred libraries in the rural area to meet the growing demand for reading materials in the villages following the spread of literacy and to encourage learning through regional languages. The libraries will be located generally in the village Primary and Secondary Schools.

34 UNDER PRIVELAGED & HANDICAPPED

Steps are also needed to provide library services to the handicapped persons–the blind, the other physically handicapped persons, hospital patients, prisioners, orphans etc. One very useful format for library selectors to consider is large print publications. These are not only useful to the others who find them easy to read without glasses or other visual aids. Many visually impaired people use braille as an effective means of information gathering. So there should be a proportionate growth of collection in braille tapes and audio systems in special libraries.

35 INTERLINK ACADEMIC & PUBLIC LIBRARIES

School, College, University libraries are essential components to the academic institutions for the development of education and learning. Realising that the present facilities are inadequate, special programme for the development of those libraries should be chalked out. Since collection of the library will continue to be inadequate due to shortage of funds, there should be closer linkage between those libraries and public libraries.

36 PROFESSIONAL TRAINING

The widely felt shortage of professional librarians may be traceable to a greater extent than known, to the many misused man-hours in which librar-

ians are absorbed in `clerical' functions. It is more important to recognize that proper use of the special talents of professionally trained librarian is essential to handle the proliferating volume of literature to be controlled, so that the users can be more profitably served. If machines are not the answer for a small library with a low budget, then there should be the planning of operations, in order that 'clerical' processing can be done by non-professional staff members, who will then be free to render the creative and imaginative service–appropriate to their professional qualifications. To cope up with the new technologies and methods, there should be training programmes, refresher courses at regular intervals for the librarians.

37 USER EDUCATION

In library and information services, user education is most important for effective dissemination of information. By proper user education, maximum utilisation of information can be possible. Trends in customer defined quality management, as well as recent perspectives of libraries, as user based information systems, the library user is the judge of a library organisations effectiveness.

38 INDUSTRY ON COMPUTER TELECOM TECHNOLOGIES

Since information industry depends upon inforamtion technologies, India should adopt a comprehensive plan to develop an infrastructure that manufacturers, suppliers, services and uses computers and telecommunications. The development of computer and communication technologies will enable us to access and exploit the huge stock of information stored in machine readable form of advanced countries. This development requires the Govt active support in planning and funding.

4 INTERNATIONAL COOPERATION

For free flow of information and development of a International Network System, we should cooperate with the different international organisations like UNESCO, FID, IFLA. UNESCO is successful in assisting Less Developed Countries in areas such as, the setting up of a National Press or information agencies, which have been grouped together in subregional, regional, or inter-regional agencies. The setting up of the International Programme for the Development of Communication (IPDC) is also an example of UNESCO's success in its quest for the development of an infrastructure needed by LDC's. IPDC's primary aim is to assist LDCs in creating communication infrastructure. We may utilize these.

5 CHANGE IN LIBRARY DEALERS

At present most of our libraries operated in a relatively closed environ-

ment. Beside book dealers, a few other participants impinged in library operating. Now with the advancement of Information technology libraries must operate within an environment with many players. These include systems vendors, a wide-range of suppliers, maintenance suppliers and grant agencies. In order to maintain their programmes, libraries must co-operate with these chaneges, even with shrinking budget and more demands of users.

6 CONCLUSION

We are on the threshold of Twenty first century. India has opened the country by liberalising industrial and financial policies. Neglecting the database and the information dissemination at this moment will give rise to a lopsided development, if at all there is any development without the support of information. We have made some advances in data base management for planning with the setting up of National Informatic Centres which has access to all the districts in the country with computerised feeding centres. So a National network for library is not a dream but a feasible reality. The concept is not new, there are already existing a number of Networks in our country, such as, HELLIS (Health Literature, Library and Information Services), BTISNET (Biotechnology Information System Computer Network), DELNET (Delhi Library Network) etc. This also should include the moderen techniques of storage of data in floppies and microfiche, rather than tonnes of moth eaten volumes occupying enormous space and consuming valuable man-hours in retrieval of information. Proper exploitation of library professionals will give a better result in running the libraries. And this can be achieved by a National Commission on libraries & Information Management, supported by liberalisation in grants to libraries, with emphasis on foreign exchange. For a vast country like India, to cater to the growing needs of information, which is the soul infrastructure of development, libraries must be geared up and modernised.

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FUTURE OF AN INDIAN MANUSCRIPT LIBRARY

DR HS CHOPRA*

0 INTRODUCTION

India is an ancient civilization. It was not confined to Harappa and Mohenjodaro but spread to Jammu, Maharashtra, Meerut and Punjab. The excavations at Harappa, Mohenjodaro, Nevali Cori Valley in Turkey, do make it similar to civilisations of Assyria, Sumeria, Babylonia and Egypt.[1]

01 NATIONAL HERITAGE

Almost all the University libraries, private institutions, trusts, religious places and archives possess a significant number of manuscripts. Manuscripts are reminiscent of the past development of our society and raw materials for a number of subjects. These are the real heritage of any nation which should be preserved at any cost.

02 HISTORY

History of manuscript writing in India can be traced to the Indus valley civilisation. The natives of this valley were well familiar with writing. The symbols used in the Indus Valley writing are similar to other writing systems dating to the first half of the third millennium BC or earlier. Surprisingly this writing is similar to Egyptian pottery signs, Cretan Linear A, Proto-Elamite, Archaic Sumerian of Uruk, Libyan writing and Manding.[2,3,4]

03 LANGUAGE DECIPHERING

Many efforts have been made to decipher this language and success has been achieved to a great extent.[5] However there is a lack of written sources unlike the other civilisations. The scholars of Vedic times were perhaps apprehensive about writing a scholarly work in black and white because of fear of forgery.

04 OLDEST BOOK

Rg Veda is the oldest book of Indian civilisation. Dr BG Sidharth of the Birla Science Centre is of the view that Rg Veda reveals a high degree of scientific enlightenment and contains amazingly accurate astronomical calculations that cannot be attributed to a primitive and illiterate nomadic tribe. He backs his theory with archaeological evidence and astronomical codes

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continued in the Vedas. Possibly Rg Veda would date back to 7300 BC. Sanskrit was their common language. Upanishads, Sutras, Epics of Ramayana and Mahabharta are concerned with events which took place between C. 1000 and 700 BC 900 BC can be the correct date on the basis of accounts in the Puranas. Mahabharta as it survives today is the longest single poem in the world.

041 Turkish Finds

It may take time to prove Rg Veda as the oldest work of the world. Recent excavations in Nevali Cori valley in Turkey have revealed remarkable influence of advanced Vedic culture with traces of agrarian settlements, immaculate town planning layouts, masonary works, limestone sculptures of Vedic seers and cult hall. This site is dated back to 7000 BC.[6] Rg Veda must have been kept alive through memory for a long period for fear of forgery. New discoveries about such ancient works will make the Indian manuscript libraries worth serious consideration by the researchers.

1 MATERIAL OF WRITING

Stone and rocks were the earliest forms of writing. Such specimens are available from the Himalayas to Mysore in India. Bricks with writings of Buddhist Sutras were found in Uttar Pradesh State.[7] Animal skins were rarely used by the Hindus as they considered it impure.

11 PALM LEAVES

Palm leaves known as Talapatra, Tala Patra were the most common writing material of ancient India. These were easily available in India. Therefore it remained a common source of writing till recent times. A large number of libraries in South India and Certain Libraries of Northern India possess such manuscripts. These manuscripts do not last long in hot and humid climate, but they proved to be very lasting in cold areas. 'Tripitaka' was written on palm-leaves after the death by Buddha.[8] Sanchi pattar was popular in Assam. Manuscripts on these leaves are not very old.[9]

12 WOOD

Wooden boards as medium of writing had been in use since the Budhist times. The Bodleian library at Oxford possesses an Indian manuscript written on such woodenboards.[10]

13 CLOTH

Manuscripts on cloth were popular among the Jains. Museums in Rajasthan and Andhra Pradesh have such manuscripts.[11]

14 METAL

Use of metals for writing was also popular in India. Copper plates were

in use even before the Mauryan period. Fa Hsien, the noted Chinese traveller informed us in travel diary that the Buddhist monasteries possessed copper grants, some of which were as old as the time of Buddha. The specimens of other metals are also available but in very small number.[12]

15 DIVISION OF MATERIALS

Our ancestors tried to preserve them with whatever possible means they were having. Writing materials of Ancient India may be divided in two categories; durable and more or less permanent in nature and secondly perishable by nature. Stone, copper, gold, iron, silver belonged to the first category; cloth, birch-bark, palm-leaves, cotton and silk cloth, belonged to perishable category. Undoubtedly paper was in use during the invasion of Alexander the Great. Paper manuscripts belonging to eleventh century onwards are available in India but for how long these would survive is a matter of doubt.

16 LOST WEALTH

Documents prior to Asoka have all perished, may be due to the Indian climate and partly due to the perishable materials on which these were written. Stones, rocks, inscriptions on walls of caves and temples, should be preserved as any cost.

151 Destruction–Invasion

Inspite of the fact that a number of invaders attacked India and tried to destroy the cultural heritage of our country, even then a vast number of manuscripts are available in Indian libraries. Although most of the earlier manuscripts either met their own end or were destroyed by the invaders, yet a few specimens are still available.

2 CATALOGUING

Cataloguing of manuscripts especially of Oriental origin is very tedious and time-consuming. This may be the reason that some of the Indian Universities are still using the Accession Register as a finding aid. Special grants are sanctioned for preparing descriptive catalogues. In order to provide simplified cataloguing Main entries and added entries can be prepared according to AACR second edition. Some of the Universities and institutions have published the catalogues of their manuscripts. A significant need is union catalogues of each language and coordination between the various institutions which is very much lacking in India. Concept of individual possession is still prevalent among the holders of manuscripts. Fear of loosing the significance and lessening of the importance of institution is only a wrong conception.

21 MANUSCRIPT VALUE UNRIVALLED

Although there are more than four hundred manuscripts of Manusmirit

and its printed version, yet it has not decreased the importance of the work. Similarly Panth Prakash by RS Bangu, is available in printed form since 1914 by more than one publisher but it has increased the importance of manuscript day by day.

22 COMPUTERS

Computer is helpful in the cataloguing of the manuscripts. Main entry as well as added entries which sometimes run into hundred can be easily prepared. However it seems that the days are not after when the researchers will have this facility.

3 LOCATION

Location-guide can help the users to a great extent. Availability of different copies of one manuscript at one place will help the researcher to a great extent. All the manuscript depositiories should prepare the location guide inorder to improve its functioning.

4 PRESERVATION

Care and preservation is an important aspect of the manuscripts. The ancient people tried to preserve the manuscripts with the available means. Most of these could not survive because of the perishable nature of material. It is well known that most of the existing manuscripts are written on paper. Deterioration of paper has attracted the attention of scholars and libraries. Paper is still the work-horse in recording the messages needed in all walks of life which end up in the libraries. Paper can last several centuries if preserved under proper conditions and composed of proper ingredients. Observation of Barrow is right that the books printed in the first decade of twentieth century will not be worth use towards the last decade of this century. In India it has been seen that most of the books if used do not last for more than twenty to thirty years.[13]

41 DETERIORATION

Paper gets damaged because of moisture, dryness, acids, alkalies, dust, moderate heat or cold, ultraviolet radiations, slow electro-chemical reactions, or biological creatures including rodents, insects, bacteria etc. However there can be other reasons also like destruction by invaders which India has to face since the Indus Valley civilisation. Most of the manuscripts possessed by modern Universities and other institutions have been luckily preserved by nature or ancient wisemen. Caves, underground rooms of the temples, monasteries and individuals were the preservers.

42 UPKEEP

The general tendency in India at present is to keep the manuscripts in the

wooden or steel almirahas which are rarely opened. Leaving certain areas of North, India is a hot, humid and dustry country and is not conducive for the preservation of the manuscripts. In ancient times wooden covers for the palm leaves manuscripts were used. In Nepal and in Indian Jain Libraries, cloth was used for protecting the manuscripts. In Kashmir the manuscripts were bound in leather. Pandri, a type of grass and Ghora Bach, a herb known as *acorus calamus* have been used in the past with success. Leaves of Margosa tree were used in the north for the preservation of manuscripts and preparation of ink because of its insecticidal qualities.

43 AIRCONDITIONING

Provision of conditioned temperature and relative humidity to meet the preservation requirements for paper-allied materials need air-conditioning equipment. Most of the Indian manuscripts repositories and libraries do not find it within their means to incur such a high expenditure.

44 POLLUTION

Environment is the main reason which shortens the life of the manuscripts. In most of the Indian cities Sulphur Dioxide and Nitrogen Oxides are exceeding the prescribed limit of Central Pollution Control Board. Repeated physical handling and photostat copying can cause great damage. Some of the manuscripts are too brittle to be handled or used for photostat. For this microfilming is the best modern solution. Microfilming has started in some universities and institutions, but it is out of reach of a number of institutions. The question is, how long these microfilms would survive. Surely in a country like ours far less period than the ancient manuscripts. So the future of these manuscripts is at stake. The concerned authorities should start some remedial measures to preserve these priceless writings of the past for the future scholars.

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IN SEARCH OF PILGRIM CITY: AN EXPLORATION INTO THE MANUSCRIPTS COLLECTIONS AT THE HOLY PLACE 'PANDHARPUR'

CP PHARANDE*

0 INDIAN CULTURE & MANUSCRIPTS

The glorious past of Indian culture lies in manuscripts. India has an age old tradition of learning dating back to thousands of years before Christianity. Hindu religion has a rich tradition of culture and learning. Great Indus civilisation has its roots in Hindu culture.

01 EDUCATION THEN

Learning in olden days was performed by way of Gurukul system and mostly by way of recitation. The seekers of knowledge ie., students were supposed to stay at the 'Ashrama' of Guru during his studentship. He was treated as part and parcel of family and accordingly he too was supposed to perform all the duties and responsibilities, as those that are performed by the family members.

02 HEARING-RECITING-LEARNING

The learning mainly took place by way of recitals. One has to learn his lessions by way of hearing from his guru. After several repetitions and by learning by-heart, makes the student knowledgeable.

03 WRITING MATERIAL

In course of time, the changes in learning process came up. These gave impetus to search for writing material and medium. These are stone inscriptions, Tamrapatra, Talpatra, Bhurjapatra and at the last paper.

04 ILLUSTRATION-PANDHARPUR

After going through the historical background of learning; it is appropriate to see, how this tradition of learning and maintaining manuscripts followed at the holy place Pandharpur. For that it is necessary to see, the importance of this place.

1 PANDARPUR-PURANIC

The holy place Pandharpur carries two types of backgrounds the mytho-

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logical sources mention in the 'Padmapurana', which carries a section on 'Panduranga Mahatmya'. This section narrates the mythological legend regarding how and why Vitthal came to the '*kshetra*'. Lord Vishnu during his incarnation has came down to earth at this holy place. The story narrates the whole episode, how Lord Vishnu, in order to fulfill desires of his devotees and lovers, has to take birth in various 'Yugas' (ie., certain period of time).

11 HISTORICAL

The other historical account tries to give the logical account of the origin of this deity at the place of Pandharpur. The inscriptions of the Hoyasala king Someshwar, records the grant given to this holy place. This inscriptions is dated 1236 AD and clearly indicates the keen interest envinced by the Hoyasala monarch in the deity and its well being. This was not very surprising as there is ground to believe, according to some scholars, that it was a great Hoyasala prince who was himself responsible for the establishment of Vithoba at Pandharpur. King Vishnuvardhan alias Bittidev 91117-1137 AD) of the Hoyosala dynasty was so much influenced by the teaching of Ramanuja, that he accepted the Vaishnava sect, discarding his original Jaina faith. His brother Vir-Ballal launched several expeditions in the northerly direction and carried the northern limits of the Hoyasala empire to the shores of the Bhima. It is not unlikely that this Vishnuvardhan met Pundalik at Pandharpur, and there erected a temple of Vishnu at his request. It was traditional custom to name the temple after the builder and in accordence with this tradition Vishnuvardhan named the deity Vitthal, a derivative of Bittidev alias Vishnuvardhan.

2 WRITINGS-SAINTS

The Varkari saints who are the devotees of Lord Vitthal, have their faith in mythological origin of deity. Naturally in praise of the god they wrote number of 'Abhangas', 'Arya', treatises and commentaries on religious Grantha. They did important work of reformation of society. In the adverse time of Muslim invasion, work of saints was the only way of salvation to Hinduism. They kept the religion alive against torture and tyranny of Muslim rulers. All their religious writings and reformative verses are available in the manuscript form.

21 MANUSCRIPT WEALTH

The holy place of Pandharpur is enriched with the legacy of this manuscript wealth. There are more than hundred 'Mathas' who have good collection of manuscripts with them. Apart from mathes individual 'Pandits', 'Badves' and scholars have their own collections.

22 SURVEY

The present author by visiting these 'Mathes', 'Pandits', 'Badves' and

scholars has collected information on the availability of these collections. He has also examined the way of maintenance and preservation. He has also tried to identify in which adverse condition they are, taking care of these valuable literature, in order to support the research in the subjects like history, sociology, religion and literature of Maharashtra.

3 SCHOLARS

The prominent scholars, who had their great contributions in the studies of Varkari Sampradaya, 'Ha Bha-Pa'. BP Bahirat, 'Ha Bha-Pa'. Sonopant Dandekar, Dr Gopal Benare and innumerable others, are wizards in this field. The author had an opportunity to visit the holy place Pandharpur and could succeed in interviewing these legendary personalities. The literature, author saw at the various Math and with the individuals, may count in thousands.

4 MATHAS

Following are some of the matha's holding the collections which stands as a testimony of, what a voluminous collection can be there, all over the holy city.

41 UTTARADI MATH

The Chief of this math, 'Bhimachari Balachari Varkhedkar' in his interview told that this math has been established during the times of Madhvacharya. There are around 4500 to 5000 manuscripts, comprising the subjects like 'Vyakarna', 'Nyaya', 'Vedanta', 'Mimansa', 'Kavya', 'Purana' etc.

411 Preservation

Further in his interview, he complained of shortage of stack place to maintain the records. There is no specific monetary source to look after its preservation and conservation. Whatever the manual and traditional way of preservation known to them has been adopted ie., wrapping the manuscript in red cloth, putting camphor cubes among the bundles, putting in the heat during particular seasons etc.

412 USE

Though they do not maintain the record of scholars visiting the matha, it is said that number of scholars working on religion, philosophy, sanskrit literature, have visited the matha. There are certain documents giving historical information on the holy city of Pandharpur.

42 HOLKAR MATHA

Historical personality, 'Punyasloka, Ahilyadevi Holkar', has established

this math in 1668. The work of looking after this Math was vested in the hands of 'Pralhad Maharaj Badve'. His 9th generation is looking after this math at present.

421 Collection & Use

They are having manuscripts on Ved, Vedant, Shruti, Smriti, Sutra, Dharmashastra, Kavya, Vyakaran and Vaidhyak etc. almost around twenty two disciplines of the knowledge. The collections ranges between 900 to 1000 manuscripts in Sanskrit and Marathi. The oldest among dated manuscripts 'Muhurtmala', has been written in 'saka' 1442. All manuscripts have been listed properly, with notes on its completeness, pagination, period of writing etc. The present 'Mathapati' said that they maintain the record of visitors. During the discussion with him, he gave pathetic account of visitors behavior. Some renowned scholars collected important historical documents from the in order to trace the begining of awarding 'vatan' to various Badves (priests), at Pandharpur. The same has not been returned until now, which was taken in 1981. They have repeated experience of this type. Naturally there is fear in the mind, while showing the collection to any scholar.

43 VIPRDATTA GHAT MATHA

Established in Saka 1715 by 'Tuka Vipat alias Vipra'. He is known for his contribution in the vow of saint Namdeo who, porclaimed that he will versify 'Shata koti Abhanga' ie., he will write hundred crore Abhanga. He could not complete this vow in his lifetime. So, he had a rebirth in the form of 'Saint Tukarama' and during that birth also he could not complete it, and so ultimately during the birth of 'Tuka Vipra' he completed the vow or 'Sankalpa'.

The distribution of their contribution is given below:

(*a*) Saint Namdeo–94 crore, 60 lakhs

(*b*) Saint Tukaram–4 crore, 38 lakhs and 75 thousand

(*c*) Saint Tuka Vipra–1 crore 1 lakhs and 25 thousand

There is enough of controversy, regarding its reality. But religious varkari faith, accept it as a truth.

431 Resources

The matha presently possess some of the treatises on 'Shrimad Bhagwat'. Most of them have been lost in the floods of river 'Chandrabhaga' in 1956. Apart from this there is another literature also 'Tirth Namavali', treatise on Gita, 'Sudam Charitra', 'Bhanudas charitra' etc.

4311 Chain of Collections

Matha is visited by number of scholars on Varkari Sampradaya. These are the elaborate accounts of the holdings of representative mathas. There are several others like–'Kumbhar Ghat', 'Vedmurti Tukaram Najarka Matha', 'Jayarambuwa Vadgaonkar Matha', 'Namdeo Madir', 'Nagar Vachan Mandir', 'Savarkar Vachan Mandir', 'Kaikadi Maharaj Matha', etc. having their indegineous manuscript collections.

5 PRIEST COLLECTIONS

Unlike these mathas and libraries, there are number of individual Badve (priest) and scholars who have their own manuscript collection. The scholars who had notable work in the field of research on Varkari Sampradaya, have been awarded with various honours. Ha-Bha-Pa B. P Bahirat has been award honoraria DLitt, by the University of Poona, in recognition of his work on Varkari Sampradaya.

51 OWNER SHIP & OBSTRACLES IN INTEGRATION

But unfortunately nature plays its visious role here also. The dictum 'United we stand and divided we perish', has come into reality here. The collection being scattered all over holy city with mathas and individuals, lacks organisation and proper management. Every math wants to retain its own identity. Every individual has his own school of thinking.

6 CONCLUSION–INTEGRATION

With sample visits, the author had come to conclusion that, it needs to have a roster of mathas having manuscripts holdings. Then the list of holdings need to be prepared scientifically. Individual scholars need to come to a common platform, in order to save this prestigious wealth of literature from deterioration.

61 ARCHIVES TO PRESERVE

The governmental intervention, through its department of education and through Director of libraries needs to pay serious attention to the inventory and its maintenance. Director of archives, National archives of India, need to pay attention to their requirements of preservation and conservation.

62 TRAINING & FINANCE

It is also noted by the present author, that it is necessary to provide orientation for scientific preservations to the persons, who are looking after the manuscripts holding. They equally need to have some financial assistance to maintain this prestigious wealth of knowledge. Those worthy of publications need to be published, in order to smoothen the way of researchers.

63 COMPLETE LOCAL ORGANISATION

The holy city Pandharpur, will thus perform a worthy role with the stupendous wealth of manuscript literature, when organised.

74 OTHER MSS COLLECTIONS

Alongwith this it is necessary to explore the treasure of literature, in various cities in India, who has long standing cultural, religious and historical background.

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LIBRARY–VOLUNTEER FORCE
An Answer to the Challenges of the Twenty First Century

MADHURI ARORA*

1 INTRODUCTION

Youth is a fountain of energy and spring of delight. The young signify the whole race. They signify the future and foretell the world's destiny. It is for them to sieve out the best from the past and paint a new picture where they can sincerely portrary a meaningful and harmonious life to all. Their courage alone can bring considerable change, happiness and prosperity.

It will be appreciable if their energies and ideas are put to-gether for the working of the libraries, where any amount of workers can be absorbed easily.

2 YOUTH AND THEIR ENERGY

There is a great need to channelise the youth energy and ideas towards constructive work in order to save them from the clutches of violence, unrest, drugs and the like.

In other words youth of a country's is back-bone. The vigour and vitality of youth can perform miraculous things. The strength of youth, if properly utilized and well directed can put the nation on the wheels of progress, but it can prove otherwise if youth remains misguided and their energies unchannelized in the socio-political context of the country.

3 VOLUNTARINESS

The term voluntariness is derived from latin word *voluntas* which means "will". The will assumes various froms of impulses, passions, appetites of desires. It is prior to or superior to the intellect or reason. All theories of voluntariness, whether psychological, theological or metaphysical, which interpret various aspects of experience and nature in light of the concept of the will.

In other words voluntariness is a carring instinct, traceable in all forms of human civilization. It is collectively organised form may lead to emergence of voluntary organisations.

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Voluntary organisation always do the best for the society or parent body for which they are constituted, as in such organisations all persons are willing workers. They opt themselves for the work of their own will and zeal according to their aptitude. So they can do a lot for the purpose and are well organised force in any field, in any country. In India such organisations are more popular to serve the society in various fields.

