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LIBRARY
CONFERENCE

Library Vision 2010:
Indian Libraries and Librarianship
in Retrospect and Prospect

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in Retrospect and Prospect

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1999

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Preface

Fifty years is a long period in the history of any institution particularly when we are entering into the 21st century, and also the next millennium in a few days from now. We must examine our performance in retrospect, identify our past failures and achievements, and make projections for the future. The present seminar on "Library Vision 2010: Indian Libraries and Librarianship in Retrospect and Prospect" is being held by ILA at Chaudhary Charan Singh Haryana Agricultural University, Hisar and has been selected with the following objectives:

- To review and assess the progress in development of Indian libraries and librarianship;
- To identify threats and challenges to the profession;
- To evolve consensus on issues such as library education, library roles, status of librarianship, role of library associations in the development of libraries and librarianship, and management of libraries; and
- To evolve a vision of libraries and librarianship for the future and plan strategies to realise the future vision by having quantum jumps if necessary.

The very essence of the theme in the pre-conference volume indicates that there is an urgent need to discuss various facets of the developments in libraries including the various issues concerning the application of information technology in the Indian libraries and information centres. It may be stated that resolutions adopted during the deliberations at the 44th All India Library Conference held at Hyderabad would be of considerable help in the present deliberations.

For the convenience of the deliberations, the papers have been grouped under following eight sections. There is overlapping of contents in many sub-themes and it seems to be unavoidable:

- *Indian Libraries, Librarianship, and Library Associations: Growth and Development;*
- Library Vision and Changing Library Role;
- Information Access: Emerging Approaches;
- Library and Information Services and Strategies for their marketing;
- Library and Information Science Education in the Changing Environment;
- Porfessional Manpower & Status;
- Library Managment: Emerging Trends and Their Impact; and
- National Policy on Libraries and Information systems and services.

It gives great satisfaction that almost all facets which are relevant to develop the Action Plan have been covered and will be discussed.

The volume contains 77 papers. The section on Indian Libraries, Librarianship and Library Associations: Growth and Development has twelve papers on different aspects of Indian Librarianship. Ten out of these twelve relate to growth and development of different types of libraries. Only one deals with the Library Association and another one deals with the Role of Unesco in the development of libraries.

The second section *Library Vision & Changing Library Role* has ten papers covering various aspects of information technology with a vision for future. Another aspect covered is that of information marketing. It deals with challenges of information technology and its impact on libraries and the profession. The third area under the sub-theme relates to the relevance of archives and the CD Rom Technology as storage media. Finally, the last paper draws our attention to the contribution of school libraries towards self-improvement through evaluative studies.

The section *Information Access: Emerging Approaches* has twelve papers discussing various aspects of information access. In this section Internet has been defined and its history has been traced. The system requirements to instal Internet have been discussed. The role of Internet in the university library system in India with certain problems like connectivity, tariff structure, accessing relevant information, security, power supply and emergence of Sankhya Vahini established for providing services of Internet have been discussed. The importance of LAN and WAN as means of communication have been highlighted. Finally,

the section deals with some case studies of agricultural libraries, resources in engineering and technology and application of IT in database development.

Next section deals with *Library and Information Services and Strategies for their Marketing.* As many as nineteen papers have been included in this section. The sub-facets included are on the introduction of information technology and their affect. In this connection, the case studies of university libraries of Punjab, Haryana and Chandigarh as well as application of IT in academic libraries and information centers in Chennai are of relevance. The other areas covered include on-line services and and emphasis on CD-Server device for information storage and retrieval in the libraries and their usefulness in libraries. The case study on experience of Madras School of Economics, Chennai in the creation of bibliographic records and CALIBAN is of relevance. One research paper has accessed information about information services in Internet for Business School libraries of USA. Marketing of information is scattered in various papers of sub-theme.

Six papers have been included in the section on *Library and Information Science Education in the Changing Environment.* Quality and accreditation in the LIS education in India, continuing education are some of the areas discussed. New and emerging problem which calls for thorough discussion is that of privatisation of LIS education.

The status of professional manpower has been a matter of concern to all of us. The next section deals with *Professional Manpower and Status.* Four papers have been included. Various issues concerning the professional manpower include comparative aspect of status and qualifications of library manpower in different types of libraries, the impact of the electronic era on libraries and library professional. A case study related to the theme is about the Survey of the vacancies appearing in the *Employment News* and analysis leading to career prospects of LIS .

As many as thirteen papers have been included in this section *Library Management: Emerging Trends and their Impact.* The importance and implementation of TQM for libraries and information centers particularly their service, ISO 9001 certification and user's satisfaction, Networking and standardization of varies activities in the Indian libraries has also been discussed. One of the papers brings out a case study on the effects of personnel standards of AICTE in Engineering College Libraries in Haryana. In addition there are several case studies on various subthemes of this section. They are: the planning in the management of university libraries of Andhra Pradesh, user needs and evaluation of library resources, regional libraries in he present information society

with special reference to Andhra Pradesh, industrial information diffusion towards free flow of information, strategic planning of information technology in Agricultural universities, etc.

The last section *National Policy on libraries and Information systems and Services* has one paper and deals with the framework for the policy on libraries and information centres. Various aspects such as threats, challenges and issues for library vision 2010 have been discussed.

The volume has an alphabetical index of authors, key concepts discussed in the volume and same has been prepared by Sh.S. Majumdar. Dy Librarian, IIPA, New Delhi and an Associate Editor of this volume. I would record my deep appreciation of the work done by him and by all the other Associate Editors in bringing our the volume in a record time. I would also record my deep appreciation to all the authors in laying emphasis on various aspects of Library and Information Science in the context of information technology and conceptualizing the library of the future and hope that Indian Library Association will draw an action plan based on the deliberations. The printer deserves a special thanks for undertaking the job meticulously. There could be certain errors which are not deliberate and the responsibility lies on us. My thanks are due to all my colleagues in ILA who have helped me tirelessly in many ways in the organization of the Conference.

Delhi
20th December 1999

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3

Building Library Collection in A University Library: Role of Publishing Industry

DIPIKA CHAUDHURY

ABSTRACT

The paper discusses the importance of publishing industry for the development of library resources in a university library. Further it describes the relationship between the librarian and the book publishing industry. States the present state of publishing industry in India, their maladies and suggests some remedies.

1 INTRODUCTION

Librarians, booksellers, publishers and scholars form a single grid. Their respective roles in helping to raise academic standards and cultural level are so interwined that inviduous distinctions are not possible. In developed societies with high cultural attainments the role for instance of the editor in a publishing house is no less significant than that of the author of a book.

2 PUBLISHING INDUSTRY IN INDIA

With the liberalisation of the economy and an improving literacy rate, book publishing in India is the fourth largest industry in terms of scientific and technological man power. According to UNESCO statistics, India occupies the 12th position in the world in terms of the number of titles published and is the largest book producer in English in the third world. Indian publishers publish books in 14 major Indian languages including English. In India about 9,000 publishers are publishing books on a variety of subjects catering to the diverse needs of different sections of society.

3 Relation of Publishing Industry with the Librarian

Book acquisition in a university library is three fold comprising of purchase, gift and exchange. While the librarian has little control over gift or exchange materials, the purchasing policy for published material is entirely his responsibility. The minimum expected of any library is the collection of basic text books and reference tools without which even regular study is impossible. The librarian must have a good understanding of the various branches of study in the university, different levels of teaching, areas of specialisation and particular topics in which research is in progress. This would enable him to visualise the library collection in its correct perspective and develop it in a planned way. On the other hand, he must posses a good knowledge of standard works in each subject field, standard authors, reputed publishing firms, a capacity to evaluate a work in hand, ability to discriminate a good review from a biased one. For librarians a close study of the nature and pattern of the publishing industry will repay enormous dividends in their evaluation of books. The output of a publishing firm can often be characterised by distinguishing marks of quality, subject areas and approach. A knowledge of these is not acquired overnight. The business tactics of the purchasing library requires maintenance of friendly relations with publishers without prejudice to professional ethics. While gathering materials for his library, the librarian develops contact with a number of publishing firms which in turn help the librarian to judge their publications in view of users needs. There are at present 250 universities and 9,000 colleges in India. Most of the universities have own publication bureaus. Information about reading material is distributed by publishers through advertising. This rather obvious statement needs to be stressed, especially since publishers are often the only source of pre-publication information open to librarians and selection decisions may sometimes need to be made on the valiidity of this information.