In educational institution there are some organisations which offer voluntary service to the society eg., NSS, NSC, Red Cross, Student Welfare Forum, Sports Club etc.

4 LIBRARY VOLUNTEERS

Library is the most important organ of all academic institutions whether school, college or university.

It is well known fact that University and college can not run without libraries and is easy to create students volunteer force in the colleges, who can work for the library in their free time, may be

(*a*) Free periods

(*b*) During holidays

(*c*) After or before their class schedule

(*d*) After examinations, when waiting for the next session

(*e*) At their home (during vacations)

The students who can work for the library to utilize their energy and *free time under the guidance of librarian/library staff can be called as "Library Volunteers".*

5 HOW TO ORGANISE LIBRARY VOLUNTEER FORCE

Students can be enrolled to form this force.

Meeting of all willing students can be convened in the library at their convenience to impact training and instructions about the library, its functioning, kind of services to be given to their users, library arrangement etc.

A short training course can be organised for these volunteers either prior to their class schedule or after the classes with some practical guidance.

After having proper training various duties can be assigned to the students in accordance with their schedule of time.

Daily attendance and record of work done by the students has to be maintained either by the students themselves or by the library staff in special register meant for them.

6 ORGANISATION

Unlike the past, when library was mere 'Conservatory of books' the pride possession of the upper strata; the symbol of royalty; the 'Ranganathan Age' has brought the books out for 'use' and for maximum circulation. Now, taking a futuristic perspective, we can see the libraries as the moulders of man's mind and it will change to the 'thought contents of the book/document for everyone'.

The higher the circulation the higher the demand for service and service personnel. Considering the financial crunch on the state education budget and that of the non government organisations in education, in a developing economy like India, with folded arms blaming the system and its pressure is useless. Why not 'use' the 'users' in efficient management of library? The present study aims to show how library volunteer force can be organised and trained to work in collaboration with the library staff. It is a unique experiment which affords self-reliance to the individual as well as the system.

7 INCENTIVES FOR THE LIBRARY VOLUNTEERS

It will be appreciable if library volunteers can get some recognition from the college authorities and weightage in commission to various courses and in jobs as given for NCC, NSS, Red Cross, Sports etc. The facilities and incentives should be more as

(*a*) Weightage to get jobs in any field particularly in libraries.

(*b*) They can be awarded certificates for their services by the college authorities at the end of the session.

(*c*) Their services can be highlighted among the students on special occasions either on notice boards or in assembly etc.

(*d*) They should be given special badges of honour when they are on duty to distinguish them with ease from readers and library staff.

(*e*) They should be given some special incentives eg. visit to the libraries of other cities and states to get more experience and broaden their aptitude for better working during Autumn/Winter/Summer vacations.

(*f*) They should be given special concession for buses and railways to visit the good libraries of other cities/states.

(*g*) Ministry of Human Resource & Development, India should give some grant and programme for them and recognise them as social welfare like other units.

(*h*) Their photograph and articles about this organisation should get proper place in their College Magazine or News Bulletins.

8 FUNCTIONS/RESPONSIBILITIES FOR LIBRARY VOLUNTEERS

It is supposed that most of the library work is technical, which can be done by the professional trained persons only eg., accession, classification, cataloguing, indexing, documentation etc. But there are certain works which can be assigned to the library volunteers after imparting them short term training and assistance in some fields.

81 AFTER TRAINING

(*a*) Accession of books in accession register

(*b*) Pasting and stamping of books

(*c*) Added entry cards can be prepared

(*d*) Binding and mending work

(*e*) Shelving of books

(*f*) Assistance in circulation counter

(*g*) Guidance to the readers about the collection

(*h*) Explain about the books arrangement to the fresh user

(*i*) Help in consulting catalogue

(*j*) Help in the use of dictionaries, directories, almanacs, atlases and maps etc.

82 WITHOUT TRAINING

(*a*) Cleanliness of the library specially the shelves

(*b*) Help the Janitor at the entrance

(*c*) To keep a watch in order to minimise mutilation

(*d*) To maintain discipine in the library/reading hall

(*e*) To reset popular magazines and newspapers at proper places.

(*f*) To replace the books/journals etc from the tables to the shelves

(*g*) To encourage readers to come to the library

(*h*) In the display of new books & book jackets on display board

(*i*) Write some mottos and posters for the library

(*j*) Help in the functions/talks/seminars etc. organised by the library

(*k*) Help to escort the users to the almirah and can open the locks of the almirahs (in closed access)

(*l*) Help to prepare demand list of the students for reservation of books.

CONCLUSIONS

It will be a very fruitful venture and constructive work if the students take interest to do the work in the library with sincereity and honesty.

Librarian and library staff can do a lot for their users, if this type of help obtained to minimize the work load of the library staff and it will be the solution to Ranganathan's five laws ie., Books are for use, every book his/her reader, Every reader his/her book, save the time of reader and Library is a growing organism.

It will also fulfil Ranganathan's long cherished dream that every reader must be welcomed with Smile by the library staff who come to the library for any querry. If these volunteers can be guided they can be helpful even in stock checking also, which is essential and most important. They can assist the janitor in getting minimise. Mutilation, misplacement and theft etc by their constant watch in the library.

But these volunteers are required to be kept under constant watch so that they themselves may not get involved in such criminal activities. They should be sincere in their works to the library and library staff. Librarian and Library staff should be alert and vigilant about them.

However they can be given more and more library facilities to consult and get more books issued required by them to compensate the time devoted to the library. They should be treated upto some extent as part of library staff.

It will be a boon if the services of the youth/students for the library are organised with some care and safety.

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PROMOTING READING HABIT AND LIBRARY USE

JANAK RAJ*

0 TWIN TASKS

Selecting, acquiring, organising and disseminating of reading material in themselves are formidable jobs for librarians, to cater to the information needs of library users. Promoting `library use' and `reading habit', are much more tougher and challenging jobs. Activities for promoting library use can be taken up by all types of libraries, may it be academic, public, research & development, or special. Working for inculcation of reading habit among users is more relevant for academic and public libraries alone. For academic libraries, programmes and activities for promoting reading habit and library use have to be different according to the level of their users.

1 LIBRARY NOT A PLACE–BUT A PROCESS

Rightly, Taylor in Homphsire College Working Paper Number Two has said, "Traditionally the library is looked on as a place surrounded by four walls where printed materials-sometimes non-print material are stored, and lent. We wish to explore the notion that *library is not a place, but a process,* and that mere warehousing as servicing is only the first step in the process. The Library should be a process that permeates the campus".[1] A library "is not just books on shelves, a display of magazine covers, the paraphernalia of a study cubicle, drawers full of annotated three-by-five cards, and a computer terminal. A library is people - people reading, talking, seeing, thinking, listening; people dreaming and growing; people creating and acting".[2] In view of communication technology being exploited for information transfer in libraries, `seeing' and `listening' be added to `reading'. Subscribing to this view one has to agree that promoting library use and *reading, seeing, listening* habits are part of this process and there are, besides librarians, several partners who play a vital role in this process. Major among them are: parents, peer group, teachers and mass media, who lay the foundation of this proces. School library and the school librarian play a pivotal role in building the foundation. Not only these associates lay the foundation of reading habit, which in turn promotes library use, but also continue to help in this process at school, college, university level and even beyond that. The librarians can

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do very little to motivate the said other partners to help in the process. That is why it becomes a very difficult task to inculcate reading habit by librarians alone.

11 DETRACTORS OF THE PROCESS

There are several factors that wean away the students in the academic institutions from developing the habit of general reading for more information and recreation. Once the students who did not inculcate reading habits, march past the portals of academic institutions, they hardly get back to books for the satisfaction of their informational, inspirational, and recreational needs. The detractors are of two types. One which are beyond the control of librarians, the others which need conscientious effort on the part of librarians to overcome them.

111 The Detractors Beyond Control

These detractors need nation wide discussion through mass media, personal contacts with the high-ups, which matter in the field of education, conferences, seminars to build public opinion to counter them. They are beyond the control of librarians.

1111 Oblivious to the purpose and process of Education

The greatest folly is that the educationists, educators and education planners seem to have become oblivious to the real purpose and process of education. "The purpose of all education... is to provide a coherent picture of the universe and an integrated way of life... Man cannot live by a mass of disconnected information... Life is one in all its manifestations. We may study the factual relations of the different manifestations but we must have knowledge of life as a whole.[3]

1112 Cohesive Information

Mere collection of disconnected pieces of information does not result in knowledge unless the pieces of information are not ordered, well knit, and their relations discovered to build an integrated whole. Even such a knowledge is not synonymous of wisdom. Training in the selection of an appropriate piece of information from the mass of such a knowledge, and applying it with success to any life situation that arises is called wisdom. No amount of mere factual information can make a person educated or virtuous, unless something is awakened in him: an innate capacity to live the life of the soul. That is why TS Elliot said,

"Where is the Wisdom we have lost in knowledge?

Where is the knowledge we have lost in information?

The cycles of heaven in twenty centries,

Bring us father from God and nearer the dust".

1113 Purpose of Education

So the true purpose of education is to enable an individual to be capable to meet any situation that may arise in one's life, by partly banking upon the mass of knowledge accumulated by him, and the training received, in finding way to the needed information, and partly by keeping that store of knowledge up-to-date, through the acquired habit of reading at school and beyond school level.

2 IN PRACTICE

21 THE PROCESS OF EDUCATION IN PRACTICE

Our present process of education is text-book centred, passively transmissive type, in which student receives as a passive partner, the information as transmitted to him by the teacher, in the class room, without any effort to make the student perceive the interconnections of the facts to build an integrated whole.

21 PROCESS OF EDUCATION AS IT OUGHT TO BE

For Education to be productive it cannot afford to be exclusively tranmissive. Rather it must be creative. "For it to be creative, the process must not be atomised but global; it must not be merely forced from outside, but also be generated from inside the student".[4] Creative education also allows memorising and drill; but they are given only subordinate positions. "Transmissive education based on atomised experience does not build the whole student. Creative education based on global experience sensitises the student, to the changing contemporary life and problems; it invokes in the student, the capacity for self-education, self-direction, and creative work".[5]

22 SELF-EDUCATION-ABSENT

The obliviousness of the educators to the real purpose of education of sensitising the students to the changing contemporary life, and invokving in them the capacity for self education, is the biggest detractor of library use.

3 MEMORY ORIENTED EXAINATION SYSTEM

Memory oriented examination system discourages additional reading. Howsoever little a student knows, but if he memorises well, and vomits out exactly as written in the prescribed text book, the score will be quite high. So the students need not go beyond text books for good score. Thus they do not develop the habit of additional reading for widening their horizon.

3 BOOK DUBBED AS TEXT-BOOK

Textbook centres education system dubbs a book as a "textbook" in the minds of the students. As textbook is generally considered burdenesome, so majority of the people after passing out, avoid reading any book because the word book is taken as synonymous with `textbook'.

32 EXAMINATION ORIENTED TEACHING

Teaching ought to be to make concepts clear so that the students may start learning and understanding from any book on the subject. Instead majority of the teachers teach in such a manner that the students secure more marks in the examination. In other words, the teaching is becoming by and large examination oriented, rather than subject oriented. A student confided that some teachers prescribe a book for their subject, and discourage students from consulting any other book on the subject! What an unfortunate situation! The examination oriented teaching is very deterimental to inculcation of reading habit, and increasing library use.

33 PARENTS ATTITUDE

Some parents discourage their wards from doing any additional reading of books other than the prescribed text. Only a microscopic minority of enlightened parents, who want their children to go in for IAS, IFS and other competitive examinations, alone encourage both extensive and intensive study of books. Changing attitude of parents, is not within the purview of the librarians.

34 THE DETRACTORS WITHIN CONTROL

Factors weaning away the library users which fall within the reach of librarians as corrective measures are:

341 Library Systems

The librarians have some set ways of doing things in terms of, shelf arrangements and retrieval tools etc. The librarians generally insist to orient the users to the library systems, rather than orienting libraries to the users requirements. The levels of frustration in using libraries are awfully high for most people. There is a substantial amount of truth when Taylor says, "The systems, that is, catalogs, indexes, classification schemes, and form divisions, are intended to help the user. For the naive user, that they are terribly sophisticated and much too intricate, is an awkward fact. They have been designed by librarians for librarians. They are librarians tools and seem to have little relevance for the user".[6] He further adds "consequently we believe that the system best able to display itself in a useful functional way for the inquirer will be most effective".[7]

342 Library Staff

Unhelpful attitude or beauracratic behaviour of library staff often puts off may a user. Instead of showing keenness to serve, the staff simply point to a direction, for the user to go or at the most refer to contact another person. He does not go along with the user to solve the problem. In other words, `Counter Culture' (What can I do for you?) is missing, which one finds in majority of special libraries. A reader approaching a Special librarian says, "Well, I don't want to interrupt, but..." To which Reference librarian responds, "If you don't interrupt me, I don't have a job."[8] Such behaviour alone will attract users to libraries.

343 Restoration of Reading Material

If a document is not located at its specified place, it works as a big irritant to users and all our sophistication of classification and cataloguing is brought to nought. Proper shelving is very very important activity that way.

344 Undue Delays

Delays in procurement and their reaching the delivery point, are a big source of dissatisfaction among the users. Conscious efforts made, can curtail some delays, which in turn will promote library use.

4 THREE PREMISES

For increasing library use the above detractors have to be tackled by planners of education, educationists, educators and librarians. For inculcating reading habit among users by Librarian and his colleagues, the discussion to follow will be based on three premises.

41 PREMISE

Librarian is to come out of library and interact with users. This is the experience of the author that if a librarian wishes to work for inculcating reading interest among his users, he should interact with his users by participating in the activities of the students and faculty on the campus, to make exploratory probe and establish his credentials; identify a group of students who can work for such a cause; organise some kind of users' forum with the identified band of students and organise some activities befitting the cause.

411 Experiment at Vaish College, Bhiwani (1963-67)

The author started attending functions arranged by various societies of students, and developed acquaintences and identified students interested in adventurous activities, and the others in studies. For the former category a Youth Service Club (YSC) was started and for the latter a Serious Study

Circle (SSC). Members of the YSC were motivated to take up some social service activities, say; cleanliness of the college campus, including the college library from inside and outside. The YSC organised picnics and overnight service camps in the nearby villages, where the members will stay in a school building at night and arrange cultural programme for entertaining the village folk. In those days television was non-existent and transister was not very common as is the case now-a-days. The next morning some cleanliness was done of some streets. This activity brought the librarian nearer his users.

4111 SSC

There after was started the SSC. A book each was allotted to some students who were to go through and write review of the book read. In the monthly meeting of the SSC, the reviews by 2 to 3 members were read followed by discussions. This inspired other members also to read, write and speak.

4112 Success

In mid 1967 when the author moved to Regional Engineering College, Kurukshetra, some of the members of the SSC who had later made to IAS and other high positions, met the author and attributed their success greatly to their participation in SSC and inspiration they got from the author which made them voracious readers and book lovers.

412 Experiment at TIET Patiala

The Library Committee in its 19th meeting held on December 15, 1989 decided vide item No 19.5 (ii) (under Any Other Item) that "A Library Users' Forum may be formed under the auspices of which a "Library Week" may be celebrated. The Forum may arrange talks, essay competitions, preperation of charts, scripts etc. Informative service, like appetizers to reading, may be started by the Forum."

The objective of the Forum was to arrange such activities which may increase use of library and promote reading habit.

4121 The Forum activities

1 Study Circle Meetings

Members are to write review of any book read by them and present it at the meeting. One or two book reviews are presented at every meeting whic is followed by discussion.

2 Library Week Celebration

During the period several competitions and functions are arranged every

year. The theme of these competitions is library or reading. Out of the following list, some are chosen for a year:

–Library Cartoon Competition
–Library Collage Making Competition
–Library Quiz Competition
–Essay Writing Competition
–Paper Reading Contest
–Declamation contest/Debate
–Press Conference
–Dumb Charades
–Kshanika
–Prashna Manch
–Guest Lecture

3 Topical Collection

Some topics of interest to members are chosen. They hunt for material in journals, magazines, newspapers; get photocopies made of the material and prepare a file. Photocopying facility is provided by the Library. At the end of the year these file are presented to the Library. (Unfortunately the files prepared during the last two years were damaged during floods in July, 1993).

4 Wall Magazine

A group of students of the Forum look after this activity. Photocopies of some articles are displayed on a specific Notice Board. From the academic current session of 1994-95, started quiz competitions every fortnight, based on the Wall Magazine. This will ensure that a greater number of students read the Wall Magazine.

5 Path Finders

A group of students of the Forum will prepare Path Finders for various branches of engineering and sciences, under the guidance of the Librarian. These Path Finders will be contained in a few subject encyclopaedias, handbooks, manuals, names of professional bodies which generate research material in that area, some indexing/abstracting journals, CD-ROMs and on-line services.

6 Annotation Writing of Reference Works

The same group of students on Path Finders will prepare annotated lists of some reference works available in the Library for the benefit of other students.

7 Library Service

A group of students work for making library attractive and user-friendly. They prepare bay-guides, posters for the Library. At times they help in doing lable/tag writing work as well; suggest some changes in arrangements and procedures. They keep the Library Notice Board current by constantly removing old notices and other material. They prepare posters with quotations and some conduct rules to be observed within the Library and display them inside the Library.

5 PROCEDURE

For each of the above activity there is one Secretary and a Joint Secretary assisted by a group of executive members among students. First year was spent in identifying a small group of students, and started only Study Circle meetings and Library Week Celebrations. Gradually other activities were added.

51 RESULTS

511 Trhough these activities library is brought into focus of the students by means of charts prepared by the students for various functions organised especially for celebration of Library Week.

512 Personal contact with the students of the Librarian who is knowledgeable, friendly, and a person with helpful attitude, does go a long way, to inspire students to read.

513 Librarian comes to know of the problems faced by his users, and what they expect from library and its staff. In other words, it opens channel of information between Librarian and his users.

514 Users start appreciating the problems of the Librarian, and his staff, in not being able to provide a particular service. Mutual understanding develops to appreciate each other's problems.

515 Gradually students start owning the Library and want to make it more attractive.

516 It helps to create an environment, through students participation, which enhances the library centre's effectiveness.

517 All these activities together inspire students for inculcating reading habit, and develop an urge to know more and love knowledge. However, how many of the students really develop love for knowledge, as a consequence of these activities, cannot be guaged so soon. It can be done if a formal study is conducted some years after the students leave the portals of the Institute. But the past experience at Bhiwani confirms, that such activities do sensitise to make them good readers in their later lives.

6 PREMISE II LIBRARY BE ORIENTED TO USERS

61 EXPLORATORY PROBE

As professional librarians we know very little about the interface between a user and whatever face the library turns toward him - catalogue, index, reference librarian, rows of books or other media. We need to know more about the successes and the lack of successes in libraries.

For this purpose out of the identified group of "Library Users' Forum", librarian is to develop a very small group of students who are willing to observe themselves critically over a period of several years. "First, how they as individuals attempt to answer questions of relevance to themselves. If they use the Library, how they use it. Why they do not use the Library under certain circumstances. What other sources and channels of information they use. What kinds of decisions they made in accepting or discarding information. The second role... is to become aware of and describe some of the informal substantive information networks that exist on the campus, and between the campus and the outside."[9]

Informal Seminar sessions can be held to exchange ideas and information. Other faculty members can be invited.

62 INSTRUCTION AND ORIENTATION

For Library instruction effective use of simple print and graphic design is to be made to display to the users the richness, organisation, and usefulness of resources. In addition, video, film and computer media, offer a tremendous array of possibilities. The students themselves should be intimately concerned with the design and development of these systems. A sensitive student will have a better feel for the kinds of information his peers need to know, and for the best formats to use to get a message across.

621 Taylor's Method

Taylor for the Hampshire College Experiment suggests that first, one large multi-media presentation would be developed to introduce students to the idea of information overload, to the multiplicity of media and the potential roles the library centre can play. "By this presentation we hope the student is confused, bewildered, even antagonised, because we want to shake up his image of the library, to make the familiar strange.[10] Second, a media-both print and non-print presentation be developed at points in the Library where a student may have problems in using indexes, and catalogues. For instance, a three to five minute film or slide programme on indexes, on public catalogue and on other collections be prepared. Third, a video, film, slide presentation be prepared to explore and to instruct in the information

resources and systems of a single subject, say, material science, architectural design, showing the indexes, handbooks, films, newsletter, the major centres or laboratories, and informal communication structures of the subject. The user should also be able to walk away with a brief and concise document, somewhat similar to Library Pathfinder, developed by project Intrex at M.I.T.

63 REFERENCE AND INFORMATION SERVICE

One of the areas to orient the library to the users is the Reference and Information Service. `Respond-when-asked', is highly restrictive approach. At the reference desk, we can attest, a fairly large number of questions are frequently directional only, which can be answered by a non-professional. This role can be assigned to some students. These students can pass on difficult questions to library staff. With this, the student, especially non-user of libraries, will go to their peers to discuss their problems, with more ease and rapport than with professional staff. Such students who work can be given some stipend or some hourly wages. How can we assure that there will be some continuity of available service, without restricting the students to specific hours? This can be done either by making a chain of the students themselves or the service can be restricted, to only a few hours during working hours, depending on available manpower.

64 DISPLAYS

"The display is communication channel often relegated to a minor role in libraries. Its function is well understood by advertising agencies.[11]" Students should be offered this opportunity to solve problems in the visualization of verbal concepts by constructing some display media. Student members of Library Users' Forum at TIET are taking lot of interest in this activity by making posters for display inside and outside the library. They are planning a bulletin board for publicising new library materials received or about new or old services.

7 PREMISE-III CHANGE OF IMAGE OF LIBRARY

The image of the library as a single place or building must be changed.

71 STUDENT REFERENCE ADVISERS

To make the library centre available and visible outside the physical building labelled "Library", Taylor suggests that there should be student reference advisers in the hostels. "These student advisers would be thoroughly instructed in reference interviewing, in sources and resources, and in the variety and forms of media available in the library. They may be given a very small set of reference materials and any other form of support (of films,

subject guides) we fell would help them[12"]. Small training manuals can be developed. To give status and reputation to such adviser students, announcement and advertisement can be done, so that other students may recognise them as information resources and advisers. Such students will serve a few hours each week at in-house reference service. They would receive a small stipened. This suggestion is worth giving a trial.

72 USE OF INFORMATION & COMMUNICATION TECHNOLOGY

Librarians must take lively interest in the technologies of communication, data storage, retrieval, information transfer, in short, in all those technologies which show promise of encouraging and assisting valid educational change and improvement. The range of options that the electronics, computer, and communication technologies offer now to the librarians, were never available before. Local Area Networking (LAN) and Wider Area Networking (WAN) will bring out any library participating in local, regional, national and international networks, out of the confinement of its four walls. A library is not shelves of books, it is a process, it is communication in print, and today we must add, in sound and in image.

8 CONCLUSION

Unless a conscious attempt is made to mend the library with the totality of community and institutional change, it will become an increasingly expensive and less effective appendage to the institution. We may try to erase from our minds everything we know or imagine about a library, to see if the library could be rebuilt within the context of the messages and communication on the campus, besides being society's memory.

81 USE OF TECHNOLOGY

It is very essential for librarians to realize that technology can do much to enhance, display, and present recorded experience in ways never before available. Technology must be used to support humanistic ends, not as an end in itself. Somehow we must find the mixture of tradition and technological innovation that will allow the evolution of a new type of institution befitting the 21st century, wherein use of library will not only mean reading, but also seeing, listening and communicating. In any case, whatsoever approach we follow, student participation through some kind of library forum will always be relevant and helpful.

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COLLEGE LIBRARY SYSTEM
A Critical Evaluation of VP Joy Committee Report

N PARAMESWARAN*

0 LIBRARY'S ROLE

The quality of teaching and learning in a college is dependent on the quality of its library service. College education requires the assimilation of vast amount of knowledge. Class room teaching can only serve a small part of the requirement, since it can only give the students an outline of what to know. Students need efficient library support to form their own judgement, and teachers to become up to date in their field and to the effective.

01 COLLEGE LIBRARIES

The importance of libraries in higher education has been widely recognised by various education commissions and committees. Eventhough Kerala Government has undertaken many measures to increase the standard of education in colleges, college libraries in Kerala received little attention till recently. Most of the college libraries function without the seprate buildings or sufficient space. They lack standard book collections on which library services are to be based. Sufficient qualified staff is also not available. Teaching departments share among themselves grants received for library development and utilized them unscientifically. College libraries remain as unncessary appendages. This dismal state is mainly due to the following reasons.

011 Class Room Culture

First is the defective `teaching-learning method' followed in the colleges. Classroom lecture and providing out dated `notes', remain the main method of teaching in colleges. Student remains the passive listener and lays emphasis on taking down notes, memorising and reproducing it in the exams. In such a system both teachers and students require no library service.

02 LIBRARY STAFF

Second is the staff pattern in college libraries of Kerala. Eventhough UGC Scheme was implemented for teachers and librarians in Kerala in 1990, Government sanctioned the UGC Scheme only to Chief Librarians of

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colleges having more than 15000 books in the central library; a criteria which UGC has never dreamed of. Level of courses offered and student strength was disregarded. So seventy five percent of the colleges conducting Degree and Post graduate courses in the state are manned by 'under-qualified' staff with the following qualifications Grade and status as the only available professional or semi professional staff.

Designation and Scale of pay	Qualification prescribed	Equal position in state service
Librarian Grade IV Rs 1125-1720	SSLC & CLISc	1 Store Keeper 2 Gate Keeper 3 Typist Grade II

This can show the mature services of those college libraries.

1 EXPERT COMMITTEE

In 1993 Government appointed an Expert committee on College Libraries with Sri VP Joy IAS the Director of Collegiate Education as Convener, to study the functioning of College libraries in the state and to suggest suitable measures for their improvement. The committee collected data from all colleges using a questionnaire. Detailed spot study of selected colleges in different regions of the State was also conducted. This paper is aimed mainly to look into the various aspects the Committee has studied and to see how far the recommendations affect the present day library set up. It can be seen from the Report that the Committee concentrated mainly on the three points.

1 General improvement of the College libraries so as to inculcate wide reading habit and love of books among all students.

2 Procedural improvement, which should suggest measures to ensure planned development of college libraries to modernise membership procedures, issue of books, purchase of books, library equipments etc.

3 Improvement of technical aspects, suggesting ways and means to ensure need based organization of college libraries, to make them dependable for the information support required for teaching–learning process in colleges.

2 RECOMMENDATIONS

"If the colleges are to take maximum possible advantage of the developments in library profession to eploit available resources in their libraries to the greatest benefit of the teachers and students, it is to be ensured that colleges have efficient library systems and qualified and experienced librarians

capable of interacting with teachers and students effectively to direct the policies and regulate resources of the library towards the needs of teaching-learning process in the college".[1]

Taking into consideration the various aspects mentioned above the committee has made recommendations on a number of points. All the recommendations are welcome, since these are mainly aimed at the development of the college library.

31 GENERAL IMPROVEMENT

The Committee has identified a number of factors which act as a hindrance to the effective functioning of a college library. They include:

(a) Teaching techniques that confine studies to class room lectures,

(b) Lack of quality and relevances of book collections,

(c) Lack of awareness about library services available,

(d) Inability of library staff to understand and cater to the needs of the students,

(e) Poor organisation of materials,

(f) Opening hours not in conformity with `out-of-class hours', and `self-study timinings', of students,

(g) Lack of facility for or initiative of the librarians to associate with or organise cultural and literary programmes, competitions, discussions etc and participate in the life of the campus.

32 COLLECTION DEVELOPMENT

For the general improvement of the College library the Committee recommended that:

(1) Teaching techniques should minimise ready made `notes' and should give `assignments' that will make it essential for the students `to prepare their own notes' by getting the necessary reading materials from the library.

(2) For improvement of the basic collection in a college library the committee recommended that "Colleges at the initial stage of developing their book collections, should give preference to the items required for the basic collection, over other titles, till a sufficient balanced collection is built up".

(3) Library's physical environment should be inviting by functional arrangement of furniture and standards established by Bureau of Indian stan-

dards should be strictly adhered to for all purchases of library equipments. Necessary space should be available for students and teachers in the reference room and reading room.

(4) For creating Library awareness among students and teachers, brochures or guides giving details of collection available in the library and various services offered should be issued.

(5) Sufficient number of fully qualified staff, who can understand and respond to the information requirements of students and teachers, and help the students with sympathy and understanding, to the selection of reading materials and in information search should be appointed in college libraries. The collection should be properly catalogued, classified and arranged in order. The committee also recommended that library should function from 8.30 am to 6.30 pm, in two shifts, so that students can use the library, more during out-of-class-hours. Every college should provide Ready and long range Reference Services, SDI, CAS etc.

33 LIBRARY FINANCE

The present day set up of the college libraries in Kerala do not present a pleasant picture. Due to various factors most of the college libraries in the state are not in a position to render all the services which a college library is expected to perform normally. The factors may vary from college to college. The ultimate result is a poor performance by the college library. The overall atmosphere gives a disheartening feeling on the part of the college librarian. His hands are tied and he is not in a position to do justice to the community to which he is supposed to give the best services. Most of the rules presently followed in a college, does not permit the librarian to have a free hand or to perform his duties to the utmost satisfaction of the clientle. The recommendations of the committee will help to improve the situations of the college library. But the Committee has not taken into consideration `the financial aspects' for developing a basic collection in a college library. The Government should provide necessary additional finance wherever required to improve the basic collection of a library. At present only Rs 2/- is collected as library fee. This is a very small amount. The cost of books and journals have gone up very high and it is not possible to purchase documents needed for a library with the available finance. So library fee should be enhanced to Rs 15/ - and Rs 25/- for junior colleges and Post Graduate Colleges respectively. The finance thus collected should be distributed among the college libraries as per their requirements. There should be a library committee appointed by the Govt which can assess the requirements of various colleges and recommend as to what books and other documents are to be purchased in each college library.

4 PROCEDURAL IMPROVEMENT

41 BROWNE NEW YORK SYSTEM

The procedures followed for library membership and issue and return of books, lacks uniformity and efficiency. Most of the colleges follow the Register system for the issue and return of books. This is a laborious process. But this process is presently essential to satisfy the Audit people. The committee has recommended for the introduction of 'Browne' or 'Newyork' issue system using cards. This will help to serve the student in a speedy and efficient manner.

42 BOOK SELECTION AND PURCHASE

"Book selection and acquisition is a professional work requiring specialisation and should be done only under the supervision of qualified professionals". The committee has recommended the procedures for scientific need based book selection and acquisition in a college. The recommendations of the commitee is based on the general principles of book selection. It is absolutely essential that these are strictly followed in all the college libraries. Librarian is at present in utter darkness. He is never consulted in the book acquisition process, though he is the apt person who does have a knowledge of all the materials needed for his library. The college librarian should have a voice and control in all the matters relating to the book selection and acquisition of books needed for the college.

43 IMPROVEMENT OF TECHNICAL ASPECTS

Quality of library and information services offered in a college depends mainly on the position of library in college's structure, quality and quantum of staff available, the organisation of materials and such other technical factors. The present day set up does not present an identical staff structure in the college. Even after the implementation of the UGC pay structure, majority of libraries are manned by undergraduates.

431 Status of the library/Librarian

A college library is expected to support the objectives of the college. The basic function of a college library is to assist its parent body to carry out its programme. In order to serve the student-teacher community to their fullest satisfaction the librarian should have the managerial skills and abilities. He should be a person with high academic qualifications like other heads of the departments of the college as recommended by the UGC. Then only he will be given the due recognition that is long over due. Hence the Committee has recommended that college librarians should be given academic status (non-vacation) and to bring the `Librarian' also under the definition of teacher as

done in Madurai, Madras and other University Acts.

432 Secretary of Library Commitee

The committee also recommended that librarian's membership in college council is necessary for his participation in shaping library policy. The committee recommends that to advise and recomend on all matters related to the organisation and service of the college library, a Library Advisory Committee should be constituted with the College Principal as the Chairman and College Librarian as Secretary of the Committee. This will give the librarian to have a voice on all matters relating to the development of the college library.

433 Member of PTA

The librarian should be treated on par with teachers. He should he directly responsible only to the Principal. As recommended by the Committee Library Advisory Committees may be constituted in all colleges. The librarian should be a member of the Parent Teacher Association. Parent Teacher Association play an important role in the development of the College. So if the Librarian is made a member of the PTA, he can have an interaction with the public as well and convince them the basic needs of his library and get necessary help from the PTA fund as well.

44 GRADING SYSTEM FOR COLLEGE LIBRARY

The number of books etc are the criteria used at present in the College Libraries to decide the grade of the libraries and the librarians. But this is not the only factor relevant for fixing the grade of the librarian. To develop a college library the services of a professionally qualified librarian is essential. But since the present method does not take into account the essential elements which are to be taken into consideration, it is most likely that a lower grade librarian with SSLC and CLISc only is posted in a college. The prescribed qualification for such a post is not sufficient for healthy up bringing of the library into a suitable service institution. The committee has observed that this is the most important cause for the continuance of the College library as an inefficient organ of the college. The committee has recommended that, irrespective of the grade of the college, or its library or the user strength, a librarian with high academic qualification, scale and status should be posted at norms to be applied for upgrading a library or librarian is vague. I am of the view that in all the colleges at least one librarian with UGC status should be posted, and wherever this is not possible at present, the librarians in the immediate lower grade may be upgraded, and given the status of the UGC qualified librarians. The librarian who does not have the required UGC qualification, may be given all facilities for improving their

qualifications as in the case of teachers.

441 Staff Pattern

The recommendation to reduce the number of grades from 4 to 2 is to be welcomed and supported. But as mentioned earlier in all the colleges getting UGC assistance, a librarian with UGC status should be posted. This can be done in a phased manner and until then the two grades now recommended can be continued. The staff formula recommended by the committee for the supporting staff, is definitely a deviation from the present formula and it is to be welcomed. But I am of the view that 50% of the supporting staff in a college library should be professionally qualified with a basic degree and degree in library science. Then only the information services recommended by the Committee canbe performed by a college library.

442 Departmental lirbaries

The committee has recommended for a centralized library system in a college. This is very essential for avoiding duplication in the purchase and for the proper utilization of the funds and materials, needed for proper library service, available in a college. But this will be an additional burden on the librarian and his responsibilities will be doubled. In order to achieve all the services anticipated of a college library, it is absolutely essential that more professionally qualified persons are posted in all the college libraries. As mentioned earlier in most of the college libraries the chief librarians available are under-graduates with SSLC and certificate course in Library Science. When the Dept Libraries are abolished the non professional staff also will be posted to the main library. This is not a healthy atmosphere to provide all the information service envisaged of a college library. Existing pattern ofSupporting staff is based entirely on the number of books and number of issues.

443 New Staff Formula

The new formula recommended by the committee viz.

$$S = A + 10 (B) + 50 (X + Y+Z+T+D)$$
$$10000$$

is a clear deviation from the present method.

S = Total number of staff excluding the chief librarian
A = Pre-Degree students, B= Degree students
X = Post Graduate students Y = M Phil students
Z = Research Scholars, T = Teacher and D= Documents books and non book

But the committee is of the opinion that available undergraduates should be given in service training. But as stated earlier I am of the view that 50% of the supporting staff should be professionally qualified.

444 Audit

The present auditing system followed in our college libraries give much hardship to the libraries. In Government administration `Library' is treated as a part of the store. Because of this, auditor insists that the working of the library should be governed by the financial rules in force in the state. These rules are now applied in the case of library audit to matters like (1) purchase (2) maintenance (3) issuing (4) accounts and inventories (5) stock verficiation (6) write off or recoveries and fixing the responsibility of loss. Rules may be framed to simplify the above procedures.

445 Loss of Books

Regarding the loss of books and librarian is held responsible. The Committee has recommended that loss of three volumes per thousand books issued, consulted may be taken as a reasonable loss. Loss of any title costing not more than Rs 200/- should be written off. But the amount recommended by the Committee is very low. It is suggested that loss of any titles costing Rs 1000/- should be written off during one academic year.

5 CONCLUSION

This report of the Expert Committee on College Libraries has taken into consideration all aspects needed for the proper development of a college library and to provide the best information Services to its clientle. The report has been already submitted to Govt and the Govt is seriously considering its implementation. Since the report has been framed mainly by non librarians under the leadership or Sri VP Joy; the overall progressive attitude shown by the committee is to be welcomed. If the Report is accepted by the Govt and the recommendations implemented; there will be tremendous change in the entire scenario of college libraries in the state. Let us hope that there will be a positive thinking on the part of the Govt of Kerala. It is for the first time that in any state the services of a college library and services of a college librarian are recognized. The committee has recommended teacher status to the librarian and has suggested to treat him on a par with teachers. The recommendation to include the librarian in all the college committees will give the opportunity to the librarians to have a close contact with teachers and students. The acceptance of the recommendations will give the college library and librarian the acceptance which is long over due.

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CULTIVATING READING HABIT

NM MALWAD*

1 INTRODUCTION

11 READING FOR RESEARCH

Perception of the twentyfirst century is guided by the latest technological developments. Information technology in particular, is changing libraries significantly. The familiar print material is being replaced with magnetic, electronic and optical disks, disketts and such other forms. With the increase in these non-book material, which is associated with a number of machines, drives and displays, the human beings are still likely to continue their habit of reading. Whether it is a display screen, a computer printed page, a xeroxed copy from an ultramicrofiche or a printed page, the `reading' of it is not going to disapper. Hence, promoting reading habit, is and will be, of concern in the twentyfirst century too.

12 READING FOR ENTERTAINMENT & NEWS

Furhter, with the invasion of television, cable TV, video cassetts, etc threatening to smash down the very foundation of "reading", it becomes more than ever before necessary to study, the various aspects of the topic of cultivating the reading habit.

13 SCOPE OF TITLE

Let us look at the three key words in this topic, namely, Cultivating, Reading & Habits. *Cultivating* is largely used in the agricultural context which means to prepare and use land, soil, etc for growing crops. Similarly, the word is also used to make the mind, feelings, etc, more educative and refined. Hence, we talk about cultivating friendship, cultivating relationship, cultivating good manners and cultivating reading habits.

131 Reading

Reading, the key word denotes action of a person who reads generally books, newspapers, etc, which are intended for reading. Reading is normally for understanding, gaining knowledge or entertainment. Since reading is a process which is related to the library science, I will deal more about this later.

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132 Habit

The third key word, *Habit*. It means thing or things that a person does often and almost without thinking–sometimes a habit formed is hard to stop. For example: we may say that Mr X has the irritating habit of smoking during meals.

14 CULTIVATING, READING HABIT

Hence, the topic is concerned with preparation of the mind, making it more educative and more refined, to form a habit of reading.

15 MULTIFOCAL QUESTIONS

The question surrounding this topic may be many. Some of them are what is reading habit? Is it necessary to have a reading habit? How to cultivate a reading habit? Who should cultivate reading habit? What helps in cultivating a reading habit? What deters in cultivating a reading habit? Or in other words, what are the barriers in cultivating reading habit? Generally, habit leads to addiction. Hence, the addition to reading, is it bad or averse? and finally does library play a role in cultivating a reading habit?

2 AS SUBJECT IN L&IS

The library science or librarianship deals with various subjects such as library management, organisation of knowledge which includes classification and cataloguing, bibliography, library in society and it also discusses documents, the generation of information sources, guides to literatures, literature survey, bibliographies, communication channels, etc. In the same context it is necessary to have the subject of `reading' which should include all facets of reading. Reading is a process of word perception, comprehension, reaction and assimilation. Teaching of reading ie, how to read and how to read continuously, what to read, where to find it, how to locate it, how to use it, how to cultivate reading habit, etc has to be considered as a subject of library science.

3 PROCESS OF READING

The *Encyclopaedia of Library Science* defines `Reading' considering differentiation between the physical act of reading (of using one of the senses) and the interpretive or meaning–attached aspect of reading. Regardless of the sense used by an individual to read, the significance of the reading activity is comprehension or meaning. This part of reading takes place in the brain. The eyes, ears or fingertips used by readers, are merely the receptors and channels used to feed the brain, the unprocessed information.

31 PROCESS BREAKDOWN

A simple model of reading process has four aspects:

1 Word perception 3 Reacton

2 Comprehension 4 Assimilation

311 Word Perception

These four aspects are not entirely discrete and sequential, rather they are to be seen as more or less simultaneous with indistinct and over-lapping boundary. The first aspect which is relatively a simple act of perception, ie, of seeing letters, words and phrases.

312 Comprehension

The second aspect of comprehension is somewhat a less simple process, of deriving a literal meaning, from what is being perceived. Infact, what is taught in school as reading is the acquisition of this basic skill.

313 Effects

The third and fourth aspects are the after effects of the reading. Sometimes it may result in producing more documents.

4 READING MODEL-OBJECTIVES

The intermediate and advance skills in reading as summarized by Arthur Gates[4], including the following objective considerations:

* Reading to get the main idea
* Reading to note and remember precise direction
* Reading for evaluating the material
* Reading to produce a summary of the content
* Reading to produce an outline of the content
* Reading to compare what is read with other things
* Reading to draw conclusion or make predictions from the ideas given in the material.

41 INTER PERSONAL COMMUNICATION

The basis of the communication, when we consider a reader, engaging with a text, we are considering an example, of interpersonal communication. A text is a message. The study of communication concerns materials, their senders, their receivers, and the relationship between the three. It concerns incoding and decoding, exchange and transaction, the setting of the commu-

nication act. Hence, the basic communication model remains in the form of a triad, which includes transmitter, message and receiver. A model of the reading process which makes the reader, the subject, can be expressed as follows:

1 A reader finds a text

2 He reads the text

3 He uses the message "or not" as the case may be.

To expand these a little:

(1) A reader having certain drives and goals finds a text which he has reason to believe, may satisfy him;

(2) He reads the text by performing certain perceptual and cerebral operations;

(3) He uses the message, "or not as the case may be", in as much as it can be accommodated in his scheme, and is found to be relevant to his needs.

Hence, it is better to study the reading process by examining reading acts in terms of the model,

Reader Finds - Reads - Uses

In other terms, who finds what text, what needs does he have, which he thinks it will satisfy, why does he think so, what kind of reading operation does he perform on the text, and what does he take from the text. Based on these queries, Frank Hatt in a lucidly reading book, "The Reading process: a framework for analysis and description",[5] has identified a six point reading model as:

1 who is the reader?

2 what does the reader want?

3 what is the text?

4 how do the reader and the text are together

5 what is the nature of reading

6 what ensues from the reading

5 READING AND ITS CHARACTERISTICS

While considering the first point, namely, `who is the reader?' the four attributes of the reader may be identified as:

(i) Literacy

(ii) Access to reading matter

(iii) Certain minimum environmental conditions

(iv) Time to read

In other words the reader, in an existential reading situation, is a person who is literate, has gained access to this text, has the minimum required environmental condition to sight physically the document, and time now to read, and further chooses to take the opportunity to do so. These four attributes can also be seen as barriers to reading. A person who is illiterate cannot read. The book kept in inaccessible condition cannot be read. The environmental conditions may not permit the reader to read. For example, A student takes the book home, suffers a power cut and sits in the dark waiting in vain, for the supply to be restored.

6 ROLE OF LIBRARIES

The libraries no doubt, have to play a role in cutlviating reading habit and sustaining these habits.

61 READING MODEL FOR OPERATIONAL APPLICATIONS

The first operational use of the reading, is to use the insights from the various fields and to question some standard library assumptions and procedures. For example, if we consider `What is the text?' in the light of content analysis (Bernard Bereson)[1], readability studies (Brian Cane and Jane Smitters)[2], bibliopsychology (Vernon, MD)[10], etc, we may conclude that classification, subject indexing and bibliographic descriptions are reductive practices. We might consider new, additional ways of presenting and describing the contents of our libraries.

611 Choice/Suitability

The second operational use of the reading model is to consider "What does the reader want?" in the light of motivation studies and what we can discover of the formulation of goals. It may help to revise our ideas about the signposts, or clues for relevance, whereby we make matches between readers and texts. This might also help to revise our ideas about "user satisfaction" and "failure".

612 Formal & Informal

The third possible operational application of the model would be to take a model of communication and explore the idea that formal and informal communications are part of the same system. This might lead to a revision of

ideas about users' education. The libraries normally initiate their users with some kind of introductory lecture series on "the use of the library and sources of information". This epitomises and perpetuates the view, that there is a system of formal communication on one hand,and a system of the user's behaviour on the other, and a librarian is mediating between the two.

62 READING MODEL FOR OBJECTIVE APPLICATIONS

The reading model is used for goal-directed applications. This provides an order and a shape to the body of knowledge covered in several overlapping areas by the specialisms; to relate them to each other in a meaningful way so as to highlight the reading act. It is generally believed that topics such as `mass communications' and `content analysis' are relevant to the study of reading.

621 Content analysis

The two application models, namely, extensive application, model and intensive application model are discussed in detail by Frank Hatt.[5] He shows content analysis is relevant to bibliopsychology and how to structure he has used is relevant to reading. This way of using the reading model, to relate wide areas of knowledge, he calls it "extensive".

622 Intensive Application

By contrast, his "intensive" application of the reading model refers to suggesting topics and precedures for future inquiries into reading. It may help researchers in their clarification of the kind of questions they are really interested in asking, it may help them in their overview of the knowledge they already have, and it may help them in their choice of investigative method.

63 GENERAL METHODS

The general methods used by librarians for finding out about the reading act are: observation; analysing library records; questionnaire; interview; asking readers to keep dairies and other records of their own behaviour. Each of these has its own methodological problems, and certain methods of investigation are quite unsuitable for certain areas of enquiry. For example: one cannot use library records or direct observation, to make discoveries about readers' needs or goals. It is, in fact, much easier to find out about readers and texts than about needs, goals, clues, processes and results.

64 SPECIFIC READER & PARTICULAR TEXT

One thing that is made clear in the Hatt's six-point model is the sheer complexity of the reading act. The six questions indicate that there are six

variables, and the change of gaining insight into any one of them would appear to be slender, if there are queries attached to the others. It seems that there is little point in asking, as people do from time to time, "why do people read?" or "what effect does reading have an people?". These questions are will worth asking, but, this being so, they are worth asking will. We must learn to ask, not why people read, but why a specific person reads a particular text: and we must expect our answer to be inadequate, if our descriptions of people and texts are inadequate. We must learn to ask, not what effect reading has on people, but what appears to ensue from a particular reading by a selected text; and we must understand that the outcome would have been different, had the reader's needs and goals been different. Considering the context, librarians should ask the right questions in the right way to find answers.

7 LIBRARY'S ROLE IN LITERACY

Library has to be involved in literacy as part of a growing national movement by:

–providing adult, new-reader reading materials

–space for community programmes

–information and referral sercice

71 HOW TO PLAY EFFECTIVE ROLE

Present day national scene, shows that there is national awareness that has awakened a new sense of urgency within libraries, that leads to more active involvement. Literacy has become an important theme of both State and Central government, and it is and it will be a major focus of all Indians for some more years to come. Librarians can play a better role in the movement of eradicating illiteracy if the following requirments are met:

1 improved coordination of literacy related activities at central, state and local levels. Policy makers have to build an infrastructure for better coordinated delivery of literacy services, libraries must promote their mission as an acknowledged and integral part of the educational community.

2 libraries are to be encouraged to expand opportunities for adult learners through new technology. The impact of technology on access to information, has widened the gap between those who can read, process, and understand information and those who can not.

3 providing programs that combine efforts to improve basic skills of adults and their children.

4 improved evaluation of library based programs–to demonstrate the impact that library programs make on the lives of learners in our communities.

5 libraries should work to support efforts for work force literacy .

6 respond to the needs of learning disabled adults

7 provide service to a population that is disenfrachised by the traditional educational systems.

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EVALUATION OF LIBRARY & INFORMATION SCIENCE DEPARTMENTS OF THE UNIVERSITIES OF INDIA

ABDUL MAJID BABA*

1 INTRODUCTION

I was able to recognize 112 institutions (including universities, colleges, polytechnics, associations and other centres) which offer training in library and information Science at various levels. There are 80 university Departments imparting education in Library and Information Science leading to Bachelor of Library and Information Science leading to Bachelor of Library and Information Science (BLIS), out of which 55 are offering Master of Library and Information Science (MLIS) courses, while 9 Universities have facilities for Master of Philosophy (M Phil) in Library and Information Science. As many as 40 Universities have initiated Doctoral Studies (PhD) in Library and Information Science. Ten Universities have started Library and Information Science Training programmes at various levels through Distance Education Programmes. There is a proliferation of schools at undergraduate level also which are being run by the professional Library associations, polytechnics, colleges and other organisations. There are 3 Documentation centres conducting specialised training courses in the field of Information Science, Documentation etc.