4 Maladies of Publishing Industry in India

The book publishing started in India at the close of the sixteenth century when Christian missionaries established printing presses in India. As the number of universities, colleges and schools started increasing, the demand of text books, both foreign and Indian increased. But as publishing is not recognised as an industry for the purpose of securing loans from the bank, publishing does not attract many people in this field in India.

While the publishing trade itself is ill-organised, the supply position is still worse.

A number of publishers have resorted to direct sale of books to the institutions. This practice is a stumbling block in the growth of wholesale business and also not conducive to the penetration of the market.

It is nearly common to announce one tittle and supply a slightly different title without any specifc mention of the announced title and thus causing much otherwise avoidable correspondence.

Another deplorable practice is to camouflage subsequent impressions as 'editions' and 'revised editions', 'revised and enlarged' with practically no modification or improvement in the text.

Another factor that vexes a university librarian is the supply of paperbacks against a firm order for library editions.

In India, publishers offer highest rate of discount varying from 10 per cent to 20 per cent in the case of their own publications, While the rate for other publications varies from nil to 10 per cent, 5 per cent being common. But the publishers interest in responding to small orders is poor. Slow service is another drawback of the publisher.

Libraries are very much concerned with the life span of a publication but in India publications are very low in quality of production and are also of low quality paper. Librarians find most of the books not upto their expectations.

5 Remedies for Publishing Industry in India

If the book trade is to prosper, the publishers should recognise urgently their scholastic responsibility.

For university libraries publishers have to intensify their promotional efforts through mailing of brochures and jackets, exhibitions, display of books at the libraries and other type of meets by which the students, teachers and other potential readers generally congregate.

New means of communication like fax and internet will have to be utilised for instant information to potential libraries.

Quality of the publications should be improved to expand marketing.

To ensure optimum results, it is always better for publishers to tap major distribution channels.

They can publish reviews and criticism containing information about new and forthcoming publications of interest to university libraries on a regular basis.

6 Conclusion

Writers create books in order to diffuse new ideas or thoughts, while the publishers and the librarians share between themselves the duty to disseminate these ideas and thoughts. The publisher should be the bridge between the creation and consumption. It is high time for the publishers to take active interest and develop the trade on the lines their British and American counterparts have done.

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5

Collections in Colleges of Education Libraries in Maharashtra: A Study

D K VEER

ABSTRACT

There are 144 colleges of education in Maharashtra. Out of these 101 libraries of colleges of education were surveyed. Present paper covers books and periodicals collection by size, category, subject, language etc. This paper covers growth of colleges of education in Maharashtra since 1978, library membership and their per capita collection.

1 INTRODUCTION

'Education, especially at higher levels, has been described more as a process of learning than of teaching and this signifies the self-effort to be put in by the students. So as to reach nearer the goal, the higher education has to be provided with necessary facilities for mastering the subject, techniques, skills, habits of thought and methods of work in his chosen field.'[1] This is essential for the development of human resources.

There are two types of colleges, one of them is professional and other is non-professional. Professional colleges include Engineering, Medical, Homeopathic, Law, Ayurvedic, Education, Physical Education etc. while Arts, Commerce and Science colleges are termed as non-professional.

The college of Education is nothing but teacher training institute. In other words 'College of Education is an Institution which offers courses for training in teaching profession. It facilitates one year curriculum leading to a Bachelor Degree in Education (B.Ed.).'

Kohtari education commission (1964–66) expressed 'A sound programme of professional education of teachers is essential for a qualitative improvement of education. Investment of teacher education can yield very rich dividends because the financial resources required are small when measured against the resulting improvement in the education of millions.'

Realizing the significant role of libraries in college education, D.S. kothari[2] had to warn the educationists that

'No new university or college or department 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 a growing department than to neglect its library or to give it a low priority. On the contrary, the library should be an important centre of attraction on the college or university campus.'

A college library means 'A library established, maintained and administered by a college to meet the needs of its students and faculty.'[3]

2 Present Scene of Colleges of Education

There are 729[4] colleges of education in India. Of the 729 colleges the total number of college of education in Maharashtra, affilated to various universities are 144, in addition to that there are 62 study centres of Yashwantrao Chavan Maharashtra Open University for B.Ed. courses. Out of the 144 colleges, there are 12 Government, 36 private aided and 96 private un-aided colleges. There are 12 colleges of education meant for girls only.

It can be observed from the collected data that 93 new colleges were established from 1996 to 97. Today the number of colleges is 144 as against 51 colleges of education in 1978–79. The number of students enrolled in 1978–79 was 8128 which increased upto 15766 in 1996–97. The number of B.Ed. Teachers has also increased fast. There were 709 teachers in 1978-79 and this has increased to 1315 in 1996–97.

3 Objectives of Study

The specific objectives of the study are:

1 To survey collection of colleges of education libraries;

2 To know total no. of members of libraries of college of education; and

3 To compare total books and periodicals collection by category of colleges i.e. Government, Private aided and Private un-aided.

4 Scope and Limitation of Study

Research is an endless Process or it is a lifelong journey on the path of finding new knowledge. But due to limitation of time a specific geographical area for completing the study in specific time was selected.

Present survey is was limited to the colleges of education libraries in Maharashtra state and the paper covers only books and periodicals collections. However, non-professional college libraries i.e. Arts, Commerce and Science and professional colleges i.e. Engineering, Medical, Ayurvedic, Homeopathic, Dental, Physical education etc. have been omitted from the study.

5 Methodology and Data Collection

5.1 Methodology

Survey method was adopted to conduct the present study. The survey method plays a significant role in research.

A questionnaire was framed and used for data collection. This questionaire was circulated and filled up by concerned Librarians in a proper way. The questionnaire involved presentation of written verbal stimulie and written verbal response.

5.2 Data Collection

Collection of data is very important for research investigation. If the data is not accurate and adequate, the findings of the study are bound to be misleading. Collection of data depends upon various methods. Therefore, first step is to decide which method is to be followed for data collection i.e. questionnaire, schedule interview, case study or observation etc which contributes as primary source of information.

The data is also collected from annual reports and official records of National Council for Teacher Education (NCTE).

6 Analysis of Data

Out of 144 Libraries of college of education in Maharashtra, the response was received from 101 libraries i.e. 70.14% only. There 101 libraries of colleges of Education covers 12 Government, 26 Private aided and 63 Private un-aided colleges.

The major variables used to analyse data were: (a) Books: Text Books, Reference books, General Books and (b) Periodicals: Newspapers (Local, Regional, National and International) and periodicals by subjects.

Whereever possible the data is represented graphically with the help of tables.

7 Library Collection

Library is the heart of an academic institution and library collection is a body of a library, which means collection of college library should comprise of textbooks, reference books, general books, periodicals, conference proceedings, maps, patents, standards, monographs etc. may be paper or audio-visual form to fulfill the educational, recreational and information needs of college clientele.

Hence the present paper attempts to describe the collection and further to sub-divided into following subjects.

7.1 Book collection

Book collection is the backbone of the library. It improves the personality and future life of students. It is the whole stock of books.

7.2 Total size of collection

Size of collection is different from library to library. As stated by Lancaster 'A particular library is unlikely to function effectively if its collection is below a certain minimum size.'[5]

It was interesting to know the total size of collection in the libraries surveyed. The figures have been recorded in table No. 1

Table No. 1 Shows that out of the 101 libraries surveyed, nearly 38% the libraries have collection in the range of 5000 to 30000 while nearly 62% libraries have below 5000 collection.

7.3 NCTE norms for books

Essential: The Library should have initially a minimum of 1500 books including textbooks and reference books. At least 150 books may be added every year, of which some may be duplicate or triplicate copies of essential textbooks.

Desirable: At least 5000 books including textbooks and refernece books.

As per NCTE norms it can be observed from the collected data that 38 per cent libraries surveyed fullfilled the desirable norms for books. However 19.80 per cent libraries surveyed failed to fulfill even the essentail norms for books.