2 NOMENCLATURE OF THE DEPARTMENT

In most of the universities, the department of Library Science are known by *"Department of Library and Information Science"*. The content of library and information Science is present in almost all the universities. Certain departments are having the nomenclature as under:

(*i*) Department of Library Science and Documentation
(*ii*) College of Library and Information Science
(*iii*) School of Library and Information Science
(*iv*) Institute of Library and Information Science
(*v*) Library and Information Science PG Centre
(*vi*) Department of Studies and Research in Library and Information Science.

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(*vii*) Faculty of Library and Information Science

(*viii*) Library Science Training College

(*ix*) School of Studies in Library and Information Science.

3 YEAR OF ESTABLISHMENT OF THE LIS DEPARTMENTS

I have observed that there was single department established in 1930's; 4 departments in 1940's; 7 departments in 1950's; 28 departments in 1960's; 20 departments in 1970's; 33 departments in 1980's and few departments from 1990-1993. (These departments include universities, colleges, polytechnics etc). This indicates that much growth of LIS school has taken place in 1980's.

4 FACULTIES TO WHICH LIBRARY AND INFORMATION SCIENCE DEPARTMENTS ARE ATTACHED IN THE UNIVERSITIES

The most of the LIS departments are attached with the Arts Faculties of the Universities. Then comes the Faculty of Social Sciences to which are attached certain LIS departments in certain universities. In India there are only 3 departments attached with the Faculty of Sciences. In few Universities there are separate LIS Faculties. Certain departments are attached with the faculties like Arts and Commerce; Arts, Commerce and Fine Arts; Arts and Language; Science and Technology; Arts and Social Science; Social and Behavioural Sciences; Education, Library Science and Journalism; Education.

5 NUMBER OF FACULTY MEMBERS

In most of the LIS Departments, the Professor Posts are not available. In certain departments where the Professors are available, the number ranges from 1-4. The highest number of Professors are available in Delhi University, ie., 4. Then comes Banaras Hindu University, ie., 3. The number of Readers ranges from 1-5. The highest number of Readers ie., 5 are available in Karnataka University. The number of Lecturers ranges from 1-7. The highest number of Lecturers ie., 7 are available in the University of Calcutta. In certain departments in addition to fulltime faculty members, there are Guest Lecturers, Part-time Lecturers, visiting Fellows, contributory Lecturers, Research Associates etc.

There are certain departments where no fulltime faculty members are present and the classes are taken by the part-time faculty members.

5 FULL TIME HEAD

In almost all the LIS departments there are full time heads, but there are few Universities where there are no full time heads eg., Bhavnagar Univer-

sity, Marathwada University, Mohanlal Sukhadia University, University of Jammu, SNDT Women's University. In these Universities the University Librarians act as Head of the LIS departments.

6 NUMBER OF SEATS

The number of seats at different levels vary from department to department. The number of PhD Scholars depends upon the number of supervisors available in the department. The number of M Phil Scholars range from 3-10. The highest number of MPhil Scholars are present in Andhra University. The number of MLIS students ranges from 10-30. The number of BLIS students ranges from 5-100. The lowest number is available in the Directorate of Education Andaman and Nicobar; the highest number is available at the University of Calcutta. In IGNOU, the number of BLIS students is 800 doing their BLIS through distance education.

7 ADMISSION REQUIREMENTS

The admission requirements in general for different levels of courses is as under:

Ph D: MLIS 55% marks

(In certain University it is (*i*) MLIS; MPhil (*ii*) MA; MLIS (*iii*) MPhil or MLIS plus 8 year experinece (*iv*) MPhil or MLIS (*v*) MLIS plus 5 years library experience)

M Phil: MLIS 55%

(In certain Universities there is entrance test also)

MLIS: BA, BSc, BCom with a degree in Library Science.

(In certain Universities there is entrence test)

BLIS: BA, BSc, BCom

(In certain Universities there is (*i*) Entrance test, (*ii*) MA desirable, (*iii*) Library experience).

Associateship Course: (*i*) A post-graduate Bachelor's Degree in Library Science (BLib Sc/BLIS) or (*ii*) A Master's Degree in any subject/a four year plus degree such as BE; MBBS etc and at least two years library/ documentation/information handling experience.

Diploma Course: Matriculation/Higher Secondary;

Certificate Course: Matriculation/Higher Secondary.

8 YEAR OF STARTING OF THE DIFFERENT COURSES

There is hardly any University where both BLIS and MLIS have been

started at a time. Most of the Universities have started MLIS course in 1980's. Regarding MPhil Programmes it all started first by the University of Delhi in 1978. In 1980's it was started by Andhra, Gulberga, SK University. In 1990's it was started by Aligarh, Usmania, Ravishanker, Sambalpur, Kashmir. Before 1970's there was single University ie., University of Delhi which initiated PhD in Library Science in 1954. In 1970's there were few more universities including Andhra, Gulberga, Karnataka, Punjab, Bombay, Mysore, Rajasthan. The maximum growth in initiating the PhD Programmes in LIS by the Universities has taken place in 1980's.

9 DURATION OF COURSES

The duration of courses in general for different levels is as under:

PhD	:	Two to three years
MPhil	:	One to one and half years
MLIS	:	One year
BLIS	:	One year
Associateship	:	Two years
Diploma Course	:	One to two years
Certificate Course	:	Six to twelve months.

(In Madras University there is two years integrated MSc Programme; Andhra University is planning to start two years integrated MLIS programme; Karnataka University has discontinued two years integrated MLIS from 1993-94)

91 STARTING OF THE ACADEMIC SESSIONS

Regardin the PhD, it depends on the meeting of the Board of Research Studies of the respective Universities.

The academic sessions for all other courses generally start during July/ August every year in almost all the Universities.

92 RESERVATION OF THE SEATS

In almost all the Universities there is reserved quota of seats for the different categories of students such as, inservice, freshers, schedule castes/ schedule tribes/ backward classes, sports, handicapped etc.

93 ANNUAL TUITION FEE ETC

The annual/registration/examination fee vary from department to department. In certain departments the tuition fee is paid monthly and yearly. Where there is semester system, it is paid semesterwise.

94 REVISION OF THE CURRICULUM

Regarding the revision of curriculum, it varies from 2-5 years. In certain departments there is no fixed duration for the revision of the curriculum.

95 COURSE CONTENTS

The course contents at different levels are generally as under

Certificate Course

(*i*) Library classification (Theory and Practice)

(*ii*) Library cataloging (theory and practice)

(*iii*) Library Management

(*iv*) Bibliography

(*v*) Reference Service

Diploma Course

(*i*) Library Classification (Theory and Practice)

(*ii*) Library cataloging (Theory and Practice)

(*iii*) Library and Society

(*iv*) Library administration

(*v*) Reference Service

(*vi*) Bibliography

BLIS

(*i*) Library Classification (Theory and Practice)

(*ii*) Library Cataloging (Theory and Practice)

(*iii*) Bibliography

(*iv*) Reference Science

(*v*) Library Administration

(*vi*) Documentation

(*vii*) Library and Society

MLIS

(*i*) Universe of Knowledge

(*ii*) Depth Classification (Theory and Practice)

(*iii*) Advanced Cataloging (Theory and Practice)

(*iv*) Different Types of Library Systems

(*v*) Literature Survey in Different Disciplines
(*vi*) Research Methodology
(*vii*) Information Storage and Retrieval Systems
(*viii*) Project Report

96 DEVIATIONS

There are some universities where we observe some different papers at BLIS and MLIS level. Following are few exmaples:

Bachelor of Library and Information Science

Mysore University	:	Rural Library Service
University of Poona	:	Philosophy of Librarianship
University of Rajasthan	:	Comparative Librarianship
SNDT University	:	History of Books and Printing
IGNOU	:	Computer Basis and Application

Master of Library and Information Science

Bombay University	:	Current Development in Library Science
Calcutta University	:	Library Services for Children
University of Poona	:	Comparative and International Librarianship
University of Mysore	:	Comparative studies in Librarianship
IGNOU	:	Information Communication and Society; Information Sources, Systems and Programmes; Information Processing & Retrieval; Information Institutions, Services and Products; Application of Information Technology; Preservation & Conservation of Library Material; Technical writing.

97 STUDENTS ASSESSMENT

(1) In most of the universities there is an annual system of examination both for BLIS and MLIS where as in few universities there is semester system.

(2) The medium of instruction in most of the universities is English. In

Madhya Pradesh the medium of instruction is English as well as Hindi. The regional languages like Telugu, Marathi, Gujarati, Bengali and Punjabi are mostly used as medium of instruction.

(3) In most of the universities there is provision for educational tour for BLIS and MLIS students. In certain universities the tour is compulsory for both the courses, where as in certain universities it is compulsory only for BLIS students.

(4) The assessment of the students is mainly based on written examination, project work and term papers. In certain universities there is also provision for tours and visits, practical hours, orientation programmes and internships.

(5) The minimum attendence required for appearing in the examinations varies from 60% to 80% at different levels.

(6) The minimum percentage alloted for the internal assessment varies from 20% to 50%. The percentage of marks required to pass each paper and percentage in aggregate varies from 35% to 50%. In certain universities the percentage to pass the theory and practical papers varies.

971 Provision For Failed Students

The provision for the failed students very from university to university. Following are the provisions for failed students in certain universities:

(*i*) To appear as Ex-student

(*ii*) The student has to repeat the course in full if failed three times

(*iii*) To be readmitted

(*iv*) Re-appear in all the papers

(*v*) Supplementary examination

(*vi*) Re-appear in the failed paper.

98 TEACHING METHODS

The most commonly used method of teaching is Lecture method. In certain departments lectures are reduced to a minimum. Here the teaching programme includes class discussions, tutorial work, group discussions and project work. This ensures active participation of the students in the learning process.

In certain universities at the Master's level there is a paper on "Computer Application in Libraries", students who opt for this paper, hardly get any chance to use the computer. There are only few departments where the computer facility is available. In most of the universities, the situation is depress-

ing. Here, not even simple audiovisual aids like microfilm readers, overhead projectors, are available to help in the teaching work.

99 GOVERNANCE

There are only few departments who have the powers to make the purchases of books, journals and printing/furniture items.

There is hardly any department where the supporting staff like departmental librarian, Section Officer, Assistant Stenographer, Library Bearer, are present. We can have the example of Delhi University where all the supporting staff is present. In most of the departments there is no supporting staff and where it is present, it is either assistant, or Library Assistant or Peon or Sweeper.

In most of the departments there are departmental committees present. There are few departments where students participation is in the departmental committee such as Jadavpur University, North Eastern Hill University and Usmania University.

99 FINANCIAL POSITION

There is hardly any department where the grants for the purchase of books/journals are sufficient. There are few departments where the grants are moderate and the majority include the departments where the grants are insufficient.

991 Physical Facilities

Regarding the physical facilities, the conditions of the most of the schools is worse. There are only few departments in the country having its own building such as Khrukhshetra University, Sambalpur University, Training College Pachmari (MP). There are only few departments having moderately sufficient accommodation though they are not having separate buildings of their own. There are departments where there are no independent rooms for the faculty members. There are few departments where there is no space in existence and they share the classroom with the other departments (this situation can be seen particularly in such departments where there are no full time faculty members).

There are few departments where there are departmental libraries. There are some other departments having book collection, they do not have a separate departmental library managed by full time staff. Mostly the books are housed in the Central Library of the University. The DLIS, the University of Delhi is having the largest collection in the departmental library and managed by full time staff.

992 Conclusions

From the above findings we can come to the conclusion that there are some loopholes in the different aspects mentioned above for the education of Librarianship in the LIS departments in the Universities of India. We have to take the steps in order to have the uniform standards throughout the country, no doubt, there may be little variation due to the local needs. Presently we can observe great diversities in the different LIS departments of the same region even. An accreditation Body would exert a healthy influence to bring the courses to addhere to a value system. By 21st century it should be possible.

LIBRARY & INFORMATION SCIENCE CURRICULUM FOR THE 21ST CENTURY

SANJAYA MISHRA*

1 INTRODUCTION

One of the ways to prepare Indian Librarians for the 21st century is to modify the curriculum as per the need of the time. Though, it is difficult to know what the future has in store, prediction is still possible in some areas, which will dominate the library and information service, in the 21st century, based on imagination, knowledge and experience. With this premise in mind, the present study has been planned to identify areas/concepts to be included in a curriculum for Library and Information Science (LIS). Curriculum envisages "objectives, syllabus containing list of topics, instructional materials, appropriate teaching–learning strategies and evaluation of student progress."[8] However, for the purpose of this study curriculum has been used in its narrow sense, meaning only the topics to be taught. Also, it has been presumed that all the professionals need some basic training and hence, the study is not restricted to any specific level, eg., BLISc or MLISc.

2 REVIEW OF LITERATURE

Curriculum development is a process of forecasting future changes in the educational needs and practice. The process of curriculum development is a "map or reality as perceived by those who make the map of knowledge and learning experience. Included within its scope are those who teach; those who are taught, the social and vocational relevance of the content; and a picture of the needs of those who are to benefit from services of those produced by the system."[3] From time to time inclusion of Conservation & Preservation[1,10] Collection development[2], Information Technology[5], Marketing[6], Information Organisation[7], Micrographics[9], Bibliometrics[11], Management[13], etc, in LIS curricula have been emphasised in library literature. A major study by Brittain[4] identified new roles for LIS professionals in the design & operation of information systems, publishing optical disc technology, electronic document delivery system, telecommunication and networking areas. Moore[12] after a study on job statistics, identified new jobs for LIS students in business, industry, govt departments and sectors other than libraries, and suggested changes in the curriculum to meet the challenge.

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21 TO SUIT INDIA

In India, realising that curriculum borrowed from outside will not suit Indian conditions, due to difference in the level of educational, cultural, technological developments, maturity of the profession, and availability of infrastructure for training, the University Grants Commission (UGC) from time to time has undertaken the task of reviewing the Curriculum for LIS. The latest report[14] of the Curriculum Development committee (CDC) on LIS of UGC under the chairmanship of Prof PN Kaula has outlined the detail syllabi for the Bachelor and Master's levels. It has also suggested modalities for research degrees and recommended specialised short-term training programmes, to re-train the existing faculty and professionals, due to the proposed change in curricula. It has emphasised the "link between education and employment opportunities, and more particularly what the employer expects from LIS education." A two year integrated Master Degree in LIS has also been suggested in the report. Apart from the efforts of UGC, some universities have taken lead in revising their curricula. But, most of the universities have avoided the arduous task of curriculum development, and follow the guidlines of UGC Curriculum Development Committee.

22 PAUCITY OF STUDIES ON CURRICULUM DEVELOPMENT

It has been said earlier that curriculum development is a rigourous process, which forecasts the future educational needs of the market, where LIS professionals are employed. Such forecasting is a judicious perception of those, who teach and practice the profession. However, in the Indian context, except that of the CDC report, no such study has been reported, as yet.

3 METHODOLOGY

A Delphi like approach has been adopted in this study by preparing a list of 139 experts in LIS, from sources such as 38th & 39th Indian Association pre-confernce volume and CDC report. Initially, these experts were requested to submit a list of atleast 10 concepts/areas which they think should be included in LIS curriculum of 21st century. After receiving response from quite a sizable number of experts, a listof 30 concepts/areas was prepared, which again was despatched to all the experts, with request to score their top ten concepts/areas in order of importance from ten, the most important, to one the least. The list also included some question regarding the background information of the respondents. A total of 56 respondents returned the list, of which only 47 were in usable condition. Thus, the response rate was only 33.8 per cent. Though, the response rate is not encouraging, due to the study being dependent only on mailed questionnaire, this can be considered as a satisfactory response for analysis.

4 ANALYSIS

41 CHARACTERISTICS OF THE RESPONDENTS

Of the 47 respondents, 48.9% were having Masters degree in LIS, followed by 42.5% having research degree. (M Phil/PhD) in LIS. Only 8.5% were having only bachelors degree in LIS. 76.5% of the respondents were having Masters degree in other subjects, in addition to professional qualification. 44.6% of the respondents indicated their current employemnt as teaching, followed by 29.7% as in academic library, 21.2% in speeial library, and 2.1% each in public library and retired. The average length of experience and age of the respondents have been calculated as 15.8 and 38.9 year respectively. This indicates that the majority of the respondents are experienced, though young and are teachers of LIS. The sample also exhibits a balanced representation of teachers as well as working professionals.

42 MOST IMPORTANT CONCEPTS/AREAS

Table-1 Indicates the number of respondents choosing each of the 30 concepts and the score so achieved, which is used for ranking of the concepts. It reveals that every concept has been identified by atleast two respondants for inclusion in the LIS curriculum for the 21st century. Interestingly, information seeking behaviour has emerged as the top ranked concept emphasising the need of better understanding of users' psychology towards reading and how they approach for their information requirements. 61.7% of the respondents identified this as important, perhaps because of a growing realisation of requirement of 'user-oriented' information systems. 82.9% of the respondents identified information technology with a total score of 184 for inclusion in the curriculum of the 21st century followed by data storage and information retrieval, online information systems and services, etc.

43 GRAPH'S SEGMENTATION

For the purpose of grouping of the concepts, has been plotted taking frequency and score in X and Y axes respectively. It indicates clearly a segmentation into three divisions, which may be identified as most important (MI), important (I) and least important (LI).

5 CONCLUSION & SUGGESTION

The study has revealed that there has been a choice towards more practical and user oriented syllabi as reflected by the most important concepts. Irrespective of the level of the courses, these should be taught as core subjects to all library and information professionals, so that they may be ready to face a variety of challenges the Profession faces in the 21st century. The concepts identified as important can be included in the curriculum, or some of them

Table 1 Most Important Concepts/Areas

Sl No	*Rank No*	*Concept/Areas*	*Score*	*Frequency of Choice*
1	1	Information Seeking Behaviour, Information Needs and Users Studies	185	29
2	2	Information Technology, including computer communication and Software development & use	184	39
3	3	Data Storage and Information Retrieval	172	31
4	4	Online Information Systems & Services	162	27
5	5	Networks, Networking & Resource Sharing	161	31
6	6	Information Sources	124	22
7	7	Bibliometrics, Scientometrics, etc	119	20
8	8	User's Education	118	18
9	9	Information Analysis, Consolidation Condensation and Repackaging	113	21
10	10	Marketing of Information Products & Services	102	16
11	11	Multimedia (CD-ROM, hypetext, Hypermedia, etc)	101	19
12	12	Managerial skills	97	18
13	13	Knowledge Organisation & Information Processing	90	18
14	14	Information Products & Services	87	17
15	15	Research Methodology & Quantitative Techniques	83	18
16	16	National & International Information Policies	73	12
17	17	System Analysis and Design Technique	71	14
18	17	Expert Systems & National Language Processing	71	12
19	18	Collection Development	70	18
20	19	Universe of Knowledge	61	10
21	20	Preservation & Conservation	38	7
22	21	Information Science Theory	35	8
23	22	Information for Development	33	6
24	23	Operations Research	32	4
25	24	Publishing & Print Media	24	4
26	25	Copyright, Patents and Transfer Data Flow	23	3
27	26	Serial Management	22	3
28	27	Micrographics Techniques	19	3
29	28	Project Monitoring & Evaluation	17	3
30	29	Technical Writing & Editing	7	2

may be offered as electives. Whereas, the concepts identified as least important can be included in the syllabi, with less emphasis or these aspects may be left to dealt through short term training/refresher courses, etc.

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PROMOTING READING TENDENCY ON HIGHER LEVEL OF EDUCATION: PRACTICAL OBSERVATIONS AND SUGGESTIONS IN INDIAN CONTEXT

DR JN GAUTAM*

0 NOESIS IN HUMANS

Noesis (the activity of the intellect) is the highest gift that human beings have inherited from nature herself and this gift and characteristics have not been bestowed by nature on any other living species. This gift is also called intellectual attainment and quality, thinking, intelligence, wisdom, and `dharma' etc. There is no difference between an animal and, man, who is a highly evolved social being, if intellectual capacity or `dharma' as it is also termed, is removed from his personality and nature of his inheritence. The means of acquisition of knowledge in all the human beings, is the noetic capability or intellectual and thinking characteristics of species. The present scientific and technological attainments and achievements are the product of neotic characteristics of humans. Whatever attainments and competence are found in other types of animals and living beings, are instinctive only. As such there is limitation to them and beyond that they cannot go, nor they can acquire them like humans, in whom there is infinite energy and capabilities emerging, out noetic characteristics.

01 TRAINING AND GUIDANCE

Despite this inborn and natural gift of human beings, they cannot attain perfection and intellectual position without nurturing and training of good habits, and in the absence of proper guidance and inclucating right ways of leading, good life of human being remains incomplete. It is a psychological fact, that none is born perfect, and fully grown, as far as mental attainment is concerned. Knowledge does not come from the womb of the mother of a child. Everything is acquired in the world. In acquisition of knowledge, teaching, learning, and transfer of learning and information, the psychological and social factors play very effective roles. Psychologically learning takes place in humans by different ways and by different methods. This is why psychologists have propounded different ways and methods of learning,

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for different age groups of learners, based on socio-psychological factors, and availability of means and guidance as well.

02 LIBRARIES ROLE

In learning at all the levels, besides class guidance and transfer of learning, it has been noticed that the libraries at academic institutions, from lower levels to higher levels, play a pivotal role in learning and research. They function as Centres of Information in the manner and in the context, as required by the learners and their guides/teachers as well.

03 LIBRARIES EDUCATIVE ROLE IN WEST-PRIMARY & SECONDARY LEVEL

This is why in the Western pattern and practice of education, even at Primary and Secondary levels of teaching is library based, so that learners could consolidate their knowledge received in their classes, and at the sametime, they could also know the details of other materials and facilities available in Libraries, acquired and maintained for their profit and convenience. This sort of notion in such an atmosphere, when libraries serve the purpose of laboratories, gives rise to the sense of dependency among learners on libraries, for acquisition of knowledge and utilization of facilities made available free of charge for their benefit.

04 SELF-SUSTAINED EDUCATION

In the western countries library oriented teaching and library hours are the part and parcel of the teaching method, and such provisions exist in the syllabi also. Every learner is assigned library hours, in which the student spends time in library, in search and observation of informative materials and sources. This practice and provision give rise to permanent habit and inquisitivess among learners, and making their mental and intellectual level go up, and they become independent in the matter of acquisition, and search of information required by them.

05 PARTNERS IN LEARNING PROCESS

In this process of course, teachers and librarians are in no way less effective. They work in close cooperation as regards the use of libraries, as a means of teaching tools of learning, similar to laboratory work. The teachers suggest to display and guide about the materials on the subject taught in the classes. The Librarians act and manage, in the manner suggested. The librarians work as partners of teaching and learning, no less than the formal teachers. There exists close cooperation among these partners of teaching and learning. Thus reading habit is formed among the users of the Library.

06 BETTER STUDENT/CITIZEN EVOLVES

It has also been noticed, based on several researches, that there is change

in attitudes and outlook in the citizens who have public library facilities, in comparision to those deprived of such services and privileges. Similarly, there is difference among the students in attainment levels of knowledge of the subject, on current national and international problems and activities with which citizens should be conversant, in case of the availability of library services, and non-availability of such services. This shows the impact of the library on habit formation and learning.

1 SCENARIO IN INDIA

The concept of library-oriented teaching in Indian academic institutions has not been realised since the beginning of the modern education, despite the emphasis laid down by various Education Commissions and Committees for maintenance of libraries as an effective means of learning on all the levels.

11 LEARNING IN LIBRARY TOTALLY MISSING—SCHOOLS

In Secondary and Pre-secondary levels, the provision of libraries and their services does not exist. But in the Central and Novoday a Vidyalayas, the maintenance of libraries has been realised, and qualified librarians have been appointed, just like teachers as an essential necessity of the such schools. As regards promotion of learning, it has been found that the provision of libraries is there, but concept of promotion of library based learning is missing. As such reading habits do not get seed ground for continuous development. Syllabi of these schools, do not have any separate course on the use of libraries and the encouragement of reading habits.

12 IN COLLEGES TOO–NO LIBRARY BASED LEARNING

In the matter of libraries in the secondary schools besides colleges, the Government of the Madhya Pradesh is very liberal in the sense that the provision of libraries and the appointing the qualified librarians has been made. But no emphasis is laid down for maintenance of the library.

13 SURVEY OF GIRLS SCHOOLS CONFIRMS

Recently a `Survey-Research' of Girl's Secondary Schools of Gwalior and Chambal regions has been accomplished. It has been revealed by the research that despite provision, *libraries do not exist* there in the manner they should have been. The lack of libraries has revealed that the general knownledge of the students and the teachers is very poor. Students are not aware of the essential programmes, and they do not have any exposure to the national programmes and activities.