Table No. 2 attempts to compare the total size of collection of college libraries. It shows that the surveyed libraries had the average collection of 6712 volumes per library.

7.4 Size of Collection

Category-wise: Books can be divided into three categories as text books, reference books and general books. These three types of books are very important for study and information; without these, college library cannot provide information. Therefore, librarian should procure collection of textbooks, reference books and general books.

An attempt was made to analyse the collection to see its quantity according to various categories e.g. textbooks, reference books and general books as shown in Table No. 3

It can be observed from Table No. 3 that of the 101 libraries surveyed, on an average these have 52.56 percent textbook collection, 38.61 percent general collection and 8.83 percent reference collection.

Languagewise Collection: Marathi is the medium of instruction in colleges of education in Maharashtra, while few colleges provide English as medium of instruction, alongwith Marathi medium. College library has the responsibility of providing most of the materials in the langauges in which the instructional programmes are conducted.

Keeping this in view attempts is made to analyse the total collection according to languages of each college library surveyed as shown in Table No. 4. Figures in bracket in Table No. 4 indicates percentage wise total collection according to langauges Marathi, Hindi, English and Urdu.

It can be observed from the Table No. 4 that of the 101 libraries surveyed, 38 libraries have maintained record of categorywise collection according to langauges. The surveyed libraries have 61.25 percent of Marathi, 8.12 percent Hindi and 30.17 percent of English while 0.46 percent collection is in Urdu.

Table No. 4 also shows that 59 per cent textbooks collection was in Marathi and Englsih and 65.95 per cent collection of general books were in Marathi.

Subjectwise Collection: There are various subjects taught in college of education in Maharashtra. The syllabus is different from university to university but generally the subjects taught commonly in all of them are Educational Sociology and Philosophy, Educational Psychology, Educational Evaluation, Educational Statistics, School Organisation and Administration, Educational Problems, Teachers Education, History of Education etc. These are the fundamental subjects. Alongwith these subjects teaching methods are also taught in those colleges. These teaching methods are in Marathi, English, Hindi, History, Geography, Science, Mathematics etc.

Considering all these subjects, attempt was made to analyse the total collection according to subjects by each category of the colleges surveyed and shown in Table No. 5.

It can be observed from the table No. 5 that private un-aided colleges have not maintained record of collection by subjects; that of the total collection 43.18 percent collection was in any other category and of the total collection 31.80 percent books are on fundamental subjects and 10.74 books are on various teaching methods.

Per capita Collection: On an average surveyed libraries had 45 volumes per users, collected data of the libraries surveyed was further analysed to calculate per capita collection, taking into consideration the total number of registered users including teachers and non-teaching staff.

It was observed that per capita collection of college of Government, Private aided and Private un-aided was 103, 50 and 21 respectively.

Information about per capita collection is given in Table No. 6

7.5 Periodical Collection

Considering importance of periodicals in dissemination of nacent information, it was interesting to know how many periodicals are subscribed by college libraries surveyed.

Categorywise: The periodicals were divided into two categories Newspaper and Periodical

Newspaper: Newspaper means 'A publication issued periodically, usually daily or weekly, containing the most recent news.[6]

Newspaper can be categorised as local, regional, national and international. With this view the collected data was analysed to see how many newspapers in each categories were being subscribed by the libraries surveyed as shown in Table No. 7.

It can be noted from table No. 7 that surveyed libraries had on an average nearly 4 newspapers per library, by analysing the collected data into various categories like local, regional, national and international. It was observed that 15 percent newspapers were of local nature, 76 percent of regional, 9 percent of national in their collection.

Periodicals: Periodicals can be categorised either by frequency like, bi-weekly, weekly, fortnightly, monthly, bi-monthly, quarterly, half-yearly, annually or irregular etc. or by various other types such as either recreational periodicals, general information periodicals, subject periodicals, house journals, trade journals etc.

It was interesting to know how many periodicals were subscribed by each library surveyed, hence the data was analysed as shown in Table No. 8.

It can be observed from table No. 8 that on an average, surveyed libraries were subscribing nearly 14 periodicals per library in last five years, i.e. 1994–95 to 1998–99.

It was also observed from table No. 8 that per capita collection of periodicals in Government colleges, Private aided colleges and Private un-aided colleges were 10.83, 24.39, and 9.84 respectively.

8 Conclusion

In the process of summarisation only salient findings have been highlightened.

1 Older libraries were having more collection. 38 percent of the libraries the collection in the range of 5000 to 30000 while nearly 62 percent of the libraries had below 5000 collection.
2 As per NCTE norms 38 percent libraries surveyed fulfilled the desirable norms for books. However 19.80 percent libraries surveyed failed to fulfill even the essential norms for books.
3 The surveyed libraries had the average collection of 6712 volumes per library.
4 The 101 libraries surveyed contributed on an average 52.56 percent of textbook collection, 38.61 percent of general collection and 8.83 percent of reference collections.
5 The surveyed libraries had 61.25 percent of Marathi collection, 8.12 percent of Hindi collection, and 30.17 percent of English collection while 0.46 percent of Urdu.
6 Of the total textbooks 59 percent textbook collection was in Marathi and English langauge and 65.95 percent collection of general books was in Marathi.
7 Private un-aided colleges of education libraries have not maintained record of collection subjectwise.
8 Of the total collection 31.80 percent books were on fundamental subjects and 10.74 percent books were on various teaching methods.
9 Per capita collection of colleges of Government, Private aided and Private un-aided was 103, 50 and 21 respectively.
10 Surveyed libraries had on an average nearly 4 newspapers per library. 15 percent newspapers were of local in nature, 76 percent of regional, 9 percent National in their newspaper collection.
11 on an average surveyed libraries were subscribing nearly 14 periodicals per library in last five years i.e. 1994–95 to 1998–99.
12 Per capita collection of periodicals in Government Private aided and private un-aided colleges was 10.83, 24.39 and 9.84 respectively.

TABLE 1: FREQUENCY DISTRIBUTION OF COLLECTION.

Total collection	No. of Respondent	Percentage
Below 5000	63	62.38
5001-10000	10	09.90
10001-15000	13	12.87
15001-20000	07	06.93
20001-25000	05	04.95
25001-30000	03	02.97
30001 and above	--	--
Total	101	100 %

TABLE 2: TOTAL SIZE OF COLLECTION BY CATEGORIES OF COLLEGE

Sr. No.	Colleges by Category	No. of Libraries Responded	Actual total Collection	Average per Library Collection
1	Government	12	227146	18929
2	Private Aided	26	318004	12231
3	Private un-aided	63	132819	2108
	Total	101	677969	6712

TABLE 3: BOOKS ACCORDING TO CATEGORIES OF COLLEGES

S. No	Colleges by Category	Total Books			Total
		Text Books	Reference Books	General Books	
1	Government College (12)	99682 (27.98)	16898 (28.22)	110566 (42.24)	227146 (33.51)
2	Private Aided Colleges (26)	153104 (42.97)	40052 (66.87)	124848 (47.70)	318004 (46.90)
3	Private un-aided Colleges	103541 (29.05)	2942 (4.91)	26336 (10.06)	132819 (19.59)
	Total	356327 (100)	59892 (100)	261750 (100)	677969 (100)

Note: Figures in brackets indicate percentage of total collection.