2 SITUATION AT HIGHER LEVELS

21 UNIVERSITIES & COLLEGES

Besides 192 Universities and National level Institution imparting education on higher level, there are more than 7500 Colleges. 80% higher education in India is imparted by the Colleges and some of them are higher than many Universities in several respects. These Colleges have libraries and librarians. Some of them have library buildings and good collections.

211 No library oriented teaching

Despite this there is no definite and appropriate programme of library-oriented teaching and provision of promoting reading habits. As a result full exploitation of library resources is not possible. As such the knowledge of the student community is very poor, and majority of them cannot be creative and good researchers. Research is an essential activity for national development and the growth of subjects and knowledge.

3 STEPS OF PROMOTING READING HABITS

Unesco lays much emphasis on users instruction so that they could make use of resources to the maximum extent. In order to promote reading habits in academic institution for creating more and more potential readers, the following steps should be taken:

31 LIBRARY-ORIENTED TEACHING

311 Library Hours

Syllabi of different courses on all levels should make provision for library hours and the students should be directed to be in libraries for definite hours for observation and use of library materials pertaining to their courses and general information as well.

312 Self chosen assignments

Besides, written examination system, there should be sessional work, in which the students are required to present essays on various topics independelty, by consulting relevant sources. This should from the part of evaluation of their attainments.

313 Bibs & Reading Lists

The students should be directed to prepare reading lists, and bibliographies of relevant books and articles of their subjects offered, so that they should know the sources of information of their needs.

314 Libraries-teacher guidance

Teachers should be available in the libraries to watch the students on certain days and guide them.

315 Joint Programmes

There should be provision of cooperation between teachers and the library staff, to develop Joint programmes.

4 LIBRARY SERVICES

41 LIBRARIES WITH BASIC COLLECTION

Academic Institutions must maintain well equipped libraries and arrange satisfactory services. It has been found that libraries are there but there is paucity of qualified and efficient staff. If such things are lacking the library cannot serve the purpose of an Information Centre, meant for the benefit of readers. There should be appropriate acquisition policy, in which basic collection should be built up, in which students should also participate.

42 SELF EDUCATION

In order to promote reading habit and flair for search of knowledge independently, the following activities and services should be organised and made available at the library level:

421 Readers advisory board

Maintenance of Reader's Advisory Board on libraries, consisting of the Library Staff and the Faculty members and Teachers, so that proper and relevant advices could be given to the users. This should be a permanent feature of the Libraries Management.

422 Reference Service

Well Established Reference and Information Services is an essential activity, which promote reading habits and encourage the use of libraries. As such all types of such services should be made available to the maximum extent.

423 Reference Collection

Maintenance of essential Reference Books is equally essential, so that users of all levels could identify and locate their relevant reading materials. So all types of tools of reference and information services should be prepared and made available in anticipation and on demand.

424 Exhibitions on occasions

Display of reading materials and guidance are very essential feature of

promoting reading habits and augmentation of the resources. Such arrangement encourage the use of the library and attracts readership.

5 POLITE TREATMENT TO THE USERS

Readers are very sensitive. Some of them are short tempered. If they receive the polite and sweet treatment despite their follies, this will encourage the use and reading habits. Sometimes library staff avoid and fight shy of readers, so that no necessity does arise to meet their needs. This does not only effect the utility of the library, but adversely effects the reading habits of the students.

51 INVITING LIBRARY PRECINCTS

Attraction of the library: Over and above all, the libraries should be made attractive and place of radiating centre of knowledge, so that readers themselves visit libraries, due to their curiosity.

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READING HABITS BY THE TURN OF THE TWENTY FIRST CENTURY

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1 INTRODUCTION

Reading being a life long process, if inculcated right from the beginning, will go a longway in the development of overall personality of a person in general, and students in particular. Today, the reading has social, academic, economical and survival significance, because democracy of a country can survive when people at large have reading competence.

2 READER

21 TYPES-COLERIDGE

A reader is one who reads the reading materials, by sharing the thought content of it. Coleridge divides readers amongst four categories viz.[1]

(i) Sponges-they simply read for practical purposes like examinations;

(ii) Sand-Glasses-they read just to pass their time and they retain nothing that they have read;

(iii) Strain-Bags-these readers retain worthless stuff from a book and forget good in it; and

(iv) The Mughal-Diamonds-absorbs all the good and reflects the same.

22 TYPES-DR SRR

Similarly, Ranganathan[2] devides readers into five types. They are-

(i) Meak readers who feel shy to ask any questions;

(ii) Readers with inferiority complex, who donot ask any questions, so that their own weakness may not he known;

(iii) Readers with superiority complex, who do not think it proper to ask for any help;

(iv) Difficult readers, who confuse their questions or requirements; and

(v) Normal reader-all other readers who do not fall under any of the above.

Therefore a good reader focuses his talent on the kind of material he is

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reading, by means of creative and analytical mind, with throughly understanding the theme he reads.

3 READING

Reading is primarily a matter of comprehension, and interpretation of meaning. It also involves most of the `major brain functions; sensation, attention, cogniation, emotion, motor processes etc'.[3]

31 USE OF

Reading enhances human life, which acts as a source of information, inspiration, ideas etc. `Reading is a key to a wealth of knowledge and experience through which the individual may extend and expand his horizons, his interests and gain deeper understandings of himself, of other human beings and of the world",[4] and it enables to solve everyday problems and helps to lead a worthwhile life. Hence, reading is always a means to an end and not an end itself. Further, `reading is the process of using over `eyes' the our `mind', to understand the literal as well as the hidden meaning of what the writer was attempting to convey'[5].

32 RESULT

Therefore reading gives both power, and pleasure with understanding, by reading the material as a unified whole, by which one can expand the frontiers of knowledge and scholarship.

33 NATURE OF READING

The nature of reading can be described as a means to an end; as a form of experience, which itself depends on previous experience; and avenue of sitent self-communication; as a process of interpretation of meaning. Hence, it embraces a wide variety of tasks, activities, skills and mental processes.

331 Tinker

Tinker opines that, "reading involves the reconstruction of printed or written symbols, which serve as a stimuli for the recall of meaning, built up through past experience, and the reconstruction of new meanings through manipulatoin of concepts, already possessed by the reader'[6].

332 Psychological Process

Therefore the basic trail in reading is to establish in the mind of the reader an automatic connection between specific sights and the sound they represent.

34 STAGES OF READING

The good reading habit is to be based on four stages;[7] Exploring, check-

ing the vocabalary, analysing for comprehension and synthesizing for understanding.

341 Comprehension

The visual operation helps in recognising the letters and words, later grammatical sensitivity, establishes the relation between words and ends with direct imposition and manipulation of meanings. Thus more reading teaches us to expand our understanding, of what we have read. To conclude, the stages of reading involves, `a hirarachy of skills ranging from auditory to visual descrimination, to such higher order mental activities as organising ideas, takes one to distant hands, and lets one to walk side by side with the great sages of time".[10]

351 Motives

The motives which impel the individual to read are delineated by Shera[11] as follows–to improve the capacity to earn; to achieve power; to increase security; to escape enxiety; to solve personal problems; to experience vicarious adventure; to indulge in aesthetic enjoyment or emotional excitement; to gratify a desire for prestige; and to identify one's self with a group. The other objectives of reading are-to satisfy a person's curiosity; to expand ones horizon of knowledge; to form set opinions; to get acquainted with the current affairs; to develop critical thinking and mature judgement; and to know the heritage of one's own country and its literature.

Reading aim is alsc occupation of leasure and pleasure, it will make our hours pleasant, as long as we live.

36 ADVANTAGES OF READING

1 Reading is very essential for personal and social adjustments and through which it is possible to build sound values and to arrive at means and methods for creative living in this machine age. It helps in wholsome development of a person, by means of achieving emotional and intellectual needs, and also counteracts boredom.

2 "Reading is an indispensable means of communication in a civilized society' and `through reading an individual expands his horizons, intensifies his interest and gets deeper understanding of himself and the world'[12]; thus it enriches thoughts, interests, habits, attitudes to solve the problems in life. Further, "reading is essential for national integration and international understanding too. It helps us to understand and appreciate the common achievements–the unique contribution made by the people of different nations towards the advancement of human culture and civilization, and the joys and suffering shared by the whole human family"[13]

3 Looking at the importance, Walter Mare says; reading may be one of life's in-exhaustable pleasures and blessings. Recreational reading gives more entertainment, because a reader reflects his ideas and plays on the imagination' and hence it is an indispensable factor in modern life. But for most people reading is a, "labour-saving device, in that it frees communication from the restriction of space and time, and brings the distant and the past to the ever present here and now"[14]. Thus, reading is a must to penetrate into the rich heritage of the past, which is in the form of books etc. Which is why John Milton said, `a good book is the precious life blood of a master spirit passed on from generation to generation.

4 READING HABIT

The ultimate destination of books and reading materials, is into the hands of readers. To establish a good relation between these, needs emphasise to inculcate reading habit amongst the prospective and potential readers. Though books are mute, have kinetic energy that can more individuals and society, and to exploit it fully, one needs to develop reading habit, a vital vehicle to all knowledge. If people give up reading habit, obviously they cease to grow.

41 FOLLOW UP

Therefore the reading habit is "the art of personal investigation and self study. It should be followed by self-thinking and analysis, and only this kind of self study on one's own accord, can develop into a good reading habit"[15] So, reading habit has become a sine-qua-non for the development of one's personality and the society as a whole.

5 FUTURE TREND OF LIBRARY AND LIBRARIANSHIP

51 ELECTRONIC MEDIA

In the present era of `Information Revolution/Age', "the libraries are the first essential requirement for progress, prosperity and happiness"[16] and now libraries are moving from `print-media' to `electronic media'. Lancaster rightly says that," we are now evolving from a print on `paper' based society to an `electronic' society"[17]. It is because, computers and communication technology are being heavily used in all spheres of information handling process, and their impact on library lies with library authority, staff, materials and user. Similary they are capable to present variety and quality of information to meet the immediate needs of the user. These developments in the field are leading libraries to go in for `Networking' for resource sharing. Inturn they are helping in, house keeping operation, optium utilization of information and improved services to the users.

52 NEW MEDIA FOR READING

In the future, the reading materials will include, electronic data bases,

optical high-density disc storage of full text articles, digital image masters etc. Now multimedia technologies made possible to manipulate and integrate the data from a large types of sources, like audio, video, animation, graphics and text on a single hardware platform. "By the year 2000, the interactive multimedia industry will reach, from its childhood to adulthood. As the technology moves forward, multimedia is gaining strength and getting rid of the weaknesses and become more flexible and stronger medium for Education"[18].

53 READING IN ELECTRONIC COMPUTERISED LIBRARY

Therefore libraries in-future are bound to change to an `Electronic library' and "becoming a platform for generation, exchange and utilization of knowledge... by interfacing with computer technology"[19]. Computers have also occupied the dominent position in publishing and they are replacing `paper', to `machine readable', equivalents. Electronic publications are now available in both the secondary and primary sources of information. Now, "Electronic Journals are composed of text. Just like paper Journals, are transmitted over computer networks to individual subscriber, who may read issues on-line, or download desired parts, for a print copy"[20].

54 MACHINE/ELECTRONIC INSTRUMENTS TO READ

At present information sources in print and on paper, are costlier than that of electronic media. To fecilitate electronic library, hand-held electronic text readers are now marketed by SONY. Future libraries wil be able to provide," One-stop-shopping for its users. Libraries will become switching centres that will supply information and material from a variety of sources... they also will provide gateways to access services, located around the world"[21].

55 LIBRARIANS ROLE CHANGE

Earlier, librarian was the sole agent to retrieve the information, but today he should assist users to use aptly on-line searching. Traditional designation will go away with the newer names like, "electronic Librarian, Information, Consultant, Information Analyst, Information Broker etc. The future librarian must prepare for the challenges posed by the digital image technology, to asume new and inviting role than be a mute spectator. He will be recognised and gain high status and importance in an information-rich-society.

6 PROMOTION OF READING HABIT

As on today, education is the ground and guiding principle for the cultivation of reading habit. The present practice of classroom-oriented teaching should be modified into class-room-cum-information centre-oriented teaching. It is the duty of the teachers to impart the core of knowledge, and they should lead kindly to the library to supplement and augment by exposing

them to wider vistas of human endeavours,lovingly and painstakingly recorded in the graphic materials.That means, at a certain point, the baton of reading interest will be handed over by the Teacher to the Librarian who leads on the students into the electronic-information lands of databases, curiosity and knowledge enshrined in the books through electronic information retrieval process. Therefore, a collaborative concerted effort on the part of Teachers and Librarians, would go a long way in the career of students.

61 INSPITE OF CHANGED MEDIA

A library is the collection of wisdom and culture of the world in the form of reading materials. The fundamental duty of a library and its ability to place the books into the hands of the reader, what he wants and when he wants, and in the form he desires. Hence, "libraries have a most important role to play in advertising books and encouraging reading habits, painfully acquired at school, to continue or extend in later life."[22] Thus, librarian has a key role in establishing a relation between the readers and the library in promoting the reading habit.

62 ALTERED APPRECIATION

By the turn of 21st century, the nature of reading habit will undergo drastic changes. In future the potential user can access, browse and borrow the information from the electronic libraries, sitting right at home at his terminal. Similarly, wide exposure to the 'thrust information' to the user may induce and enhance the reading habit. Periodical orientation and training in use and handling of information & data base networks may create curiosity amongst the users to go in for extra reading. Multimedia centres are going to influence heavily on information seeker to develop, an altered appreciation towards reading and reading habit.

7 CONCLUSION

Information revolution is posing several challanges to the library and we are bound to change accordingly. Influence of electronic and digital technology may lead to `less-paper' society, but, `both books and electronic documents are going to stay side by side, and each has a definite role to play in 'information communication' thus spoke Dr PSG Kumar. Despite the Global Information Infrastructure, Information High-ways, Optical technology, KNOWBOT, Multimedia, Hypermedia, Virtual Library etc etc. The domain of printmedia do exists and with all advanced technological peripherals, may further give a boost to reading and reading habit.

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ROLE AND STATUS OF COLLEGE LIBRARIANS
Comparative Analysis of Ranganathan, Mehrotra and Joy Committee Reports

R RAMAN NAIR

0 INTRODUCTION

Libraries are to be considered as the most important resource existing to support teaching-learning processing in institutions of higher learning[1]. The higher one climbs in the academic ladder–post graduation doctorate and post doctorate–the more central does the library become. In most of the education institutions in ancient India, librarians were considered to be teachers. Only great scholars were allowed to become librarians. Their salaries and status were equal to that of teachers. In ancient West also the condition was the same, and so we come upon librarians like Callimachus. This position got disturbed everywhere during medieval times. In European countries, librarians regained their position due to the developments in teaching-learning process that occurred there, at the beginning of the present century.

1 TEACHING: A CO-OPERATIVE ENTERPRISE

John Dewy, the famous educational scientist, in his book School and Society', published in 1894, considered teaching as a co-operative enterprise in which the instructor and the librarian play equal roles. According to him library is the central hub of any teaching learning process. It is the place for the students to bring their individual and varied experience, problems and questions, and to discuss and pursue them so that new light may be thrown on them–particularly new light from experience of others, the accumulated wisdom of the world. This is the organic relation of theory and practice.

11 STUDENT IN THE LIBRARY

This relation is essential for:

* the stimulation of nuclear element in each student
* the student not simply doing things but living the idea
* the student getting from the start some intellectual conception entering into his practice and enriching it

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* the idea to find directly or indirectly some application in experience and some effect on life[3].

12 LIBRARIAN & TEACHER *VIS-A-VIS* STUDENTS

John Dewy considers librarian-student relation equal to teacher-student relation and this fixes the position of librarians among faculty members. In the beginning of this century, in all countries which took education seriously there occurred revolutionary changes in education. Instead of listening passively to classroom lecture, the student is lured into becoming an active participant in his own education, with the teacher simply serving as guide and counsel. The student has to come to the library to select, organise and evaluate the information he needs for class discussion and to sharpen his power of discrimination and the critical faculty. Then libraries become central to the whole business of education.

2 HISTORICAL PERSPECTIVE

21 SADDLER

In Modern India the importance of library in higher education was emphasised by many educationists. The Calcutta University Commission appointed in 1917 by the Government of India under the chairmanship of Sir Michael Saddler has pointed out that the greatest weakness of the existing higher education system is the extra ordinarily unimportant part in it, which is played by the library. Few colleges have good libraries. Even the best; that of Presidency College is very defective on many aspects. The commission made a specific recommendation that the university and colleges should have services of librarians, having the salary and status of a professor, and that he should be the ex-officio member of the academic council[4].

22 RADHAKRISHNAN

The University Education Commission appointed by Government of India with Dr S Radhakrishnan as chairman, stated in 1949 that in most of the colleges and universities in the country the library collections, staff and services are highly inadequate. The commission has clearly defined the role of libraries and librarians in maintaining higher standards in teaching and examinations. The report states that teachers must have the necessary tools for teaching purposes in the shape of libraries and laboratories. The library is the heart of all academic work,-directly so-as regards its research work, and indirectly-as regards its education work[5]. Scientific work needs library as well as laboratories, while for humanistic research library, is both library and laboratory in one. Training in higher branches of learning and research is mainly, a question is learning how to use the information tools, and if the library tools and those who could guide in the use of those tools are not there, how can the students learn to use them.

23 RANGANATHAN

In 1957 University Grants Commission appointed a Library Committee under the chairmanship of Dr SR Ranganathan to look into the conditions of the academic libraries, and advise it on the standards of libraries, pay scales of library staff, their training and status[6]. The committee has listed most of the functions of library staff which can be found to be academic and highly specialised. It has pointed out that for library effectiveness, library staff have to divide the field of knowledge among themselves, and practice specialisation so as to keep abreast of the progress of thought in diverse subjects. Their specialisation should be, extensive rather than intensive, unlike in the case of a teacher. Each librarian can therefore cover more subjects than a teacher. Librarian must be able to speak the language of a teacher and understand his literature needs, make documentation search for him and thus meet his needs unerringly. In fact librarians and teachers have to work as partners.

24 KOTHARI

Education Commission appointed by the Government of India under the chairmanship of DS Kothari also stressed in 1966 the importance of library service in higher education[7]. It stated that no university, its department or college should be set up without taking into account its library needs in terms of staff, books, journals, space etc. Nothing could be more damaging to an educational institution than to neglect its library or give it low priority. On the contrary, library should be an important centre of attraction in the college or university campus.

241 College Library Functions

Based on the report of the Education Commission the functions of the college library can be outlined as follows:

* providing information resources necessary for teaching and research,
* aiding the teacher in keeping abreast of current developments in his field,
* providing instruction and guidance necessary for all formal academic programmes.
* opening the door of the wide world of knowledge, that lie beyond the borders of a teachers own field of specialisation, and
* bringing information, students and teachers together under conditions which encourage reading for pleasure, self discovery, personal growth and sharpening of intellectual curiosity.

25 MEHROTRA

In 1983 UGC appointed a committee to consider the revision of pay scales, career development and service conditions of teachers under the chairmanship of Pro RC Mehrotra and in 1985 it was asked to look into the case of librarians also. The committee in its report submitted in 1987 pointed out that the library performs a crucial role in educational process. It expands and supplements curricular learning and widens the horizon. It also pointed out that the easiest way to assess the climate, temper and academic achievements of an educational institution, is to visit its library and see how it is being maintained and utilized[8].

26 JOY'S COMMITTEE-KERALA

As education being a state subject, union government's role in implementing these reports was limited. The recommendations failed to get implemented in the states. Kerala was the first state to make any serious attempt at the government level, to vitalize college library services. Government of Kerala constituted in 1993 an Expert Committee on College Libraries under the chairmanship of Sri VP Joy, IAS to examine the functioning of college libraries and suggest suitable measures for their improvement[9]. The committee has pointed out that the effectiveness of services from the library is an important factor determining the quality of teaching-learning process in a college.

3 ACADEMIC ROLE SHARED

In the right type of teaching–learning process expected in higher education, teachers and librarian have to play roles of equal importance. Both should actively engage studients in using library as a kind of laboratory for learning how to manage their own education[10]. Teachers should know that library is an extension of the classroom and should make the students use it intelligently in preparations for discussions in class, seminar reports and papers. For this there must be a two-way flow of information between teachers and librarians and both have to contribute.

31 ROLE OF TEACHER

* should know the libraries resources and adapt his teaching so that the student has a chance to use the information resources in pursuing the subject matter of the course.
* should themselves get informed regarding library resources and the means of using them and should improve library effectiveness in instruction.
* should come to the library and give effective direction to the student in utilization of information sources.

* should give assignments that necessitates students' own investigation and use of the library.
* make library problems vital and interesting to the student and not just a fruitless exercise in using the library as an end in itself.
* invite librarian to an early meeting of the class, to discuss the general reference sources and bibliographies if the students have not have instruction previously.
* consult the librarian on the availability of special materials and special collections that might be useful and available to students in their investigations.
* urge students to seek the assistance of the library staff in learning more about special bibliographical aids pertinent to their studies as they proceed with their research.

32 ROLE OF LIBRARIAN

* should get personally acquainted with his teaching colleagues and know as much as possible about their characteristics methods of teaching.
* should make himself familiar with the curriculum and keep informed about current changes, so that he will have a clear conception of what needs to be done in the library in response to the curricular developments.
* should remind faculty members on every occasion; of the varied opportunities for the use of library resources in teaching.
* should know what tools and materials the teacher is using so that.
* students are not only given assistance in using them properly but encouraged to learn of other tools also.
* should bring current development in various subjects to the attention of the faculty through programmes devised for that.
* should make recommendations for improving the collections of primary and secondary sources needed for class discussion, reports and papers, books which cut across lines of academic disciplines, duplicates of keywords used in discussion groups, new editions, gaps in journals etc.
* should provide patient studied assistance to individual students in using reference and bibliographic tools pertinent to their research.
* should acquaint faculty with unique and unusual materials available in the library's special collections that might profitably be investigated by students in their research.

* should bring together materials for an instructor, at least temporarily, when it will encourage him to involve students in library projects.
* should facilitate inter-disciplinary communication as also the work of research scholars in borderline disciplines.

33 ALL COMMITTEES AGREE ON LIBRARIANS ROLE

Ranganathan Committee has studied these functions and has reported in detail librarians[11] duties to research staff, teachers, students and collections. Mehrotra Committee has stated that it should be the constant endeavour of librarian in a college, to widen and update his range of knowledge, so that he can extend valuable guidance to teachers as well as students. It accepted that librarians, although not formal members of the teaching faculty, perform acdemic functions, and sustain and enrich the academic process. Joy Committee considers it essential that college library staff should keep abreast of current developments in every subject and should support teachers and students in their information search. The committee considered it the duty of librarians, to promote individual and motivated learning at all levels, by providing the information sources required for that.

40 CHIEF LIBRARIAN

If the college library is to function effectively as an instrument of teaching; well qualified and numerically adequate staff is essential. The position of the staff in library service is pivotal. The students and teachers using the library are peculiarly sensitive to its oversight, judgement and enterprise. The functionalism of the library building or space, the relevance of the collection, the efficiency of its organization and services depend on the character and ability of the librarian who is there at the initial stage of library development[11].

401 Qualities

The head of the college library should be a successful administrator, a wise counselor in the use of information sources and a force in shaping library policy. These requirements insist; that the college librarian must be a person of imagination and initiative, that he must have a sound understanding of library administration and specialisation in some subject field, and that he must know how to relate the use of library to the educational program of the college[12]. The emphasis should be on the training, progressiveness, and mental attainments of the college librarian. If he is to be a leader in the college community,he must be a person of character, integrity and professional idealism.

41 ADMINISTRATIVE ABILITY

The college librarian should have the qualities of a good administrator, for it is essential that he takes charge of a large measure of administrative responsibility, including the supervision of the staff, the proper budgeting and expenditure of library funds and the over sight of the library building. These functions require frequent consultations and close relationships with the Principal, Administrative officers and Heads of subject departments, and the Librarian must impress them with his sound judgement and ability to manage the library affairs. He must also hold the confidence of the library staff by his ability to develop a systematic organization of library work, to conduct the many types of transactions involving the administration and faculty and administer the budgets, and services in a satisfactory manner.

411 Qualities

The administrative ability required for a librarian can be summarised into the following four qualities based on the study by Randal and Goodrich.

* the power to see clearly the significance and implications of a problem.
* the ability of analyse a known problem in such a way as to identify the important parts of its structure.
* the genious to see the relations between apparently isolated facts and to group their combined significance and thus come to a conclusion and
* the capacity to secure co-operation from others.