TABLE 4: CATEGORYWISE COLLECTION IN COLLEGES ACCORDING TO LANGAUGES

S. No.	Colleges by Category	Marathi				Hindi				English				Urdu	Total
		TB*	RB*	GB*	Total	TB*	RB*	GB*	Total	TB*	RB*	GB*	Total	TB*	
1	Government Colleges	52956 (30.50)	8008 (27.23)	68655 (44.20)	129619 (38.82)	7262 (31.98)	1638 (31.97)	6580 (39.99)	15480 (34.96)	39464 (48.77)	7252 (32.35)	35331 (57.81)	82047 (49.89)	--	227146 (41.67)
2.	Private aided Colleges	96206 (64.50)	21400 (72.77)	86676 (55.80)	204282 (61.18)	15445 (68.02)	3485 (68.03)	9875 (60.01)	28805 (65.04)	41453 (51.23)	15167 (67.65)	25780 (42.19)	82400 (50.11)	2517 (100)	318004 (58.33)
3	Private un-aided Colleges	—	—	—	—	—	Not Available —			—	—	—	—	—	—
Total		149162 (100)	29408 (100)	155331 (100)	333901 (100)	22707 (100)	5123 (100)	16455 (100)	44285 (100)	80917 (100)	22419 (100)	61111 (100)	164447 (100)	2517 (100)	545150 (100)

*TB - Text Book
*RB - Reference Book
*GB - General Book

TABLE 5: TOTAL COLLECTION ACCORDING TO SUBJECTS

S. No.	Subjects	Govt Colleges	Private Aided Colleges
1	Educational Philosophy	7728 (3.40)	13510 (4.25)
2	Educational Sociology	7570 (3.33)	12519 (3.94)
3	Educational Psychology	7891 (3.47)	11551 (3.63)
4	Educational Evaluation	7869 (3.47)	12002 (3.77)
5	Educational Statistics	4249 (1.87)	8010 (2.52)
6	Evaluation and Statistics	8290 (3.65)	10509 (3.31)
7	School Organisation	9291 (4.06)	11509 (3.62)
8	Educational Problems	4215 (1.86)	7510 (2.36)
9	Teachers Education	5285 (2.33)	5508 (1.73)
10	History of Education	5992 (2.64)	2998 (0.94)
11	Educational Research	4915 (2.16)	2502 (0.79)
12	Marathi Methods	3711 (1.63)	6501 (2.04)
13	Hindi Methods	3811 (1.68)	5915 (1.86)
14	English Methods	4990 (2.20)	5511 (1.73)
15	History Methods	3050 (1.34)	4911 (1.55)
16	Geography Methods	2915 (1.28)	5212 (1.64)
17	Science Methods	2595 (1.14)	4119 (1.30)
18	Mathematics Methods	2195 (0.97)	3095 (0.97)
19	General Education	15175 (6.68)	53844 (16.93)
20	Comparative Education	4915 (2.16)	5920 (1.86)
21	Others	110566 (48.68)	124848 (39.26)
	Total	227146 (100)	318004 (100)

Note: Figures in brackets indicate percentage to total collection.

TABLE 6: PER CAPITA COLLECTION

Sr. No.	Colleges by Category	User's			Book Collection	Per capita Collection
		Students	Teachers/ non teachings	Total		
1	Government College	1982	214	2196	227146	103
2	Private aided	5865	530	6395	318004	50
3	Private Un aided	5490	857	6347	132819	21
	Total	13337	1601	14938	677969	45

TABLE 7: NEWS PAPERS COLLECTION ACCORDING TO VARIOUS CATEGORIES OF COLLEGES

Sr. No.	Colleges by Category	News Papers				Total News papers	Average News papers per library
		Local	Regional	National	International		
1.	Government (12)	12	48	12	—	72	6.00
2.	Private aided (26)	28	130	25	—	183	7.03
3.	Private un-aided (63)	20	141	02	—	63	2.58
	Total (101)	60	319	39	—	418	4.13

Note : Figures in Brackets indicate no. of colleges responded.

TABLE 8: NUMBER OF PERIODICALS SUBSCRIBED PER YEAR ACCORDING TO VARIOUS CATEGORIES OF COLLEGES

Sr. No.	Colleges by Category	1994–95	1995–96	1996–97	1997–98	1998–99	Total
1.	Government	122	121	127	135	145	650
2.	Private aided	609	628	637	636	661	3171
3.	Private un-aided	618	620	620	623	621	3102
	Total	1349	1369	1384	1394	1427	6923

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6

College Libraries in Karnataka: A Study

B U KANNAPPANAVAR AND C G MATHAD

ABSTRACT

Surveys the college libraries in Karnataka with regard to year of establishment, course offered, student strength, staff etc.

1 INTRODUCTION

Books and libraries serve as treasures and fountains of knowledge especially in the realm of higher education. Education in higher level is no longer solely by teacher oriented. A good library is a prime requirement of a college in the fulfillment of its objectives of dissemination of knowledge. A great teacher certainly influences library consciousness in the minds of his students. Adequate library facilities become imperative for student to go beyond the class room lectures and graze in the wide and bountiful posters of written records in libraries. The college libraries act as a power transformers.

Library is essentially a service institution. The traditional function of library services involves, a variety of activities on the part of the library. To achieve its goal and realize its policies, a library undertakes many different kinds of services. The college routine works can be broadly be studied under two heads, i.e. work beyond the scene and work with readers. Libraries have to accept, to a large extent, the basic objectives of their institution which are best considered under the traditional heading of teaching and research. Promotion and public relations are to be considered as the focus for communication to the users community.

The main object of this study is to understand how far the existing

facilities are helping the users of the college libraries. Looking at the data supplied by all the colleges, it appears that the overall performance of college libraries are farfrom the satisfaction. May aspect of academic librarianship has to be imbibed in all these college libraries from the view of management, staff, services, finance ect. The overall picture of college libraries in the state is discouraging and it can be noticed that last preference is accorded by the authorities concerned for their development.

A survey of college libraries under the First Grade Colleges in the state of Karnataka provide the profile of distribution as given in table 1. It is in other words is a record of growth of different categories of colleges before 1920 to the present period under the study.

TABLE 1: YEAR OF ESTABLISHMENT OF COLLEGES IN KARNATAKA

Year of Establishment	No of Colleges				
	Aided	Govt	Constituent	unaided	Total
Before 1920	01	01	03	--	05
1921-30	01	01	01	--	03
1931-40	02	02	02	--	06
1941-50	15	06	01	--	22
1951-60	13	02	--	--	15
1961-70	110	08	--	02	120
1971-80	75	17	--	02	94
1981-90	72	62	01	36	171
1991 onwords	--	40	--	244	284
Total	289	139	08	284	720

2 CHRONOLOGICAL DISTRIBUTION

There are 720 colleges in Karnataka state which are run by Govt., universities, and Private organisations, to cater to the diversifide educational needs of the population of the state. Only 25 colleges were functioning before the independence. After the independence the Govt., had given more importance to education and also the privae organization took interest in promoting the knowledge by establishing privae colleges. After the independence and before the establishment of Department of collegiate Education, the growth of colleges was vary slow. During this period 25 colleges were started. Subsequently, during the period 1961-70, 120 colleges, during 71-80, 94 colleges, during 81-90, 171 colleges and 1991 onwards 284 colleges were established by different organizations.

3 Courses offered

While glancing the table 2 out of 370 colleges, 79% of the colleges are offering multi faculty courses like, BA&BSc BA & BCom and BSc etc,. Where as 21% of the colleges are offering single faculty courses like BA, BSc, BCom etc.

TABLE 2: DEGREE COURSES OFFERED BY 370 COLLEGES

Course Offered	Aided	Govt	Constituent	Unaided	Total
B A	14	14	--	09	37
B Sc	10	08	03	02	23
B Com	13	01	--	02	16
BA & B Com	76	57	03	08	144
BA & BSc	14	02	--	02	18
BA, BSc&BCom	105	20	01	01	127
BSc BCom	1	--	--	--	01
B Com & Manag	01	01	--	02	04
Total	234	103	07	26	370

4 Student Strength

Table 3 Clearly shows that the enrollment of students is varying in nature. 252 (68.11%) colleges were enrolled less than 1000 students followed by 98 (26.49%) colleges enrolled ranging from 1001-2000, 15 (4.05%) colleges ranging from 2001-3000 and 5 (1.35%) colleges enrolled more than 3000 students respectively.

TABLE 3: STUDENT STRENGTH

No. of Students	Aided	Govt.	Constituent	Unaided	Total	%
Less then 1000	146	80	--	26	252	68.11
1001-2000	71	20	07	--	98	26.49
2001-3000	13	02	--	--	15	4.05
3001 & Above	04	01	--	--	05	1.35
Total	234	103	07	26	370	100.00

5 Book Collection

Building a library collection which should be able to meet the needs of teachers, students and research scholars adequately is in the major task of

a college library. The quality of services provided and the satisfaction of the user depend a great deal upon the kind of collection made available. Thus the materials need to be selected with utmost care to include a large collection of indexing and abstracting services, bibliographies, subject encyclopedias, literature surveys, progress reviews and a wide selection of newly published works and periodicals made available as soon published.

Table 3A reveals that the collection of books in various college libraries in Karnataka. It clearly indicates that majority of the colleges in Karnataka are having less then 5000 books, followed by 24.3% of colleges are having in the range of 5000-10000, 11.3% of colleges 10000-15000, 9.7% of colleges15000-20000, 4.05% of colleges 20000-25000, 4.86% of colleges 25000-30000, 2.97% of colleges 30000-35000, 4.32% of colleges 35000-40000, 2.16% of colleges 40000-45000, 0.81% of colleges 45000-50000, and 2.43% of colleges are having 50000 and above book collection respectively.

TABLE 3A: BOOK COLLECTION AS ON 31 MARCH 98

No. of Books	Aided	Govt.	Constituent	Unaided	Total	%
5000 & below	75	21	–	26	122	32.9
5000-10000	40	50	–	–	90	24.3
10000-15000	30	12	–	–	42	11.3
15000-20000	33	03	–	–	36	09.7
20000-25000	12	03	–	–	15	04.05
25000-30000	18	–	–	–	18	04.86
30000-35000	06	05	–	–	11	02.97
35000-40000	08	04	04	–	16	04.32
40000-45000	05	02	01	–	08	02.16
45000-50000	03	–	–	–	03	00.81
50000 & above	04	03	02	–	09	02.43
Total	234	103	07	26	370	100.00

It clearly shows that the present book collection is not adequate to meet the needs of the students and staff in majority colleges in the state.

6 LIBRARY PERSONNEL

The ultimate objective of a library is to provide maximum service to its clientele. Library personnel constitute an important component of the library trinity, that is Books, Users, and Staff. Libraries have an important

role to play in the dissemination of information. They are the indispensible workshop for educational programmer of all kinds. The library is the core of the college. The present day librarianship is a highly complex profession requiring a thorough scholarly and technical knowledge. The varied and complicated services of a modern college library need to be organized and controlled by a person of competent and expertise, who has a sound knowledge of the tools and techniques of the library profession.

The college librarian occupies the pivotal position in the college. He/She works as an intermediary between the readers and the library and correlates and organizes the various academic programmes and services of the college. The librarian who administers the college library is responsible for carrying out the policy decision of the governing body/library committee. As a head of the college library he/she must be fully familiar with the different facet of modern librarianship.

7 Qualifications of Librarians

The qualification of the librarians are given in table 4. It reveals that 29.46% of the college librarians are having basic degree with degree in library science. 18.38% of the college librarians are possessing the masters degree in a subject other then the library science with bachelors degree in a subject other then the library science with bachelors degree in library science. 49.46% of the college librarians are having masters degree in library science, only one college librarian is having PhD degree in library science. Only one college librarian is possessing PhD in other than the library science.

Table 4: Qualifications of Librarians

S No.	Qualification	Aided	Govt.	Constituent	Unaided	Total
1	Basic Degree with Diploma in Lab Sc	02	01	--	--	03
2	Basiic Degree with Degree in Lab SC	72	26	08	--	106
3	Masters Degree with Degree in Lib.Sc	53	11	03	01	68
4	Masters Degree in Degree in Lib.Sc	128	40	03	10	181
5	PhD in Lib.Sc	--	--	01	--	01
6	PhD In other then Lib.Sc	01	--	--	--	01

8 Adequacy of Library Staff

As far as the strength of the staff is concerned, again the situation is not satisfactory. In many colleges only one qualified librarian and a few ministerial staff are working in the libraries.

Here we made an attempt to seek information on adequacy of library staff. The table 5 reveals that 22% of the colleges are having adequate staff where as 78% of the colleges having the inadequate library staff. The response to the question "Number of library staff required" is presented in table 6. From the study it reveals that 71 college libraries are require two assistants followed by 69 colleges 3, 36 colleges 4, 18 colleges 5, 17 colleges 6 and 76 colleges 7 & more assistants respectively.

Table 5: Adequacy of Library Staff

Adequacy.	Aided	Govt.	Constituent	Unaided	Total	%
Yes	66	04	02	11	83	22
No	168	99	05	15	287	78

Table 6: Number of Library Staff Required

No. of Staff Required	Aided	Govt.	Constituent	Unaided	Total
02	23	36	--	12	71
03	29	35	03	02	69
04	20	15	--	01	36
05	11	05	02	--	18
06	16	01	--	--	17
7 & More	67	07	--	--	76
Total	168	99	05	15	287

9 Working Hours

The opening hours of the library have their effect on its serviceability. It is generally found that, the college libraries are kept open about 12 hours a day. It is obvious that the longer the working hours of the library the greater shall be the use.

In practice, the position of working hours of the libraries varies from library to library, depending upon working hours of the institution and availability of staff in the library. The distribution of data on working hours of the libraries received from respondents is given in table 7. From the study it reveals that the working hours of the college libraries vary in nature. 49% of college libraries kept open for 7 hours, where as 12% of

college libraries open for 8 hours a day, 31% of college libraries open for 6 and 2 college libraries were open for 12 hours per day respectively.

TABLE 7: WORKING HOURS OF THE COLLEGE LIBRARIES

Sl No.	Working Hours	Aided	Govt.	Constituent	Unaided	Total	%
1.	5 Hours	14	08	–	07	29	7.84
2.	6 Hours	69	39	–	07	115	31.08
3.	7 Hours	121	50	05	05	181	48.92
4.	8 Hours	30	06	–	07	43	11.62
5.	12 Hours	–	–	02	–	02	0.54
Total		234	103	07	26	370	100.00

10 TECHNICAL SERVICES

10.1 CLASSIFICATION

Classification is supposed to be the most important among the different technical services carried in the college library, because the classification aims at bringing order out of chaos and arranging documents in a helpful sequence. Table 8 reveals that 32.70% of colleges followed Colon Classification and Dewey Decimal Classification respectively, 34.6% colleges did not furnish the required information.

TABLE 8: CLASSIFICATION SCHEMES USED

Schemes	Aided	Govt.	Constiuent	Unaided	Total	%
CC	102	14	03	02	121	32.70
DDC	92	22	04	03	121	32.70
Not Furnished	40	67	--	21	128	34.60
Total	234	103	07	26	370	100.00

10.2 CATALOGUING

Cataloguing is the record of holding of a library and is a guide to the identification and location of each item on the shelves. So The library catalogues are to be kept upto date. Table 9 reveals that 30% of the colleges under the survey followed CCC where as 23% of the colleges followed AACRII. Rest of the colleges have not furnished the information.

TABLE 9: CATALOGUE CODE USED

Code	Aided	Govt.	Constiuent	Unaided	Total	%
CCC	90	16	03	02	111	30
AACR	67	12	04	01	84	23
Not Furnished	77	75	--	23	175	47
Total	234	103	07	26	370	100

11 READERS SERVICES

11.1 LENDING

Each library lends books as well as borrows books. Each college library lends books to its readers, for home reading and references, as it facilitate their convenient use. Similarly each college library borrow books, for its readers from other libraries on inter - library loan. Thus the circulation of books and other reading materials is a basic function of the college library. A good librarian will say that he wants to see his book shelves empty, which means that the library is used to the maximum. The packed library stack are not an indication of the activeness of a library, but the semi full or empty stack caused by the good reading habits of readers are the true indication of the usefulness of a library.

Almost all college libraries in Karnataka are providing readers services such as lending of books. But the number and the loan period are varied from one college to another depending upon the circumstances, resources, staff ect,. The table 10 depicts these variations. The study reveals that the students in 74 colleges (20%) got one book followed by 25 (61%) colleges issued two books and 71 (19%) colleges issued 3 and more books at a time to students respectively.