412 Know Library First

To attain even to an approximation of these qualities the librarian must understand thoroughly the objectives of the library in the particular college programme, the personal organization of library materials and the problems and needs of teachers and students.

42 SCHOLARLY INTERESTS

It is important that librarian be personally acquainted with his teacher colleagues and with their characteristic methods of operation. Likewise it is important that he be kept minutely posted on the current curricular and administrative policies, so that he may have a sharp conception of the special areas in which library support may be helpful. If he is not consulted and kept informed about curricular matters and administrative policy, his help in these matters will, of course be negligible.

421 Information Assistance

There is no need that the college librarian should be a scholar in the

sense of an eminent specialist or research man[13]. There is one very practical reason why he can not be. His work allows him no time for the continuous application of his mind to a single subject like a specialist. His working hours are long, he is interrupted at every turn, and his administrative duties leave him little free time. As a librarian however he should be familiar with the methods of research, have a through knowledge of bibliography and be competent to assist teachers and students in their search for information. He should also be widely read and well informed about the collections, to be able to assist in their development.

43 ABILITY TO PLAN

In these days of increasing enrolment, rapid technological developments and frequent self examination of the education programme, it is important also for the librarian to be something of a planner, and to be able to convey to his colleges and staff, a sense of the direction in which library is moving. How can the quality of library service be maintained in face of increasing enrolments, professional staff shortages and limited resources? Which of the new technological developments offer opportunities for improving the library's services? What new projects are contemplated in the coming year? What hope is there that the library can secure resources to move ahead? Problems of this kind confront every college library, and it is the responsibility of the Chief Librarian of the college to be aware of them and to devise plans for meeting them, if the library is not to drift along, accepting limitations and moving in directions, never consciously considered.

44 ABILITY TO WORK WITH STUDENTS

The ability of the college librarian to work with students is a very important requirement. Even though college librarian has very important responsibilitities towards teachers, library is primarily intended to be of service to students. The library fails to fulfil its function, if the librarian doesn't know what students read, how these needs may be met and what the students expect from the library? His greatest asset in this connection is a staff that is qualified, sympathetic, understanding and interested for working with teachers and students.

5 ACADEMIC QUALIFICATION

The duties and responsibilities of the college librarian enumerated above show that his academic qualificiations should be at par with those of senior teachers. Only simple logic is required to understand that the qualification of any librarian in the college, should in no way be lower than the highest level course offered in the college, for the librarians are expected to guide the students attending those courses, in their information search, and support

them in their learning. Their qualification should be equal to that of the teachers, because it is the librarian who is to give teachers the information support required for their teaching and updating of their knowledge.

51 LEVEL

Dr Louis R Wilson has stated that the modern college exacts higher qualifications of their librarian than formerly. It no longer considers even the possession of a post graduate degree and the completion of one year training in a library school sufficient for a college librarian. In India the need for highly qualified librarians in universities and colleges were first pointed out by Calcutta University Commission in 1919. Radhakrishnan Commission has stated that libraries should be manned by adequate and well qualified staff. The report recommended that at the top of a library there should be a man of the calibre of a professor, who has specialised in Library Science, after having done post graduation in a subject, and he should have sufficient experience and capacity for organizing and managing such a department.

52 WHY OF QUALIFICATIONS

Ranganathan Committee and Kothari Commission clearly identified the functions of the library staff. They stated that the librarian and his staff in the universities and colleges have the responsibility to define and understand the purpose of the library in relation to the aims of the college, to become personally acquainted with their faculty colleagues and to know their teaching methods. They should know what is going on in curriculum matters and should have a clear conception of the specific ways, in which library support is desirable and possible. It is implied that qualification of the librarian, should enable the profession to fulfill these duties.

53 JOY'S CHOICE OF UGC

Joy Committee also stated that colleges librarianship is a highly complex profession warranting specialised and technical knowledge of various sorts like personal administration, financial management and different bibliographical techniques. The successful performance of the College Librarian demand a clear understanding of academic objectives, a significant level of academic expertise and working partnership with heads of teaching departments. Proper direction of policies and resources of the college libraries, towards needs of teaching–learning process demands a chief librarian with high academic qualifications and knowledge of objectives and practices of education. Joy Committee recommended that only those with qualifications and experience prescribed by UGC should be appointed as chief Librarian in a college.

6 SUPPORTING PROFESSIONAL STAFF

All that has been said above with respect to the qualificiations of the chief librarian is in varying degrees applicable to the members of the library staff. Since for most students, the staff at the public desks signifies the library; it is obvious that sympathetic relation between students and the library staff are of crucial importance in making the college library a real library, and not just a storage house.

61 ADEQUATE LIBRARY STAFF

From the time of Radhakrishnan Commission it has been pointed out that library should have adequate and well qualified staff. In a college a well qualified chief librarian is very important. But that is not enough. So great are the pressures of housekeeping duties imposed by the librarians[2] job, that unless he has adequate assistance, he is seldom able to plan the work properly, to keep in touch with teaching departments or to carry through adequately the changes which need to be made. The librarian needs sufficient number of library professionals to support him in providing various kinds of reference and other information services required in college. The teachers give the students some guidance as regards supplementary reading. But the librarians attending reference services, if they are properly qualified, will be in touch with the teachers,and guide the students to the exact information. These librarians can be of help not only to the students, but also to teachers in their special subjects of study. These staff who support the librarian undertakes all bibliographical and documentation works, provides all information services and timely instruction in the use of sources and assists the librarian very much like the teachers assisting the head of a subject teaching department.

62 POLICIES TOWORK

These college librarians who support the chief librarian should know what materials are important in a college library and what are inessential. They must be capable of giving the students the kind of assistance they need in order to use the library intelligently and efficiently, and they must have a clear idea of what the library is trying to do. This sense of overall guiding purpose, translates itself into the daily operations of the library and determines what activities shall under taken and how they shall be carried out.

63 WILL `MATRICULATES WITH CERTIFICATE IN LIS DO?

These supporting staff are expected to have a breadth of knowledge and a critical capacity based on habits of constant and disciminating reading. By

their intellectual interests and their skill in human relations they should help to convey the impression that librarians are persons whose opinions are important. It is interesting to find that in many states including Kerala, staff not even having an SSLC as qualification designated as `Attenders' or `Library Assistants' only are posted as supporting staff in colleges, as per existing staff pattern. Even in post graduate departments which becomes eligible for a staff to look after the library the staff pattern allows only for an `Attender'. If by chance he is literate or have studied upto SSLC it will be a luck to that post graduate department. But how can such staff attend the information services required to be provided for the postgraduate students and teachers specialising in a subject.

71 QUALIFICATIONS PRESCRIBED BY UGC

According to the Library Committee of the UGC (1959) the academic qualification of the library staff should be at par with those of the professors, the readers and the lecturers. Apart from general academic qualifications of high order, the librarian and his professional staff should also have professional qualifications of an equally high order.The committee recommended MLibSc or MA and First Class BLISc as the minimum qualification required for a college librarian.

711 Different Committee

In 1974 UGC appointed a committee under the chairmanship of Dr SN Sen, Vice Chancellor, Calcutta University, to consider the scales of pay and qualifications of library staff. Sen Committee recommended the following qualifications for the college librarians.

(a) Good academic record with first or high second class Masters Degree in an academic subject other than Library Science.

(b) M Phil or equivalent published work or two years research experience.

(c) Degree in library Science with atleast a second class.

712 Mehrotra Committee

Mehrotra Committee (1987) stressed that among qualifications prescribed for librarians, academic excellence should figure prominently. As per its recommendations the following qualifications are essential for the entry cadre in the college library service.

(a) Qualifying the National Level Test conducted for the purpose by UGC or other agency approved by UGC.

(b) Masters' Degree in Library Science, Information Science, Documentation or an equivalent professional degree with atleast fifty five percent marks or its equivalent grade plus a consistently good academic record

or

Masters' Degree in Arts, Science, Commerce or equivalent Degree with atleast fiftyfive percent marks or its equivalent grade with Bachelors Degree in Library Science, Information Science, Documentation or an equivalent professional Degree with atleast fiftyfive percent marks or its equivalent grade plus a consistently good academic record.

713 Joy Committee

Joy Committee has also recommended that all library professionals posted in college libraries should have the minimum academic qualification, that can give them a broad acquaintance with all subjects taught in the college, so that they will be capable of interacting with degree and post graduate students and teachers to support them and guide them in their information search.

8 ACADEMIC STATUS

81 TERMS

Academic status to the college librarians mean that the college should regard the professional library staff as members of the instructional staff instead of administrative or clerical staffs. This status may be defined as the formal recognition in writing by an institutions' authorities; of librarians as members of the academic staff. The recognition may take the form of assigned faculty ranks and titles with faculty privileges of tenure, academic freedom, equitable salaries etc[14].

82 STATUS MIX WITH FUNCTIONS

The academic status carries with it certain definite obligations for a librarian. The first requirement is for intellectual activity including a keen interest in the academic life in the campus. The librarian must accept responsibility for independent learning, continuous intellectual growth and educational statesmanship. Status also calls for the highest level of professionalism in performance of his duties.

83 PROFESSIONAL INTERESTS

The librarian must be a creative member of the academic community. He performs an educational function and should be interested in research and publication to advance the frontiers of his profession. He should be interested in professional organizations, and should have an obligation for faithful service to the colege[15].

84 FIRST ACADEMIC RECOGNITION

In educationally advanced countries librarians were given full academic status with most of the rights and privilages of faculty member from nineteen twenties. This helped to create the best kind of library service to students and teachers and contributed to quality improvements in education in those countries. In India it was Calcutta University Commission (1917) which for the first time recognized the principle of academic status to the librarians. Radhakrishnan Commission (1949) also pointed out the need for staff with calibre and qualifications of a professor to head the libraries.

841 Reconfirmed

Ranganathan Committee (1958) also advised that status and salary scale of the library staff should be the same as that of teaching and research staff. The committee has recommended Readers' scale and status for Chief Librarians of large colleges and Lectures' scale for his supporting professional staff and also for the Chief librarians of small colleges. Mehrotra committee (1987) also accepted the academic role of librarians and recommended academic status to them. The committee expressed the view that the emoluments of the duly qualified librarians should match those of the teachers and that they should have about the same promotional opportunities as have been recommended for the teachers. Based on its recommendations Government of India has implemented in matters of scales of pay, career advancement etc between college teachers and college librarians. Qualifications for the posts of college librarians were also fixed in accordance with this.

85 JOY COMMITTEE

Very important suggestions in regard to the status of college librarians are contained in Joy Committee report. The committee considered it desirable to give the college librarians, academic status and bring librarian also under the definition or `teacher'. The committee recommended that the College librarian should be given status and rank as recommended by UGC, subject to satisfying the qualification and other conditions prescribed by UGC. The committee recommended full membership for the college librarians in the College Council. The committee also recommended that librarian should function as the secretary of the Library Advisory Committee constituted in the college to advise and recommend on all matters related to organization and services of the college library.

9 STAFF PATTERN

91 USA

In addition to the Chief Librarian, staff should consist of sufficient

number of library professionals and non-professionals. In United States in 1930 when the government accepted the teaching role of librarians, the number of library professionals required in a college has been fixed in terms of enrolment, and the Government recommended five full-time college librarians, for the first five hundred students, ten for one thousand students, and four additional staff members for each additional five hundred students. Two non-professional assistants were also allowed for every five professionals. Obviously the number of professional staff required depends upon the work to be done.

911 Revision 1947

In 1947 ALA revised the staff formula for college libraries. In the new revision the size of the staff was based on the service demands made on the college library. The service load is derived from a formula of service units based on the size and characteristics of college's enrolment like graduate students, post graduate students, research scholars, and the size of the faculty.

912 UGC

The minimum strength of the professional staff in a college library as per the recommendations of the Library Committee of UGC will be as follows.

1 Chief Librarian of Readers or Lectures grade according to the size of the college.

2 One professional staff for every 2000 volumes to be technically processed per year.

3 One professional staff to attend documentation work for every 1000 entries prepared in a year.

4 One professional staff for every 50 readers in a day.

913 Joy Committee

Mehrotra Committee has not dealt with the staff strength of Teachers or Librarians. Joy committee has evolved a more rational staff formula for college libraries based on number of users to be served, giving weightage to higher levels of users, who will require more indepth information service. The formula is as follows.

$$S = \frac{A+10(B) + 50\,(X+Y+Z+T) + D}{10000}$$

in which S=Total number of staff excluding the Chief Librarian, A=Pre-Degree students, B=Degree students, X=Post graduate students, Y=M Phil

students, Z=Research scholars, T=Teachers and D=Documents (Book & Non-Book). This is inclusive of non-professionals. The committee has not suggested the ratio to be maintained between them, which is important.

X SALARY

X1 FAVOURABLE COMPARISION

Salaries in the professional group represents a very serious problem in librarianship if colleges hope to attract outstanding people to their library positions. In India only in recent years significant advances have been made in this regard, and these have been mostly in initial grade salaries. Whatever its inherent attractions, the college libraries field will not draw good people, and particularly young men to librarianship, unless the remuneration offered compares favourably with that of the faculty.

X2 DELAYED IMPLEMENTATION OF UGC-KERALA

Even though Mehrotra Committee report has been implemented in most of the states in regard to salaries, career advancement etc of College teachers, the case of the college librarians are kept pending everywhere. They have not started receiving salaries commensurate with the college teachers even in Kerala where UGC scheme was implemented in 1990 with maximum relaxation of UGC's conditions on qualifications etc for college teachers. State Governments are still hesitating to saccept the principle that the professional college librarian, who is to play a very important role in maintaining the quality of instruction, should not be paid less attractive than the other. The remuneration of the staff is to be one of the tests of value attached by government to college library service.

X21 UGC Scales

Libray committee of UGC (1958) has suggested Readers scale and Lectures scale as minimum for Chief Librarians of large and small colleges. For supporting professional staff the committee recommended Lecturers scale and Assistant Lecturers scale as follows:

College and position	Professional status	Grade	Scale
Large college (Chief Librarian)	Professional senior	II	500-25-800 (Reader's scale)
Small College (Chief Librarian)	Professional Junior	III	250-20-500 (Lecturer's scale)
College (Supporting staff)	Professional Junior	III	250-20-500
(Supporting Staff)	Professional Assts	IV	150-10-250 (Asst Lecturers)

X22 Mehortra Scales

On the basis of Mehrotra Committee report (1987) Government of India has revised the pay scales of college librarians, giving parity with teachers scales. The revised pay scales of college librarians that came into effect from 01.01.1986 as recommended by the committee is as follows:

College Librarian (Slection grade)	3700-125-4950-150-5700
College Librarian (Senior Scale)	3000-100-3500-125-5000
College Librarian (Entry cader)	2200-75-2800-100-4000

X221 Supporting Staff

The Mehrotra Committee has not given any detailed recommendation in regard to the staff pattern or grades of Chief Librarian in colleges. These are to be decided according to the formula and staff pattern applied in the case of teachers.

X222 Other colleges (non-UGC)

Joy committee report has recommended grades advised by UGC for librarians of college eligible for UGC assistance. But for other colleges and supporting staff the committee recommended only state scale with an entry cadre scale of Rs 1760-3050 only.

X3 CAREER ADVANCEMENT

X31 Eight Year Service

The important consideration in promotion and filling up of the position of Chief Librarian, in college should be the quality of the person's accomplishment. Work performance should be assessed on the basis of the amount of the employees work, quality of the employees work, amount of supervision needed and relationship with others. If the library staff has academic status, the provisions for career advancement of the teachers will apply to librarians also. As in the case of teachers, seven to eight years service gives the librarian sufficient time to show his ability and also allows the department to make a considered judgement of the individuals potential contribution.

X32 Mehrotra's recommendations

As per the advice of the Mehortra committee Government of India has provided for the career advancement of college librarians as follows.

Every college librarian who is in the scale of pay of Rs 2200-4000 will be placed in the senior scale of Rs 3000-5000 if he/she has

(a) Completed eight years of service, after regular appointment, with one and three year relaxation. (for those who possess MPhil or PhD Degree).

(b) Participation in two refresher courses/summer institutes, each of approximately four week's duration, or engaged in other appropriate continuing education programme, of comparable quality, as may be specified by UGC, and

(c) Consistently satisfactory performance appraisal reports.

College Librarians who have been placed in the senior scale of Rs 3000-5000 will be eligible for placement in the selection grade of Rs 3700-5700 if he/she has

(a) complted 8 years of service in the senior scale.

(b) obtained PhD degree or an equivalent published work

(c) made significant contribution to the development of library service as evidenced by reports

(d) participated in two refresher courses/summer institutes of 4 weeks duration or engaged in other appropriate continuing education programmes of comparable quality.

(e) consistently good in perofrmance appriasal reports.

X23 Professional Scales

As per the grades recommended by Library Committee of UGC in 1958 for different college library positions and as per the scales of pay implemented by Government of India from 01.01.1986 in accordance with Mehrotra Committee Report the following scales of pay are to be allowed for different college library positions.

Position	*Designation*	*Pay scale*
Chief Librarian (Large college)	College Librarian Selection Grade	3700-5700
Chief Librarian (Small college)	College Librarian Senior Scale	3600-5000
Supporting professional staff (All Colleges)	College Librarian	2200-4000

X24 Under Qualified Librarian

Appointing a librarian who is not having the academic qualifications prescribed by UGC, and who do not fulfill the criteria prescribed for placement in senior scale or selection grade, to head a college library or develop a college library at its initial stage, can permanently destroy the college library's efficiency. Joy Committee has studied this aspect in detail. The committee has examined the existing system and services in all college libraries in the State. It found that the decisions on some fundamental issues taken by an inexperienced, underqualified, lower grade librarian, at the initial stages of a college library's development, remain as a permanent feature, preventing the library's efficiency and effectiveness. The committee lists many such aspects. it points out that any further rectification of such a library system in the college, which has grown in a haphazard manner will mean waste of the resources and efforts already spent and also huge further investment for system rectification and reorganization.

X25 Joy Committee

Considering these facts Joy Committee has recommended that irrespective of the grade/(size) of the college, or its libary collection, or the user strength, a Librarian with high academic qualification, scale and relevant status, should be posted at the initial stage in a college when the foundation is laid for its library development.

XI BARRIERS AGAINST CHANGE

XI-1 LACK OF LIBRARIES

The higher education started in India in the last quarter of nineteenth century and progressed in the absence of books and libraries as a major resource of learning. The scenes of learning activity were restricted to listening in classroom and reproducing in the examination. Books and wide learning were not very popular because the libray was not there. In the west the same period witnessed revolutionary changes in teaching-learning process. Their emphasis changed to individual instruction and learning, through extensive reading and experience for proper all round development of the student.

XI-2 CLASSROOM & NOTES

But still in most of the 9000 colleges in India the style of merely listening to a class rooms, taking notes and reproducing in examination halls, is the full connotation of higher learning. Many students do not even attend classes but depend on cheap guides or tution, which feeds everything in

tablet form, enabling quick memorization, reproduction, and success in examinations. Even the teachers in colleges, do not require efficient library system, because `notes' once prepared, would last, until one's retirement.

XI-3 WHY NON-IMPLEMENTATION OF UGC RECOMMENDATION

In Colleges where such obsolete teaching-learning methods are followed, Librarians with high academic qualifications, status and leadership roles, are not essential. That is why in most of our colleges, the recommendations given by Government of India/UGC and expert bodies on pay scales, qualifications, etc from 1959 onwards are not implemented, for librarians, even now. What the colleges require, is only some staff equivalent to storekeepers or clerks, who can maintain a hall or building with the name library, and keep its stock, so that the conditions laid down by the university/UGC etc for colleges's affiliation are fullfilled, and also all grants allowed for library development can be availed.

XI-4 ALL PERVASIVE-ADVANCED KERALA

The existing staff pattern, qualification and scales of pay of college librarians in the states can show that the situations explained above exist all over India. The scales of pay, staff pattern, prescribed qualification etc of colege librarians in Kerala considered to be educationally far advanced than other states, is cited below as a sample[19,20].

Grade and scales of pay of the Librarian Heading a college Library as on 01.09.1994.

Books in the College	*Annual Issue*	*Grade of Librarian*	*Scale of Pay*
15001-100000	30001-100000	I	2200-4000
10001-15000	20001-30000	II	1640-2940
05000-10000	10001-20000	III	1520-2660
000-05000	00000-10000	IV	1125-1720

Out of the 165 Degree and PG colleges existing in Kerala, only 68 colleges are identified to have more than 15000 books, which make them eligible for a Grade I librarian. The criteria for allowing higher grade shows that librarians are in every aspect still considered as store keepers, and so there grades are decided according to the size of the stack and transactions.

XI-5 UNIMPLEMENTED LIBRARIES

In 1990 State Government issued orders implementing UGC scheme for Teachers and Librarians immediately. More than 15000 college teachers in the state were allowed the scales recommended by UGC. But in the 42

Government Colleges, not even a single librarian was sanctioned UGC scheme upto this day even after the lapse of about five years.

XI-51 Misinterpreted

Even the UGC scheme has been cleverly interpreted recently to mean that the scales suggested by UGC for college librarians will be applicable to librarians who are *in charge of large quantum of stock* (ie., ebove 15000 books which could allow them a First Grade[21]). So when the UGC scale will be allowed, only the chief librarians of 12 government colleges out of 42 colleges, which run Degree and Post Graduate courses, will become eligible for UGC Scale. Only 55 out of 123 in private colleges will become eligible.As number of books and quantum of issue are the only criteria for First Grade and also UGC scales of pay, 97 colleges in the state out of 165 colleges will be headed by Librarians in the grade equal to or lower than that of Gate Keeper in prisions, Lower Grade Typists or Storekeepers in the State Service. The posts of these librarians require only SSLC and Certificate in Library Science as per existing rules. Also the Chief Librarian's Post in any college that offers even MA/MSc, MPhil, PhD programmes, can be filled by unqualified librarians who may not have even an SSLC as their basic qualification.

XI-511 Kerala Qualifications

Qualifications Prescribed for College Library

Posts by State Government

Librarian Grade I	BA or BSc and Degree or Diploma in Library Science. But 25 percent of the posts will be filled by promoting existing unqualified librarians[22]
Librarian Grade II	"
Librarian Grade III	"
Librarian Grade IV	SSLC and certificate in Library Science.

Among the 264 librarians working in government and private colleges in the state, only 37 persons possess a post graduate degree in any subject. Of these only 7 persons are having their post graduation in Library Science. Among the librarians heading 165 colleges in the state, only 24 persons have Masters Degree in any subject. It means that, 128 colleges among 165 colleges in the state, are not having a Librarian who has even the bare minimum qualification to organise the services expected from a college library. With all the interpretations and relaxations given to the recommendations of UGC, the situation in the state is not going to change atleast for another 25 years.

XI-6 SUPPORTING STAFF

As per existing staff pattern supporting staff is available to 87 colleges only. That also is a Librarian Grade IV-a Semi Professional staff. Other 78 colleges have to function only with one Semi Professional staff with SSLC and CLISc acting as the Chief Librarian. This being the status and qualifications of the college librarians, they are not represented in councils and committees of the college or have any voice in shaping library policy. Usually they never come to know about the grants received in the college, for library development, book purchase etc or their opinions considered in utilizing such grants[23]. They are also not qualified or capable to attend such duties. Hence crores and crores of rupees granted to college libraries in the country, annually, by UGC and Governments, gets utilised unscientifically, and lost to Academic Libraries, which is hundred times more than the expense that would have been essential to maintain qualified and capable librarians in colleges as per UGC norms.

XII CONCLUSIONS AND RECOMMENDATIONS

XII-1 ACADMIE EQUATION CONCEDED

The comparative evaluation of the three committee reports related to the role-status-qualification and pay scales of college librarians reveal that they have upheld the basic principles that necessitates granting of teacher status to librarians. But the approaches of each report is different and unique.

XII-2 DIFFERENT REPORTS

Dr SR Ranganathan, being a library science expert his report analyses all the technicalities of library functions in detail, and stresses the need for college libraries to be managed by highly qualified professionals. Dr CL Mehrotra, Emeritus Professor, being an efficient teacher who experienced the instructional role played by librarians, recommends the academic status and pay scales to college librarians. But many aspects required for implementing their recommendations are vague or are lacking in these two reports, which can cause anomalies while they are implemented. VP Joy, IAS being a renowned administrator, analyses, the problem through the viewpoint of an administrator, who is fully aware of the role information has to play in education. His recommendation have clarity in the aspects it covers and that can make its implementation easy.