TABLE 10: NUMBER OF BOOKS ISSUED TO STUDENTS

No of Books Issued	Aided	Govt.	Constiuent	Unaided	Total	%
01	43	14	--	17	74	20
02	147	64	07	07	225	61
3 & More	44	25	--	02	71	19
Total	234	103	07	26	370	100.00

11.2 PERIOD OF LOAN OF BOOKS TO STUDENTS

The period of lending is also varying in nature from college to college. The table 11 clearly reveals that the majority of the colleges were lending

books for 15 days, followed by 131 colleges for 7 days, 12 colleges for 10 days, 5 colleges for 30 days and 7 colleges for one academic year respectively.

TABLE 11: PERIOD OF LOAN BOOKS TO STUDENTS

Period	Aided	Govt.	Constiuent	Unaided	Total	%
7 Days	88	23	--	20	131	35.41
10 Days	06	02	--	04	12	3.24
15 Days	132	76	07	--	215	58.11
30 Days	03	--	--	02	05	1.35
One Academic Year	05	02	--	--	-7	1.87
Total	234	103	07	26	370	100.00

11.3 REFERENCE AND INFORMATION SERVICES

The complexity of document, the qualitative and quantitative growth of the published literature, classified arrangement of materials in libraries, the open access system, language barrier, the necessity of saving the readers time ect., have neccesitated the libraries to provide reference service. The reference section is the heart of the library and it is around this deportment that many other library activities resolve.

Information plays a vital role in improving educational standard in research effects. Information also plays a key role in decision making in industries and Govt. In the beginning it was thought that information services was sole domain of Special libraries. Gradually, the concept is spreading to college and University libraries also. The enormous development in indexing and abstracting services and the more recent and even more rapid development of computer based information services has forced the college libraries to take the responsibility of providing information services. Table 12 reveals that 60% of the colleges under the study have undertaken the reference and information services to their users. Remaining colleges are yet to under take such programmes.

11.4 INTER LIBRARY LOAN

Acquisition being uneconomic and cumbersome, costly and being difficult etc., one has to go for inter library loan, for quite some time. But still it has come to stay in the library world and is a necessary future of modern library activities. It includes borrowing and lending books between libraries, providing photocopies of articles, books etc., and permitting faculty

and students from one college to use the library of other. Present day modern technology is being employed and now libraries prefer to loan, reprographed documents instead of original ones, and tally type equipments, which transfer the telefascimile image of the documents are in use and it is being realised more and more that library co-operation through inter library loan has become an economically feasible way to improve traditional library service a pattern which emphasizes the importance of improved access to a growing number of library materials.

TABLE 12: REFERENCE & INFORMATION SERVICE

Ref and Inf.Serv.	Aided	Govt.	Constiuent	Unaided	Total	%
Yes	153	55	07	06	221	59.77
No	50	48	--	15	113	30.54
Not Furnished	31	--	--	05	36	9.73
Total	234	103	07	26	370	100.00

From the study it reveals that (table 13) there is no co-ordination as such in 87% of the college libraries in the state. Because of this fact majority of the college libraries failed to adopt the inter library loan service in their libraries. The important hurdle for this service is inadequacy of Union Catalogues and co-operation among the college libraries.

TABLE 13: INTER LIBRARY LOAN

Inter Lib. Loan	Aided	Govt.	Constiuent	Unaided	Total	%
Yes	34	07	07	--	48	12.97
No	200	96	--	26	322	87.03
Total	234	103	07	26	370	100.00

12 LIBRARY COMMITTEE

In all the colleges, responsibility for the maintenance and development of library, framing the rules for its governance, as well as making recommendation on its finance is vested in committee, usually called library committee. This committee is supposed to share the responsibilities of the librarian and to advise the librarian in policy matters. In practice, the librarian has the executive responsibility for the day to day management of the library, where as overall policy is controlled by college library committee.

Table 14 reveals that 51% of the colleges have constituted library

committee for their day to day activities of their libraries. In majority of the colleges the librarian is working as a secretary to the library committee. The main function of the committee is to frame the rules, execute the work, administering the library etc.

TABLE 14: LIBRARY COMMITTEE

Lib. Committee	Aided	Govt.	Constiuent	Unaided	Total	%
Yes	139	33	07	08	187	51
No	95	70	--	18	183	49
Total	234	103	07	26	370	100.00

13 LIBRARY BUILDING

Library building to house library collections of various kinds, chiefly books and other reading materials, seating accommodations and other facilities for library users. Space should be given for library staff that acquires, classifies, catalogues and services the library collection and some extra space which can be assigned for other purposes later on. The growth of higher education in the country has led to the remarkable development of academic libraries and among them college libraries growing at a steady and continuous pace.

Table 15 reveals that 41% of college libraries are working in their

TABLE 15: LIBRARY BUILDING FACILITIES

Library Housed in	Aided	Govt.	Constiuent	Unaided	Total	%
Separate Building	128	18	04	--	150	41
Class Roam	81	71	01	09	162	44
Part of the College Building	05	05	02	06	18	05
Big Hall	20	09	--	11	40	10
Total	234	103	07	26	370	100.00

own building, where as in 44% of the colleges are working in class rooms and remaining colleges are working in a big halls or part of the college buildings. This shows that the majority of the college library authorities have not shown their concern to the library buildings.

14 CONCLUSION

The present situation in college libraries in Karnataka is far from the satisfaction. This is mainly due to the inadequate financial provisions to

the college libraries. The concern authorities and Govt should understand that the college library is a heart of the educational institutions and it play a vital role in the overall development of the college in general and education and research in particular. So the authorities should help to provide adequate finance to improve the collection, furniture, building, services etc,. There is inadequate library staff also. In order to provide effective services to the users it require adequate number of staff. With a minimum staff we cannot expect more services, so the concern authorities should take necessary steps to appoint required staff to function effectively, then only we may expect the good result from the college libraries in near future.

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1

Development of University and College Libraries in India During Pre and Post Independence Period: A Historical Study

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J P SRIVASTAVA

ABSTRACT

Traces the growth and development of university and college libraries in India covering both pre and post independence period. Also critically examines the factors responsible for the slow pace of development during the British period. The role of University Grants Commission in the development of university and college libraries has been discussed in detail.

1 INTRODUCTION

History of Indian higher education clearly shows that the British Indian Government adopted biased policies towards the development of education in India. This fact is evidently established when we study the grwoth of literacy in India. In 1947, only 12.2 percent of the population was literate and the expenditure on education was only Rs 0.69 per head.[1] This not only shows the poor state of educational development but also indicates the adverse effect of the policies of the British Government on the development of the academic libraries in India. One of the major causes for the inadequate growth and development of the academic libraries is that 'even the commissions and committees appointed by the Government of India before independence to examine the problems of education did not make specific recommendations for the development of libraries.'[2] But after India got freedom, during the last fifty two years, academic libraries have expanded considerabley in numbers, because after Independence, the importance of a library in university education

has been often emphasised by educationists, librarians, scholars, education commissions and committees. Radhakrishnan Commission on University Education[3] opined that, 'the library is the heart of all the university's work, directly so, as regards its research work, and indirectly as regards its educational work which derives its life from research work. Scientific research needs a library as well as its laboratories, while for humanistic research the library ... and if the library tools are not there how can the student learn to use them.'

2 Development of University and College Libraries

2.1 Pre-Independence Period

The university and college libraries functions as an integral part of the university, its growth and development, therefore, has to be studied in the context of the growth and development of the educational and research programmes of the university as such. Thus, a brief sketch of the development of university education in the country is relevant to be given in the context.

During the Vedic age, education was mostly individualistic and it was imparted by the learned saints in their own habitations. These were called Guru and the learners were known as the Chelas.[4] During the Buddhist age, Viharas and monasteries came into existence in a large number and got prominence and distinction as centers of learning and education. Most famous seats of such higher learning were Nalanda, Taxila, Benaras, Vikramsila, Valabhi, Mithila, Jagadala, Nadia, Ratnagiri, Lalitri etc. Nalanda possessed a well-equipped library which was situated in a special area known as Dharmaganja (mart of religion) which had three huge buildings known as Ratnasagara, Ratnadadhi, and Ratnaranjaka.[5] Taxila was another important and prestigious seat of higher learning and attracted scholars from different parts of the country. It was known as 'the intellectual capital of the Indian continent'.[6] In addition to this, Benaras or Kashi, Vikramasila, Valabhi, Mithila etc. were other important and well known seats of higher learning and education during that time. Among other centres of learning may be mentioned Odentapuri, Jagaddale (both Buddhist) and Ujjain. While some of these centres of learning in the East and South continued their work throughout the middle ages, the Muslim rulers encouraged the establishment of Delhi, Lucknow, Rampur and Allahabad.

During the British period upto 1857 several colleges and other institutions of higher education and learning were established by the East

India Company and the Christian Missions. In fact, the nineteenth century India, especially its later phase had been marked by the resurgence of political, social and cultural life of the country. The Wood's Despatch 1854[7] known as 'the Magna Charta of English Education in India' recommended establishment of the universities in the presidency towns on the model of London University. Thus, in 1857 universities of Calcutta, Madras and Bombay[8] were established. The establishment of Education Commission of 1882 made certain recommendations about the colleges which resulted into their increase from 68 affiliated colleges in 1882 to 192 colleges in 1902.[9] The University Commission of 1902, the Government Resolution on Education Policy 1913 also supported the establishment of more colleges and suggested that more universities need be founded. The Calcutta University Commission, 1917, also known as Sadlar Commission on the position of libraries stated that, 'from this point of view one of the greatest weaknesses of the existing systems is the extraordinary unimportant part in it which is played by the library. Few colleges have good libraries. Even the best, that of the Presidency College, is very defective at many points.'[10]

The important role that university library could play in a university set-up began to be duly recognised during the second quarter of the 20th century. The real boost and momentum in the rapid growth and development of university and college libraries, however, took place only after India got freedom in 1947. As already stated that after independence reconstruction of national education was realised as the prime concern and improvements in standards of higher education was another important requirement for competitive and qualitative education, the government of India initiated to appoint several committees and commissions. These committees and commissions in addition to looking into status and problems of higher education in the country specifically studied the poor state of libraries in academic institutions and made several recommendations for their development. These committees and commissions undisputedly accepted the important role of a library in a college and a university. To summarise the state of their development it would be relevant to quote from the report of the Radhakrishnan Commission on Higher Education, 1948: 'While at a few universities the libraries are fairly well stocked, grants for their upkeep are more or less reasonable, arrangements for lending books to teachers and students are efficient and the reading room space is reasonably adequate, it was distressing to find that in most colleges and universities the library facilities are very poor indeed. Not only is the provision for keeping the library uptodate very

inadequate, but at one place no attempt had been made to weed out obsolete books or old editions and replace them with newer editions of the same books'.[11]

2.2 Post Independence Period

2.2.1 Radhakrishnan Commission (1948–49)

The actual process for the development of the university libraries in India can be said to have been set in motion with the appointment of the University Education Commission presided over by Dr S.Radhakrishnan (1948–49) and it made recommendations, such as annual grants, open access system, working hours, organization of the library, staff, steps to make students book conscious and the need to give grants to teachers to buy books. The section on libraries in chapter 4 of the report opens with a powerful statement about the importance of libraries in university education and states, 'teaching is a cooperative enterprise. Teachers must have the necessary tools for teaching purposes in the shape of libraries and laboratories as also the right type of students. The library is the heart of all the university's work; directly so, as regards its educational work, which derives its life from research work. Scientific research needs a library as well as its laboratories, while for humanistic research the library is both library and laboratory in one. Training in higher branches of learning and research is mainly a question of learning how to use the tools and if the library tools are not there, how can the student learn to use them? Both for humanistic and scientific studies, a first class library is essential to a university'.[12]

The Commission in course of its study of the academic libraries, found that 'libraries were hopelessly inadequate to serve the curricular needs of a modern university. They were ill housed, ill-stocked, and ill-staffed and were totally lacking in standard literary and scientific journals. Service was in the hands of personnel who hardly had any notion of the objectives of university education. The annual appropriation for book purchase seldom exceeded the ten thousand mark'.[13]

In addition, the annual grant for these libraries were not sufficient. Therefore, the Commission recommended that atleast 6 per cent of the total budget of each academic institution should be set aside for the library. Only then the condition of these libraries will improve.[14] It added that if institutions were not willing to allocate 6 per cent of their budget to libraries, they should spend Rs 40 per student enrolled.

The Commission also suggested that more attention should be paid

to improve the reference service in the university libraries. Therefore, 'documentation and bibliographical services must be developed in order to promote research among the faculty and students, make libraries proper centres for research activities and to raise the standards of services.'[15]

As far as the library staff is concerned, the commission was of the view that it is very important to have well-qualified staff, including the Director, in order to provide excellent service in any library. The Director's qualifications must include Ph.D. in library science and he must have the rank and salary of a professor, capabilities of organization and management, and should have full powers of an administrator to run the library effectively.[16]

There is no doubt that the recommendation of the Commission 'were based on the needs of the modern library services in universities for promotion of research and creative learning.'[17] It was for the first time that such detailed attention was paid to the library matters by a commission on university education in India.

2.2.2 Ranganathan Committee (1957)

The most comprehensive and significant document on the university and college libraries is the Report of the UGC Library Committee, Chaired by Dr Ranganathan. The report was published by the University Grants Commission in 1959, entitled 'University and College Libraries'.

It was perhaps the first attempt by any library committee in India to systematically survey the academic libraries on a national basis, and it was also the first time that the Government of India had decided to seek advice from a professional librarian regarding academic libraries. The committee was to advise the UGC on the standards of libraries, buildings, pay scales, and library training. After the survey the Library Committee invited all academic librarians to a seminar on 'Work flow in university and college libraries', at Delhi from March 4 to 7, 1959 to keep them informed about the progress the Committee had surveyed the academic libraries. It wanted to discuss its recommendations with them.

Some of the recommendations of the Committee included the provision that the UGC and the State Government should help the college and the university libraries in the collection development of both books and periodicals. The formula suggested by the Committee was that funds be given 'at the rate of Rs 15 per enrolled student and Rs 200 per teacher and research fellow. There should also be special initial library grant in the case of a new university and of a new department in an existing

university, a similar scale should be followed for the college libraries'.[18] In order to promote co-operation among libraries, a union catalogue of books and a union list of periodicals be prepared. The Committee strongly recommended that an open access system be introduced in every academic library.[19] The Committee also stressed that 'Refrerence service is essential. It is vital in promotion of reading habit in students, therefore, each library should provide an adequate number of reference librarians to function as library hosts and human converters.[20] Other recommendations including building up a microfilm collection, copying facilities for microfilms and book material,[21] appointment of a committee to look into the standards of teaching , examination and research in library schools,[22] and appointment of full time teaching faculty members rather than asking librarians to teach part time in the library schools.[23] The Committee added that 'the status and salary of the library staff should be the same as that of the teaching and research staff', i.e., Professor, Readers, and Lecturers, etc.'[24]

The recommendations of the Committee had a far-reaching effect on the development of the university libraries later. They had not only provided a framework to the UGC to implement its grants-in-aid programmes but also given to the university authorities important guidelines. Particular mention, in this connection, may be made of the recommendations concerning the library finances which had helped libraries to secure enough finances by way of annual grants from the universities themselves and the development grants from the UGC.

The recommendations on the library personnel and staff strength have given to the library staff status and salaries equivalent to the academic staff and ensured provision for adequate staff for various library operations. The Committee submitted its report to the UGC with the hope that it will provide a blue-print for the systematic development of university libraries in the country. Hence, inspite of many hurdles like education being in the concurrent is in the Indian Constitution considerable development in the university libraries has taken place and as such the condition of such libraries in 1953 was much better than in the 1940's and even early 1950's.