XII-3 CONCLUSIONS

Analysing together the recommendations contained in the three reports the present study comes to the following conclusions.

* Minimum qualification for recruitment to the post of College Librarian

as recommended from time to time by UGC should be made compulsory for all professional posts in college libraries.

* Qualification, experience and other conditions prescribed by UGC for College librarians of Selection Grade and Senior Scale should be prescribed for the posts of librarians heading large and small college libraries respectively.

* Having a librarians with the qualifications and experience prescribed for College Librarian Selection Grade/Senior Scale should be made the minimum essential prerequisite for a college to avail any type of grant from UGC for library building, equipments or books.

* No university should give affiliation to a college without a librarian having qualifications prescribed by UGC.

* Unless UGC and universities insist on the above aspects related to the college librarians, crores and crores of rupees which are annually allowed to college library development projects by UGC and governments will go waste due to their unscientific utilization under the leadership of underqualified librarians[24].

* Allowing UGC scales, to qualified librarians also, along with teachers, while implementing UGC scheme by State Governments should be made essential for the states to become eligible for claming any financial assistance from UGC or Government of India towards implementing UGC Scheme: for by enhancing only the teachers salary, the quality of education can never be improved as envisaged by UGC scheme.

* Minimum of Four full time college librarians should be allowed for every two hundred Degree and postgraduate students in a college.

* UGC should prepare College Library Standards and UGC and universities should insist on colleges following it, if they are to become eligible for affiliation and grants.

SELF-IMAGE OF LIBRARY AND INFORMATION PROFESSIONALS

SAMYUKTHA R*
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1 INTRODUCTION

Among the various institutions in the society, library is one devoted to collecting, storing, preserving and disseminating information. Librarians, as a professional group generally tend to be more concerned with the day to day work in libraries. This focus has naturally resulted in a situation, where not much attention is being given to the sociology of libraries and information systems. It is therefore necessary to fill this gap by studying libraries in a social context. An important component of such a study would be the study of people who run and manage a library, namely librarians from a sociological point of view. This again has atleast two major components.

(*i*) An assessment of how library and information professionals define and view the work they do (self-image).

(*ii*) The consumer's (user's) perception of what librarians do or are supposed to do.

This study is essentially concerned with the first component namely, self-image of the LIPs.

11 DIFFERENT LEVELS

Any examination of the library profession will naturally reveal differences between the industrialised world and the developing countries. This is because of the differences in the environment in which these two groups operate and function. For example, librarian in a third world country may be more concerned with library programmes than their counterparts in an industrialised country. In otherwords, librarians in developing countries are still debating the relative importance of modernising their libraries and providing efficient information services to a limited clientele and that of providing minimum service to a large user population. While such differences do exist, there appears to be greater agreement on the part of professionals in the developed and developing countries about the proposition that

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librarianship and information work is a profession as much as any other profession deserving public esteem and respect. Inspite of this, librarians have generally not been able to project an image of themselves as a profession of importance on part with the well known professions. This is probably a major contributing factor to the expressions among librarians of their own importance and value to the society. Another factor that has contributed to the concern among librarians of their professional status, is the developments in information technology applications in libraries. Information technology has in some cases contributed to a boost in the image of the LIPs. It has also contributed to a feeling of de-skilling among librarians. The concern among the members of a profession for professional status is not just an exercise in boosting morale. It is important to realise that there is a positive correlation between self-image and productivity. It is therefore important to assess self-image of a profession.

2 OBJECTIVES

In an earlier study carried out by the authors, an attempt was made to identify the relationship between self-image of the LIPs and certain demographic and job characteristics.[2] Surprisingly the result show no perceptible differences among different categories of library professionals. This suggested that self-image profile of a librarian was not significantly influenced by his demographic and job characteristics. In that research 'self-image' was defined as an aggregate of a number of different dimensions of the LIP's perception of his/her role and importance in the society. The responses of users were quantified to arrive at an aggregate value quantifing the 'self-image' of a respondant. In the earlier study, no attempt was made to group the different dimensions of self-image and study the impact if any, of job characteristics on these individual dimensions'. This study is an experiment in this direction. In otherwords, the basic objective of this study is to ascertain the effects, if any, of the different demographic and job characteristics of librarians on each of the dimensions of self-image.

3 METHODOLOGY

The basic research tool employed in this study was a questionnaire. The questionnaire was in two parts–the first part solicited demographic and job information while the second part consisted of questions, each one of which could be deemed as an aspect of one particular dimension of self-image.

31 COMPONENTS

For the purpose of this analysis self-image has been defined as made up of the following eight dimensions: (1) Status (2) Salary (3) Image (4) Job satisfaction (5) Career (6) Working condition (7) Importance of Education (8) Professionalism.

32 RESPONSE

The questions in part II of the questionnaire were grouped under these eight dimensions. The questionnaires were distributed to library professionals (for this research the term professional has been used to refer to those individuals working in these libraries who possessed a minimum post-graduate Bachelor's degree in Library and Information Science) and response were obtained. In distributing questionnaires wherever possible and applicable, professionals working in different levels were given representation. In all, 110 questionnaires were distributed and 86 of them were returned. The distribution was as under:

Library Types	No of Questionnaires given	No of responses received
Public	27	19
Special	25	22
University	31	27
College	15	10
School	12	08
Total	110	86

321 Measurement

The responses to each one of the questions in part II of the questionnaire was measured on a five point scale ranging from "Strongly agree"(A), through "Agree"(B), "Undecided"(C), "disagree"(D), to "Strongly disagree"(E). These responses were quantified as under:

Response	Weight
A or B	3
C	2
D or E	1

In this manner the responses of an individual in respect of each one of the dimensions of self-image were quantified and the total weight attached by individuals to each one of the dimensions were computed.

4 ANALYSIS

The respondents to the questionnaire were grouped into different catego-

ries based on their job and demographic characteristics. These characteristics which were used for the purpose of grouping were sex, qualification, age, income level, length of experience and type of library. The overall weight attached by each one of these categories of LIPs to each one of the eight dimensions of self-image was statistically analysed to identify if any statistically significant correlation between job characteristics and the dimensions of self-image were present. Statistical analysis was carried out, by developing three way ANOVA tables correlating three job/demographic characteristics, to a particular dimension of self-image. The results are presented in the ANOVA tables 1-24.

5 RESULTS

The results suggest that the demographic and job characteristics examined in this research do not have any bearing on any of the dimensions of self-image. This is evident from the fact that there is no perceptible difference between different categories of the LIPs in their estimate of self-image. The findings are surprising as at the beginning of the study it was believed, that these job and demographic characteristics would have a positive bearing on the different dimensions of self-image. This is particularly so, as the assessment of self-image appears to be uniform, cutting across such job characteristics as, type of library, income level, experience etc. This phenomenon needs to be probed further and compared with other professions in a developing country such as India. It is possible that librarians in a third world country may feel more removed from the society than thier counterparts in the developed world or even the more recognised professions in their own countries. However, library professionals both in developing and developed countries seem to be unified in generally supporting the proposition that librarianship requires specialised skills and training.[1]

51 FUTURE STUDY

Another factor that should be taken into consideration in planning further research into the sociology of library profession is that, this study is limited to a few select demographic and job characteristics. There are obviously several other job characteristics which need to be investigated. These include an individual's position in the hierarchy in a library, his participation in the decision making process, the extent to which the library is automated, nature of the parent organisation, the size of the library etc. A third factor that should also be kept in mind is, this research is confined to seeking the LIPs views to identify their own assessment of their image. Any comprehensive study of the sociology of library and information profession should necessarily examine the public (both users and non users) opinion of library profession. In otherwords, it is necessary to examine how people perceive the status and

Table 1 Status–Sex/Qualification/Age

Source	DF	SS	MSS	F-value	
Main effect(A)	1	6.631348	6.631348	0.0328552	< 1 MS
Main effect(B)	1	4.491944	4.491944	2.225546E-02	< 1 MS
Main effect(C)	1	0.8713379	0.8713379	4.317069E-03	< 1 MS
Interaction Effect					
(AB)	1	1.697144	1.697144	8.408546E-03	
(BC)	1	3.942871E-02	0.5834961	2.890948E-03	
(AC)	1	0.5834961	0.5834961	2.890948E-03	
(ABC)	1	0.4030762	0.4030762	1.997053E-03	
Error	87	15743.17	201.8356		
Total	94	15757.89			

Means of the First Factor (A-sex)

Levels	Mean
1	13.21277
2	14.41026

Means of the second factor (B-qualification)

Levels	Mean
1	13.39344
2	14.64

Means of the third Factor (C-age)

Levels	Mean
1	13.16129
2	14.09091

Table 2 Status–Sex/Qualification/Age

Source	DF	SS	MSS	F-value	
Main effect(A)	1	5.605042	5.604042	7.97415E-02	<1MS
Main effect(B)	1	0.26.2146	0.262146	3.646826E-03	< 1 MS
Main effect(C)	1	3.375244E-02	3.375244E-02	4.695447E-04	< 1 MS
Interaction Effect					
(AB)	1	0.5010376	0.5010376	6.970149E-03	
(BC)	1	2.858999	1.554077	2.161944E-03	
(AC)	1	1.554077	1.554077	2.161944E-03	
(ABC)	1	0.745545	0.7455445	1.037159E-02	
Error	78	5606.901	71.88334		
Total	85	5618.451			

Means of the First Factor (A-sex)

Levels	Mean
1	8.787234
2	7.564103

Means of the second factor (B-qualification)

Levels	Mean
1	8.163935
2	8.39999

Means of the third Factor (C-age)

Levels	Mean
1	8
2	8.363636

Table 3 Status–Sex/Qualification/Age

Source	DF	SS	MSS	F-value	
Main effect(A)	1	32.10352	32.10352	0.1026251	<1 MS
Main effect(B)	1	23.51196	23.51196	7.516051E-02	<1 MS
Main effect(C)	1	15.08374	15.08374	4.821808E-02	<1 MS
Interaction Effect					
(AB)	1	9.911865	9.911865	3.168518E-02	
(BC)	1	18.50684	10.96948	3.506606E-02	
(AC)	1	10.96978	10.96948	3.506606E-02	
(ABC)	1	11.43066	11.43066	3.506606E-02	
Error	78	27215.63	312.8234		
Total	85	27337.15			

Means of the First Factor (A-sex)

Levels	Mean
1	19.10638
2	14.10417

Means of the second factor (B-qualification)

Levels	Mean
1	18.70492
2	12.76471

Means of the third Factor (C-age)

Levels	Mean
1	18.54839
2	15.625

Table 4 Status–Sex/Qualification/Age

Source	DF	SS	MSS	F-value	
Main effect(A)	1	2.21344	2.21344	4.880364E-02	<1MS
Main effect(B)	1	3.43396	3.43396	0.0757146	<1 MS
Main effect(C)	1	1.263428E-02	1.263428E-02	2.785703E-04	<1 MS
Interaction Effect					
(AB)	1	1.592896	1.592896	3.512139E-02	
(BC)	1	0.5651245	0.6444702	1.420978E-02	
(AC)	1	0.6444702	0.6444702	1.420978E-02	
(ABC)	1	0.0638733	0.0638733	1.4083328E-03	
Error	78	3537.612	45.354		
Total	85	3546.138			

Means of the First Factor (A-sex)

Levels	Mean
1	6.340426
2	6.769231

Means of the second factor (B-qualification)

Levels	Mean
1	6.245902
2	7.24

Means of the third Factor (C-age)

Levels	Mean
1	6.354839
2	6.636364

Table 5 Status–Sex/Qualification/Age

Source	DF	SS	MSS	F-value	
Main effect(A)	1	1.01001	1.01001	2.826494E-03	< 1 MS
Main effect(B)	1	0.2539063	0.2539063	7.10552E-04	< 1 MS
Main effect(C)	1	6.811524E-02	6.811524E-02	1.906192E-04	< 1 MS
Interaction Effect					
(AB)	1	0.2717285	0.2717285	7.604273E-04	
(BC)	1	1.341309	0.2177735	6.09435E-04	
(AC)	1	0.2177735	0.2177735	6.09435E-04	
(ABC)	1	1.684326	1.684326	4.713556E-03	
Error	78	27872.26	357.3367		
Total	85	27877.11			

Means of the First Factor (A-sex)

Levels	Mean
1	19
2	18.28205

Means of the second factor (B-qualification)

Levels	Mean
1	18.59016
2	18.88

Means of the third Factor (C-age)

Levels	Mean
1	18.35484
2	18.85455

Table 6 Status–Sex/Qualification/Age

Source	DF	SS	MSS	F-value	
Main effect(A)	1	10.06068	10.06068	0.2347782	<1MS
Main effect(B)	1	0.7171936	0.7171936	1.673658E-02	< 1 MS
Main effect(C)	1	0.3798981	0.3898981	8.865381E-03	< 1 MS
Interaction Effect					
(AB)	1	2.1651	2.1651	5.052523E-02	
(BC)	1	0.0199585	0.1013336	2.364742E-03	
(AC)	1	0.1013336	0.1013336	2.364742E-03	
(ABC)	1	0.1360626	0.1360626	3.175186E-03	
Error	78	3342.445	42.85187		
Total	85	3356.026			

Means of the First Factor (A-sex)

Levels	Mean
1	2.851064
2	5.512821

Means of the second factor (B-qualification)

Levels	Mean
1	4.229509
2	3.64

Means of the third Factor (C-age)

Levels	Mean
1	3.612903
2	4.309091

Table 7 Status–Sex/Qualification/Age

Source	DF	SS	MSS	F-value	
Main effect(A)	1	2.452271	2.452271	1.500213E-02	< 1 MS
Main effect(B)	1	0.2437744	0.2437744	1.491327E-03	< 1 MS
Main effect(C)	1	7.617188E-02	7.617188E-02	4.659929E-04	< 1 MS
Interaction Effect					
(AB)	1	0.3271485	0.3271485	2.001379E-03	
(BC)	1	0.2005615	1.149292	7.03966E-03	
(AC)	1	1.149292	1.149292	7.030966E-03	
(ABC)	1	0.3817139	0.3817139	2.33192E-03	
Error	78	12750	163.4615		
Total	85	1275.83			

Means of the First Factor (A-sex)

Levels	Mean
1	12.38298
2	13.02564

Means of the second factor (B-qualification)

Levels	Mean
1	12.57377
2	12.92

Means of the third Factor (C-age)

Levels	Mean
1	12.51613
2	12.76364

Table 8 Status–Sex/Qualification/Age

Source	DF	SS	MSS	F-value	
Main effect(A)	1	1640.103	1640.103	2.558746E-02	< 1MS
Main effect(B)	1	1690.762	1690.762	0.0263778	< 1 MS
Main effect(C)	1	1863.822	1863.822	2.907774E-02	< 1 MS
Interaction Effect					
(AB)	1	1591.379	1591.379	2.482731E-02	
(BC)	1	1794.696	1489.998	2.324566E-02	
(AC)	1	1489.998	1489.998	2.324566E-02	
(ABC)	1	1783.966	1783.966	2.783566E-02	
Error	78	4999637	64097.91		
Total	85	5011492			

Means of the First Factor (A-sex)

Levels	Mean
1	72.44681
2	26.84615

Means of the second factor (B-qualification)

Levels	Mean
1	62.34426
2	25.96

Means of the third Factor (C-age)

Levels	Mean
1	25
2	66.85455

Table 9 Status–Sex/Qualification/Age

Source	DF	SS	MSS	F-value	
Main effect(A)	1	2.27990	2.27990	0.0112152	<1 MS
Main effect(B)	1	0.7125245	0.7125245	3.505014E-03	<1 MS
Main effect(C)	1	0.1937256	0.1937256	9.529651E-04	<1 MS
Interaction Effect					
(AB)	1	1.25293	1.25293	6.163348E-03	
(BC)	1	5.640015	30.77649	0.1513941	
(AC)	1	30.77649	30.77649	0.1513941	
(ABC)	1	3.663452	3.663452	1.802107E-02	
Error	78	15743.17	201.8356		
Total	85	15900.92			

Means of the First Factor (A-sex)

Levels	Mean
1	13.31111
2	14.5122

Means of the second factor (B-qualification)

Levels	Mean
1	12.75
2	14.32258

Means of the third Factor (C-age)

Levels	Mean
1	12.93333
2	14.39286

Table 10 Status–Sex/Qualification/Age

Source	DF	SS	MSS	F-value	
Main effect(A)	1	0.1806641	0.1806641	2.489202E-03	<1MS
Main effect(B)	1	7.202149E-03	7.202149E-03	9.923169E-05	<1 MS
Main effect(C)	1	0.0345459	0.0345459	4.759758E-04	<1 MS
Interaction Effect					
(AB)	1	1.27832	1.27832	1.761278E-02	
(BC)	1	0.1069336	0.1477661	2.035932E-03	
(AC)	1	0.1477661	0.1477661	2.035932E-03	
(ABC)	1	0.7890625	0.7890625	1.087176E-02	
Error	78	5661.172	72.57912		
Total	85	5663.717			

Means of the First Factor (A-sex)

Levels	Mean
1	8
2	8.536586

Means of the second factor (B-qualification)

Levels	Mean
1	8.125
2	8.306452

Means of the third Factor (C-age)

Levels	Mean
1	8.066667
2	8.357143

Table 11 Status–Sex/Qualification/Age

Source	DF	SS	MSS	F-value	
Main effect(A)	1	2097.461	2097.461	4.933311E-02	<1 MS
Main effect(B)	1	1738.319	1738.319	4.088596E-02	<1 MS
Main effect(C)	1	1840.868	1840.868	4.329795E-02	<1 MS
Interaction Effect					
(AB)	1	1886.932	1886.932	4.438138E-02	
(BC)	1	1892.521	1869.42	0.0439695	
(AC)	1	1869.42	1869.42	0.0439695	
(ABC)	1	1863.791	1863.791	0.0438371	
Error	78	3316271	42516.3		
Total	85	3329461			

Means of the First Factor (A-sex)

Levels	Mean
1	59.37778
2	17.17073

Means of the second factor (B-qualification)

Levels	Mean
1	93.70834
2	18.17742

Means of the third Factor (C-age)

Levels	Mean
1	78.76667
2	18.08929

Table 12 Status–Sex/Qualification/Age

Source	DF	SS	MSS	F-value	
Main effect(A)	1	0.4675293	0.4675293	1.029512E-02	<1MS
Main effect(B)	1	0.7525025	0.7525025	0.0165703	<1 MS
Main effect(C)	1	1.329102	1.329102	2.926716E-02	<1 MS
Interaction Effect					
(AB)	1	2.511597E-02	2.511597E-02	5.530601E-04	
(BC)	1	3.78418E-03	4.259461	9.379442E-02	
(AC)	1	4.259461	4.259461	9.379442E-02	
(ABC)	1	1.663788	1.663788	3.663704E-02	
Error	78	3542.193	45.41273		
Total	85	3550.694			

Means of the First Factor (A-sex)

Levels	Mean
1	6.222223
2	6.853659

Means of the second factor (B-qualification)

Levels	Mean
1	6.25
2	6.629032

Means of the third Factor (C-age)

Levels	Mean
1	6.466667
2	6.553571

Table 13 Status–Sex/Qualification/Age

Source	DF	SS	MSS	F-value	
Main effect(A)	1	1.386231	1.386231	3.874714E-03	<1 MS
Main effect(B)	1	0.1137695	0.1137695	3.180023E-04	<1 MS
Main effect(C)	1	9.765625E-04	9.765625E-04	2.729633E-06	<1 MS
Interaction Effect					
(AB)	1	2.09961	2.09961	5.868711E-03	
(BC)	1	5.639649E-02	6.203614	1733999E-02	
(AC)	1	6.203614	6.203614	1.733999E-02	
(ABC)	1	3.818115	3.818115	1.067218E-02	
Error	78	27905.54	357.7633		
Total	85	27919.22			

Means of the First Factor (A-sex)

Levels	Mean
1	18.62222
2	18.82927

Means of the second factor (B-qualification)

Levels	Mean
1	18.41667
2	18.83871

Means of the third Factor (C-age)

Levels	Mean
1	18.43333
2	17.875

Table 14 Status–Sex/Qualification/Age

Source	DF	SS	MSS	F-value	
Main effect(A)	1	0.3145905	0.3145905	2.254524E-02	<1MS
Main effect(B)	1	0.3851166	0.3851166	2.759951E-02	<1 MS
Main effect(C)	1	0.046875	0.046875	3.359313E-03	<1 MS
Interaction Effect					
(AB)	1	5.970764E-02	5.970764E-02	4.278969E-03	
(BC)	1	0.2540741	0.5864258	4.202641E-02	
(AC)	1	0.5864258	0.5864258	4.202641E-02	
(ABC)	1	0.9311218	0.9311218	6.672918E-02	
Error	78	1088.392	13.95375		
Total	85	1090.97			

Means of the First Factor (A-sex)

Levels	Mean
1	2.977778
2	3.878049

Means of the second factor (B-qualification)

Levels	Mean
1	2.791667
2	3.645162

Means of the third Factor (C-age)

Levels	Mean
1	2.966667
2	3.642857

Table 15 Importance of Education - Income/Age/Experience

Source	DF	SS	MSS	F-value	
Main effect(A)	1	11.69855	11.69855	6.887726E-02	<1 MS
Main effect(B)	1	19.18402	19.18402	0.1129493	<1 MS
Main effect(C)	1	9.580139	9.580139	5.640476E-02	<1 MS
Interaction Effect					
(AB)	1	18.7442	18.7442	0.1103598	
(BC)	1	29.36041	14.07575	8.287343E-02	
(AC)	1	14.07575	14.07575	8.287343E-02	
(ABC)	1	21.72394	21.72394	0.129035	
Error	78	13248.01	169.8463		
Total	85	13372.38			

Means of the First Factor (A-sex)

Levels	Mean
1	12.64445
2	12.87805

Means of the second factor (B-qualification)

Levels	Mean
1	13.29167
2	12.54839

Means of the third Factor (C-age)

Levels	Mean
1	12.7667
2	12.75

Table 16 Professionalism - Income/Age/Experience

Source	DF	SS	MSS	F-value	
Main effect(A)	1	3152.783	3152.783	4.521876E-02	<1MS
Main effect(B)	1	2883.942	288.942	0.0413629	<1 MS
Main effect(C)	1	2840.709	2840.709	4.074284E-02	<1 MS
Interaction Effect					
(AB)	1	2662.555	2662.555	3.818766E-02	
(BC)	1	2855.957	3073.43	4.408063E-02	
(AC)	1	3073.43	3073.43	4.408063E-02	
(ABC)	1	2886.404	2886.404	4.139822E-02	
Error	78	5438387	69722.91		
Total	85	5458743			

Means of the First Factor (A-sex)

Levels	Mean
1	77.91111
2	25.31708

Means of the second factor (B-qualification)

Levels	Mean
1	121.25
2	26.35484

Means of the third Factor (C-age)

Levels	Mean
1	102.6667
2	26.14286

Table 17 Status - Type of Library/Income/Experience

Source	DF	SS	MSS	F-value	
Main effect(A)	1	6.927979	2.309326	1.156979E-02	< 1 MS
Main effect(B)	1	14.30322	14.30322	7.165955E-02	< 1 MS
Main effect(C)	1	0.1103516	0.1103516	5.528645E-04	< 1 MS
Interaction Effect					
(AB)	1	2.099365	0.6997884	3.50596E-03	
(BC)	1	37.37915	19.86426	0.0995205	
(AC)	1	19.86426	6.62142	0.0331735	
(ABC)	1	4.601563	1.533854	7.684653E-03	
Error	78	13971.98	199.5997		
Total	85	14057.26			

Means of the First Factor (A-sex)

Levels	Mean	Levels	Mean
1	14.47368	3	14.38889
2	12.63636	4	13.7037

Means of the second factor (B-qualification)

Levels	Mean
1	13.31111
2	14.21951

Means of the third Factor (C-age)

Levels	Mean
1	12.93333
2	14.17857

Table 18 Salary - Type of Library/Income/Experience

Source	DF	SS	MSS	F-value	
Main effect(A)	1	4.967163	1.655721	2.301098E-02	<1MS
Main effect(B)	1	1.608399	1.608399	0.0223533	< 1 MS
Main effect(C)	1	4.260254E-02	4.260254E-02	5.920841E-04	< 1 MS
Interaction Effect					
(AB)	1	13.32275	4.440918	6.17925E-02	
(BC)	1	2.075195E-03	8.59729	0.1194839	
(AC)	1	8.59729	2.865764	3.982798E-02	
(ABC)	1	5.320313	1.773438	2.464699E-02	
Error	78	5036.747	71.95353		
Total	85	5070.608			

Means of the First Factor (A-sex)

Levels	Mean	Levels	Mean
1	8.473684	3	7.888889
2	8.409091	4	8.296296

Means of the second factor (B-qualification)

Levels	Mean
1	8
2	8.585366

Means of the third Factor (C-age)

Levels	Mean
1	8.066667
2	8.392858

Table 19 Job Satisfaction - Type of Library/Income/Experience

Source	DF	SS	MSS	F-value	
Main effect(A)	1	6.631348	6.631348	0.0328552	< 1 MS
Main effect(B)	1	4.491944	4.491944	2.225546E-02	< 1 MS
Main effect(C)	1	0.8713379	0.8713379	4.317069E-03	< 1 MS
Interaction Effect					
(AB)	1	1.697144	1.697144	8.408546E-03	
(BC)	1	3.942871E-02	0.5834961	2.890948E-03	
(AC)	1	0.5834961	0.5834961	2.890948E-03	
(ABC)	1	0.4030762	0.4030762	1.997053E-03	
Error	78	15743.17	201.8356		
Total	85	15757.89			

Means of the First Factor (A-sex)

Levels	Mean	Levels	Mean
1	14.47368	3	14.47368
2	12.63636	4	12.63636

Means of the second factor (B-qualification)

Levels	Mean
1	13.39344
2	14.64

Means of the third Factor (C-age)

Levels	Mean
1	13.16129
2	14.09091

Table 20 Career - Type of Library/Income/Experience

Source	DF	SS	MSS	F-value	
Main effect(A)	1	5.605042	5.604042	7.97415E-02	< 1MS
Main effect(B)	1	0.26.2146	0.262146	3.646826E-03	< 1 MS
Main effect(C)	1	3.375244E-02	3.375244E-02	4.695447E-04	< 1 MS
Interaction Effect					
(AB)	1	0.5010376	0.5010376	6.970149E-03	
(BC)	1	2.858999	1.554077	2.161944E-03	
(AC)	1	1.554077	1.554077	2.161944E-03	
(ABC)	1	0.745545	0.7455445	1.037159E-02	
Error	78	5606.901	71.88334		
Total	85	5618.451			

Means of the First Factor (A-sex)

Levels	Mean	Levels	Mean
1	14.47368	3	14.47368
2	12.63636	4	12.63636

Means of the second factor (B-qualification)

Levels	Mean
1	8.163935
2	8.39999

Means of the third Factor (C-age)

Levels	Mean
1	8
2	8.363636

Table 21 Image - Type of Library/Income/Experience

Source	DF	SS	MSS	F-value	
Main effect(A)	1	6.631348	6.631348	0.0328552	< 1 MS
Main effect(B)	1	4.491944	4.491944	2.225546E-02	< 1 MS
Main effect(C)	1	0.8713379	0.8713379	4.317069E-03	< 1 MS
Interaction Effect					
(AB)	1	1.697144	1.697144	8.408546E-03	
(BC)	1	3.942871E-02	0.5834961	2.890948E-03	
(AC)	1	0.5834961	0.5834961	2.890948E-03	
(ABC)	1	0.4030762	0.4030762	1.997053E-03	
Error	78	15743.17	201.8356		
Total	85	15757.89			

Means of the First Factor (A-sex)

Levels	Mean	Levels	Mean
1	14.47368	3	14.47368
2	12.63636	4	12.63636

Means of the second factor (B-qualification)

Levels	Mean
1	13.39344
2	14.64

Means of the third Factor (C-age)

Levels	Mean
1	13.16129
2	14.09091

Table 222 Morking Condition - Type of Library/Income/Experience

Source	DF	SS	MSS	F-value	
Main effect(A)	1	5.605042	5.604042	7.97415E-02	<1MS
Main effect(B)	1	0.26.2146	0.262146	3.646826E-03	< 1 MS
Main effect(C)	1	3.375244E-02	3.375244E-02	4.695447E-04	< 1 MS
Interaction Effect					
(AB)	1	0.5010376	0.5010376	6.970149E-03	
(BC)	1	2.858999	1.554077	2.161944E-03	
(AC)	1	1.554077	1.554077	2.161944E-03	
(ABC)	1	0.745545	0.7455445	1.037159E-02	
Error	78	5606.901	71.88334		
Total	85	5618.451			

Means of the First Factor (A-sex)

Levels	Mean	Levels	Mean
1	14.47368	3	14.47368
2	12.63636	4	12.63636
2	7.564103		

Means of the second factor (B-qualification)

Levels	Mean
1	8.163935
2	8.39999

Means of the third Factor (C-age)

Levels	Mean
1	8
2	8.363636

Table 23 Importance of Education - Type of Library/Income/Experience

Source	DF	SS	MSS	F-value	
Main effect(A)	1	6.631348	6.631348	0.0328552	< 1 MS
Main effect(B)	1	4.491944	4.491944	2.225546E-02	< 1 MS
Main effect(C)	1	0.8713379	0.8713379	4.317069E-03	< 1 MS
Interaction Effect					
(AB)	1	1.697144	1.697144	8.408546E-03	
(BC)	1	3.942871E-02	0.5834961	2.890948E-03	
(AC)	1	0.5834961	0.5834961	2.890948E-03	
(ABC)	1	0.4030762	0.4030762	1.997053E-03	
Error	78	15743.17	201.8356		
Total	85	15757.89			

Means of the First Factor (A-sex)

Levels	Mean	Levels	Mean
1	14.47368	3	14.47368
2	12.63636	4	12.63636

Means of the second factor (B-qualification)

Levels	Mean
1	13.39344
2	14.64

Means of the third Factor (C-age)

Levels	Mean
1	13.16129
2	14.09091

Table 24 Professionalism - Type of Library/Income/Experience

Source	DF	SS	MSS	F-value	
Main effect(A)	1	5.605042	5.604042	7.97415E-02	< 1MS
Main effect(B)	1	0.26.2146	0.262146	3.646826E-03	< 1 MS
Main effect(C)	1	3.375244E-02	3.375244E-02	4.695447E-04	< 1 MS
Interaction Effect					
(AB)	1	0.5010376	0.5010376	6.970149E-03	
(BC)	1	2.858999	1.554077	2.161944E-03	
(AC)	1	1.554077	1.554077	2.161944E-03	
(ABC)	1	0.745545	0.7455445	1.037159E-02	
Error	78	5606.901	71.88334		
Total	85	5618.451			

Means of the First Factor (A-sex)

Levels	Mean	Levels	Mean
1	14.47368	3	14.47368
2	12.63636	4	12.63636

Means of the second factor (B-qualification)

Levels	Mean
1	8.163935
2	8.39999

Means of the third Factor (C-age)

Levels	Mean
1	8
2	8.363636

social importance of profession vis-a-vis other professions and occupations.

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WORK ENVIRONMENT, ORGANISATIONAL ROLE, STRESS AND JOB INVOLVEMENT AMONG LIBRARY PROFESSIONALS IN INDIA: REFLECTIONS FOR TODAY AND TOMORROW

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Abbreviations Used

DU	Delhi University
DUC	Delhi University Colleges
ORS	Organisational Role Stress
PA	Professional Assistant
PJ	Professional Junior
PS	Professional Senior
t	Testing Differences between Means
WE	Work Environment

1 POSITION & ROLE

When an individual accepts a position with an organisation, he or she has accepted a certain role that is expected to be carried out. It is through the role that the individual interacts with the system, and gets (or does not get) integrated with the system.

11 PERSONNEL IN THE ENVIRONS OF INSTITUTIONS

"Organizations are a social system"[1]. Organisations are so pervasive in our society, and have so much influence on us, that it is important they be well managed. The study of people in organisations is a proper and vital study for managers and administrators. However, organisations are more than simply an aggregation of individuals who make up each organisation. These aggregation of people develop their own characteristics. Therefore, studying only people without looking at the organisations in which they do their work, deals with only half the problem of managing in work organisations. For a manager of organisation to really understand and

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analyse what takes place at work, he or she must understand not only the individual, but also the characteristics of the environment in which the individual works.

12 LIBRARY SYSTEM

A library is a system. The set of elements for a library consists of personnel, materials and finance. Similarly a modern library, with a few exceptions is regarded as a service institution. The present research study is mainly concerned with the academic Libraries, ie College and Univesity libraries in Delhi.

13 JOB INVOLVEMENT

The study was made on the framework, that the job involvement is the most valued quality of human beings, because high job involvement affects enormously, not only the organisational effectiveness, but also the country in general. The job involvement of an individual has multiple interdependent and interactive causes and can be understood in the context of the interaction between Job Involvement and Background Variables, Organisational Role, Stress and Work Environment.

2 WORK ENVIRONMENT

No organisation exists in a static world. It is surrounded by the environment and is constantly interacting with it. Various psychologists and management thinkers have conceptualised Work Environment in different ways.

21 SYSTEM & ENVIRONMENT

According to Hall and Fagen, "for a given system, the environment is the set of all objects, a change in whose attributes, affect the system, and also those objects whose attributes are changed, by the behaviour of the system"[2]. This definition invites the natural question of, when an object belongs to a system and when it belongs to the environment? For example, if an object reacts with a system in the way described above, should it not be considered a part of the system? The answer is by no means definite. In a sense, a system together with its environment makes up the universe of all things of interest in a given context. Subdivisions of this universe fall into two sets, system and environment. Can also be done in many ways, which are in fact quite arbitrary. Ultimately, it depends on the intentions of the one who is studying, the possible configurations of objects to be taken as the system.

22 FACTORS OF ENVIRONMENT

What exactly is then, a Work Environment? The answer to this question appears to be rather simple. "It is *where* an individual performs job related

tasks. But it is more than just the *where*. The Work Environment includes a number of factors, any one of which may be considered the most important element by different people. Location of the organisation; size of the organisation; work conditions; nature of the job; fellow employees; the reward systems; internal rules and policies; the industry; the local, state and federal regulations that apply to the industry; the relationship with competitors; the relationship with the public; the managerial philosophy; the leadership styles; and the organizational structure all contribute to what is defined as the Work Environment"[3].

23 ENVIRONMENTAL VARIABLES

Work Environment would mean 'where' an individual performs job related tasks. This 'where' includes, as measured here, three classes of environmental variables: the tasks comprising the job, the nature of the supervision and the overall organisational climate. This 'where' in the organisation is based on the 'classical bureaucratic model'. Characteristics of the model have been applied on 'individuals' rather than on 'organisations'.

231 Classical Bureaucratic Model

"Classical Bureaucratic Model is characterised by a pyramid consisting of positions which are ordered into a hierachical system of superordination and subordination. Each position has well defined activities and responsibilities demanding specialised competence, with authority delimited, to that necessary for the discharge of its duties. Ultimate control of the organisation rests at the top of the hierarchy"[4].

2311 Minus Opporbrium

Bureaucratic would refer to a particular type of organisational structure, the one that is widely used and found in industrial, governmental and educational institutions. The popular and opprobrious use of this term to present 'red tape' and 'inefficiency' is not intended.

3 ORGANISATIONAL ROLE STRESS

The concept of role is the key concept in understanding the integration of the individual in a system. The concept of 'role' relates to the activities of an individual in a particular position. It describes the behaviour he or she is expected to exhibit, when occupying a given position, in the societal or organisational system. The relationship of 'role' to individual behaviour is apparent. 'Role' relates to the expected behaviour patterns attributed to the position, where position relates to the status in a social system, occupied by designated individuals.

31 STRESS DEFINITION

Coffer and Appley defined the term stress as "the state of an organism in which his/her well-being or integrity is perceived to be endangered, (s)he feels that all energy must be diverted for its protection"[5].

32 ROLE CONFLICTS/STRESS-FACTORS

Pareek[6] has discussed role conflicts or stress under the two purposed concepts of role systems (role space and role set). These may be enumerated as follows!

1	Self Role Distance	6	Role Ambiguity
2	Intra Role Conflict	7	Role Overload
3	Role Stagnation	8	Role Isolation
4	Inter Role Distance	9	Role Erosion
5	Role Boundness	10	Role Inadequacy

33 EXPECTATION FROM POSITION

Here, Role would mean any position a person holds in a system (organisation) as defined by the expectations, various significant persons including himself, have from that position. It is through the role, that the individual interacts with, and gets (or does not get) integrated with the system.

34 INDIVIDUAL PERCEPTION-THE DECIDER

Stress would represent the perceived forces, stimuli, or cognitions from within or without, which create threat in the individuals. Here emphasis is on the world 'perceived'. Individuals perceptions of threat or danger is stressful, irrespective of the presence of real or objective danger. The term 'perceived' is also emphasised to account for individual differnces, in the same objective situation may be perceived 'threatening' by individual A but challenging by individual B. In the pesent context, only individual A will be treated under stress. Organisational Role Stress would mean, the stress people experience in organisational roles.

4 JOB INVOLVEMENT: CONCEPT AND DEFINITION

41 DIFFERENCES

The general concept of Job Involvement (JI), as a type of work related attitude has long been of interest to behavioural scientists. Unfortunately, different interpretations of job involvement have evolved, in the course of studying the relationship of job involvement, to such variables as performance, absenteeism and turnover. These differences emphasise the lack of agreement concerning what job involvement represents.

42 DEFINITIONS

421 Dubin

Sociologically, in the words of Dubin "Job Involvement is the internationalization of values about the goodness of work or the importance of work, in the worth of the person and perhaps it thus measures the ease with which the person can be further socialized by an organization"[7].

422 Lodahl & Kejner

Lodahl and Kejner have defined it as psychologically with his work, or the importance of work in his total self images"[8].

423 Lowler & Hall

Lowler and Hall also defined the Job Involvement in the same way as "the degree to which the job situation is central to the person and his/her psychological identity"[9]. Hence the Job Involved person is very much affected by the job, because he or she perceives the job as an important part of his or her self image.

424 Thus Job Involvement would be the degree to which a person is identified psychologically with his or her work, or the importance of work in his or her total self image.

Note: 'Job' means a collection of individual tasks, that a worker performs.

5 LIBRARIANS AS PROFESSIONALS

51 DEFINITION

A perusal of sociological literature available on the concept of 'profession' identifies the following core characteristics of a profession, which are most commonly accepted these days, throughout the world (Shaffer)[10]:

1 Specialised knowledge and skill,

2 Research and continous in-service updating of specialised knowledges,

3 Intellectual activity,

4 Social necessity,

5 Service to the society rather than personal gains,

6 Recognition by public and status in the society

7 Standardised terminology,

8 Closely knit profession organization having an altruistic philosophy,

9 Stability of the profession through permanent membership,

10 Code of ethics for the practitioners,

11 Autonomy of the profession, and

12 Authority of the practitioners.

52 CONCEPT OF LIBRARY

In earlier days, the libraries had museum value and their holdings were meant only for the elite. But now the libraries are agencies of mass communication and an important source of social emancipation. Now it has emerged with its own fundamental laws and methodology to meet the challenge of the ever changing conditions and needs of the society, and also of the rapid changes taking place in the universe of knowledge. Hence the concept of librarianship has changed tremendously.

52 CHARACTERISTICS OF LIBRARIANS

Librarianship calls for a unique combination of academic attainments and personal qualities. A Librarian is an administrator without being any less a scholar. He is a scientist without being a theoretician. He is a lover of books and he is equally interested in the people. He is a person with an eye on the technology, because all technological advances affect the libraries and their social reference. These complex qualities call for a comprehensive training, with the result that the accomplishments of a Librarian are often not easily understood. The Librarian of today is concerned not only with the collection, preservation, analysis and storage of knowledge, but also with documentation work and dissemination of information. Consequently, it requires elaborate managerial ability of a high order and devotion to details involved in increasingly demanding multi-faceted library series. Librarianship of today is multi-disciplinary, and encompasses the various fields of human endeavour. it is made of the people, to whom collection, preservation, use and transmission of knowledge are entrusted. It is important to know the professional characteristics of librarianship. Over the years, there have been many learned disputes and conflicting views, about the librarianship as a profession.

53 PAUCITY OF LITERATURE ON THE SUBJECT STUDIED

Little research has been reported in library literature, pertains to job satisfaction, personality, personnel management, role stress, role in relation to background, and involvement. Work Environment and Organisational Role Stress in relation to Job Involvement is relatively a virgin concept in librarianship. In the context of Library and Information Organisation in India, studies on Work Environment and Organisational Role Stress in relation

to Job Involvement, are conspicuous by their absence. Not a single paper could be identified, pertaining to the variables under study. As regards, job satisfaction of librarians in India, one by Navlani[11] (1985) has been reported. Only single study has been reported on the job satisfaction and personality of librarians by Garg[12] (1986). One single study has been done on the socio economic background and professional orientation of librarians in Delhi by Chopra[13] (1984).

54 QUESTIONNAIRE & MEASUREMENT

The data for the above variables namely WE, ORS, JI and Personal Background Factors were collected through questionnaires and measured by using WEPS, ie. Work Environment Preference Schedule of LV Gordon, ORS Scale, ie. Organisational Role Stress Scale of Udai Pareek, JI Scale, ie Job Involvement Scale of TM Lodahl and M Kejner and Information schedule designed by the Researcher respectively.

6 CONCLUSIONS

On the basis of the results obtained in the present investigation, broadly the following conclusions were drawn:

1 JNU LIbrary Professionals are significantly less job involved than the DU Library Professionals and DUC Library Professionals. Significant differences are not evident on job involvement between the JNU Library Professionals and JMI Library Professionals.

2 DU Library Professionals are significantly less job involved than the DUC Library Professionals. However, significant differences are not evident between the DU Library Professionals and JMI Library Professionals on Job involvement.

3 DUE Library professionals are significantly more job involved than the JMI Library Professionals on Job Involvement.

4 In the population,there is no significant difference between, Male and Female, on job involvement.

5 DU Male Library Professionals are significantly more job involved than the DU Female Library Professions.

6 DU Male Library Professionals are significantly more job involved than the JNU Female Library Professionals.

7 DUC Female Library Professionals are significantly more job involved than the JNU Male Library Professionals.

8 DUC Male Library Professionals are significantly more job involved than the JNU Female Library Professionals.

9 DUC Male Library Professionals are significantly more job involved than the DU Female Library Professionals.

10 JNU Male Library Professionals are significantly less job involved than the DUC Male Library Professionals.

11 JNU Female Library Professionals are significantly less job involved than the DUC Female Library Professionals.

12 DU Female Library Professionals are significantly less job involved than the DUC Female Library Professionals.

13 Significant differences are not evident between any two library professional positions (ie, PA, PJ and PS) in JNU Library Professionals, DU Library Professionals and DUC Library Professionals.

14 In JNU Library Professionals, significantly negative correlation, between Resource Inadequancy and job involvement is evident.

15 In DU Library Professionals significantly negative correlation, between length of service, role overload, self role distance and role ambiguity with job involvement is found.

16 IN DUC Library Professionals, significantly positive correlation between role stagnation and job involvement is seen.

17 Female Library Professionals in the population show significantly positive correlation between role stagnation and job involvement. Male Library Professionals do not show significant correlation of any variable with the job involvement.

18 In JNU Library Professionals resource inadequacy explained 18.4% of the variance out of 19 variables and has got predictive value for job involvement.

19 In DU Library Professionals age and role overload explained 16.5% of the variance out of 19 variables and have got the predictive value for job involvement.

20 In DUC Library Professionals role stagnation, role expectation conflict and number of dependents explained 27% of the variance and have got the predictive value for job involvement.

21 In Male Library Professionals in the population role expectation conflict and role stagnation explained 9.1% of the variance and have got the predictive value for job involvement.

22 In Female Library Professionals in the population role stagnation and role expectation conflict explained 17.7% of the variance and have got the predictive value for the job involvement.

7 THE FUTURE PERSPECTIVE

For any organisation, problem of understanding Job Involvement of employees is of great significance. In a country like India the capital, technical and technological resources are limited. Though the manpower is a big asset, development requires a high rate of output with better performance and the fullest possible utilisation of both human as well as material resources. Under such circumstances, it is essential, that a proper understanding concerning Organisational role Stress, Work Environment and Job Involvement among library professionals and their relations with Background Variables be obtained.

71 QUALITY OF WORK

When studying human behaviour in a library, it is necessary to examine the overall impact of the Work Environment on the quality of work life offered to members of the library. When there is evidence of a behavioural approach to work, there is also a high quality of work life with the Work Environment. When there is a low quality of work life, there is not only poor human relations, but also a host of costly human problems, such as poor work quality, complaints and low-will to work.

72 COMPETENT WORK

One of the most important role of Professionals Working as library unitheads, is to create a Work Environment where people can make a contribution, become competent, and be satisfied. When professionals feel competent, they feel important and worwhile. At work, an individual experiences the feelings of competence and satisfaction when he or she does well in a meaningful job. The professional must, therefore, have the opportunity to do meaningful work that will allow the fulfilment of some personal needs and expectations.

73 GOAL ORIENTED BEHAVIOUR

The nature of the work role will be very important to the individual's satisfaction of needs. A work role includes the supervisor, pay, promotional opportunities, co-worker relationships, working conditions, hours of work, and of course, the job itself. When a professional, in the supervisory capacity, helps fellow employees in satisfying their personal needs, while at the same time meeting organisational goals, the result is goal oriented behaviour. "Goal oriented behaviour by the employees of an organisation is usually an important outcome."

74 SATISFACTION ESSENTIAL

An attempt can be made to promote job satisfaction among library pro-

fessionals, to make them highly involved in their jobs for the betterment of the library and information organisations. The researcher felt that it is a common charge by the library professionals, that the work they perform in libraries, is of a dull nature or of routine nature and does not demand any challenge. It has been documented by other researchers that simple, routine, non-challenging jobs often lead to high employee dissatisfaction. This would provide an opportunity of doing a new (ie variety has a significant and positive relationship to Job Involvement) and challenging job to the library professional, would result into the Professional's satisfaction and ultimately involvement in the Job. Autonomy, variety and participation in decision-making are also seen as causes of involvement. The Professionals (both Professional Assistants and Professional Juniors) in the DUC libraries are more likely to be involved in decision-making concerning college libraries, than the Professionals of the same positions in university libraries. For the Professionals serving in university libraries, if jobs are enlarged vertically, they are likely to feel personally responsible for the work out-comes. The jobs can be enlarged horizontally too, for the meaningfulness of the work.

75 INVOLVEMENT IN POLICY MAKING

The vertical and horizontal enlargements of jobs should be such, as to minimise the recurrence of Role Stagnation, Role Ambiguity, Role Overload, Role Isolation, Role Erosion, Role Inadequacy, Role Expectation/Conflict, Resource Inadequacy etc. Because, Organisational Role Stress experienced by an individual in performing an organisational role is likely to effect the Job Involvement. Meaning thereby, that new roles with clear information, what is to be performed and how, with responsibility, so as not to overburden the individual quantitatively and qualitatively and whom the individual has to report to and who will be supervising the work, and ultimately appreciating or rewarding the work. These are important job factors, which should be given to the subordinates, by their immediate superiors, and to the seniors from the library administration, where atleast the seniors be involved in policy making regarding all library and information organisations. This will result into involvement.

76 LEADS TO MOTIVATION

The idea in Job Involvement research is that people are motivated to attain objects/conditions/outcomes, and that when attainment is achieved they will feel good. Involvement is seen as a value orientation towards work, which suggests that people think a lot about their job, that their job means a lot to them in terms of their life satisfaction, and jobs provide an indication of one's status.

77 DEDICATION & DEVOTION

It is no exaggeration that in this era of information explosion, no college or university library, notwithstanding its magnificent building, rich collection of documents, easy and comfortable furniture and large finance, can translate into reality its goals and objectives, if its staff is not imbued with a sense of duty, dedication and devotion to provide information to the concerned users, expeditiously, exhaustively and pinpointedly. It needs no emphasis that the human resources are very significant in libraries. Unless and until the management utilises the human resources to the optimum level, libraries can not accomplish their goals and objectives. Therefore the need of the hour is to inculcate in the library professionals, the spirit of dedication and devotion to the profesion, so that they may willingly give the best of themselves, to transform the library into a nerve centre of all academic activities of the university, as well to upgrade their own place in the academic community's scale of values.

78 PUBLIC IMAGE

The public image of the library professionals can be upgraded by motivating them, by minimising the factor that cause role stress, by creating conducive Work Environment and overall conditions which could and would result in maximum or an expected level of Job Involvement. It, thus, becomes essential to determine the most potent determinants and correlates of Job Involvement of library professionals. This is desirable not only for avoiding dysfunctional job behaviour, but also for its human value. Sources of library professionals Job Involvement should be explored and moderated, otherwise the image of librarianship will continue to a dead end to have reached.

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