2.2.3 Kothari Commission (1964–66)

The Education Commission under the Chairmanship of Dr D S Kothari (1964–66) marked another important stage in the history of university libraries in India. The Commission devoted considerable attention to the development of the university libraries and made suitable recommenda-

tions on the following points: (*i*) norms for financial support; (*ii*) long range planning for library development; (*iii*) the need for the establishment of a well equipped library before the starting of a university, college or a department; (*iv*) suitable phasing over of the library grants; (*v*) encouraging the students in the use of books; (*vi*) inter-disciplinary communication; and (*vii*) documentation service in libraries, etc. The commission had also addressed itself to the role of libraries in adult education and recommended establishment of a network of public libraries. It wanted the school libraries to be integrated with public libraries for purposes of the adult education programmes. The Report, submitted by Dr D S Kothari, on June 29,1966, emphatically pointed out that 'nothing can be more damaging than to ignore its library and to give it a low priority. No new college, university or department should be opened unless adequate number of books in the library are provided.[25]

The commission was shocked to note that the recommendations of the Radhakrishnan Commission had not been fully implemented, for only four universities in India had spent 5 percent or more of their budget on acquisitions of books and periodicals though the 1948's commission had suggested that 6 percent of the total budget be spent on libraries.[26] Other universities had of spent less than five percent of their budget on libraries, 'Surprisingly enough there are five universities which had spent even less than one percent of their total budget on their libraries.'[27] It was clear proof that the university libraries in India were not functioning properly to fulfill the needs of higher education.[28]

The Kothari Commission recommended that a long range plan for library development should be drawn up for each academic institution taking into consideration anticipated increase in enrollment, introduction of new subjects and research needs[29] etc., and documentation service be encouraged in libraries, and documentation experts be appointed to help researchers and do indexing and abstracting.[30] It was further recommended that 'the book selection be oriented towards supporting instruction and research.'[31] The library should 'provide resources necessary for research in fields of special interest to the university; provide library facilities and services necessary for the success of all formal programmes of instruction.'[32] Monetary guidelines were also suggested by the Commission.' As a norm, a university should spend each year about Rs 25 per student registered and Rs 300 per teacher depending on the stage of development of each university library.[33] It was also suggested that 'the foreign exchange needed for university and college libraries should be allowed seperately to the UGC.'[34]

2.2.4 The Wheat Loan Programme

During the 1950's and early 1960's the Indian academic libraries received huge grants from the UGC amounting upto Rs 100,000 for books, buildings, equipment and even for additional staff.[35] At the same time many libraries received additional grants from a special US fund called the Wheat Loan Programme. The American Congress passed a special act, in 1951 known as the Public Law 480 to loan India $ 19,000,000 to buy much needed wheat (two million tons) from the US. Under the agreement of the loan, India had to buy American books, periodicals and scientific equipments worth $ 50,000 to be used for research purposes in the Indian libraries. This money India had to pay as interest on the loan. Part of the money was to be spent on the exchange of scholars, including librarians, between the two countries.[36]

During 1955–61 a sum of $ 170,000 was spent for the exchange of librarians and to buy American books and periodicals. Under this scheme, 36 universities and 152 research libraries of India benefitted from this programme.[37]

The United States authorities bought some educational material and equipment from India for research purposes and higher education in the American universities.[38] The details of the expenditure are as follows:[39]

1951–1961

Items	Expenditure
Cost of the American books for Indian Libraries	$ 1,400,000
Travel and study grants for thirty three Indian Librarians to visit the United States	$ 1,60,000
Travel and study grants of the five American librarians to visit India	$ 40,000
Cost of the Indian Government documents Bought for the United States libraries	$ 75,000

3 Role of The University Grants Commission (UGC)

The most important event in the history of the university education in India, was the establishment of the University Grants Commission, on 28 December 1953, on the model of the University Grants Committee of Britain. The main functions of the UGC were to look after the educational interests of the country and to oversee the development and

functioning of all of institutions of higher learning, including their libraries. The UGC was given a statutory form in 1956 by the UGC Act No. 3 of the Parliament. Since its inception the UGC has given priority to the development of facilities of academic libraries in the country.

As we have already mentioned, for one or the other reason the State Government in India have not implemented the majority of the recommendations of the different educational commissions and committees to keep the progress of the libraries well and bring about many other reforms. Inspite of this failure of the State Government the UGC has contributed substantially for the rapid development of the academic libraries by financing as well as by providing guidance in planning. The growth and development of the academic institutions can be determined by the fact that at the time of Independence there were only 18 universities[40] and 623 colleges,[41] but by now there are about 250 universities and institutions deemed to be universities and 8,348 colleges.[42]

The UGC gave grants to more than 50 universities to build their modern library buildings.[43] In addition 'a liberal financial assistance has been provided on a tentative formula of Rs 15 per student and Rs 200 per teacher and research fellow for the annual purchase of books; new university libraries are granted special initial grants.'[44] During 1958–59 the UGC gave grants to universities amounting to Rs 24,60,550 for the construction and equipping of the university library buildings and a further sum of Rs 10,95,000 for the purchase of books and journals. The total payments made by UGC for this purpose in the same year amounted to Rs 56,39,700.[45] For the purpose of books and journals alone a total sum of Rs 124.83 lakhs was distributed among universities during the Second Five Year Plan period. Against the total sanctioned expenditure of Rs 5 crores in 1961–62 the UGC paid a sum of 11.83 lakhs to various universities for buying books and journals. In 1963–64 the UGC launched a new scheme for grants to the affiliated and the constituent colleges to set up 'Text Book Libraries', providing multiple copies of standard text books for the use of poor students.

Besides these grants for library buildings, equipment, collection development and expansion, the UGC has helped the professionally qualified academic librarians to get better pay scales equal to the teaching members of the universities.[46]

4 College Libraries, 1947–1985

The college libraries in India have a significant role to play in higher education. Majority of the undergraduate, i.e. 88.5 percent, and graduate

student, i.e. 53 percent attend these colleges.[47] When India attained Independence many of the 533 affiliated colleges[48] did not have their own libraries, but at present, every college in the country has a library. The developmet of the college libraries continues to be neglected.[49] Majority of the college libraries do not have proper facilities to meet the needs of their users. Their collections are not up-to-date, their budgets are very inadequate and limited, and a large number of them are single-man libraries.[50] In many colleges, there is neither a library hall nor a sufficiently big room, quite often somewhere out of sight, would be considered adequate to house a few shelves of books. And in most college libraries there is complete darkness even during the day time, as the windows are closed out of a fear that the books may be stolen.[51] Different studies conducted by scholars like A.K. Mukherjee,[52] K.S. Hingwe,[53] M.S. Rana,[54] Girja Kumar,[55] R. Sreepathi,[56] Roshan Raina,[57] J.K. Anand,[58] J.L. Sardana,[59] D.W. Shewde,[60] and A.P. Srivastava,[61] have explicitly established that the condition of the college libraries in India are far from satisfactory. The college libraries are open only for six to eight hours a day. Many do not have any qualified librarian on their staff and have closed stacks only.[62]

Several commissions and committees, like the Radhakrishnan Commission of 1948, did stress on the importance of the college libraries in their reports. The University Grants Commission also gives more importance to the college libraries. As the quality of higher education and research, especially at the graduate level, depends upon, among other things, the standard of the college libraries and their services. Therefore, the UGC has played a significant role in the growth and development of college libraries since 1953 by giving grants for books, equipment, staff and library buildings and salary improvement of the college librarians. The UGC's contribution to the college libraries is at the rate of Rs 15 per student with a maximum of Rs 10,000 with some additional and special grants for text-books, when a new subject is introduced in the curriculum.[63] On the other hand, the colleges and the State Government have failed to provide their equal share. The total expenditures on the college libraries according to the recommendation of the Education Commission should be 6.25 percent of the total budget of the college, but in most cases it has remained between 1.5 percent and 2.3 percent.[64] Collection developments of the college libraries are done without taking into consideration the actual needs of the faculty and the students of the colleges as sixty percent of them consist of text books and 20 percent cover fiction.[65] Even this small inadequate collection, in depth and content, is

not used effectively due to the closed stack system and lack of staff and facilities for instruction concerning their use. The net result is that the utility factor of the college libraries comes practically to nothing.[66] In most college libraries, books are neither properly classified nor catalogued. In several libraries no systematic classification is followed for arranging the collections. The only service the college library renders to its clientele is book-lending. There are colleges where students are not even allowed inside the library.[67]

The UGC is aware of the slow progress of the college libraries. In addition to providing financial help for development, it has also from time to time organized seminars to keep the college librarians aware of the new developments in the field. But these seminars have made only a limited effect on the development of the college libraries. The condition of the college libraries in the country should be a cause alarm for the academic community. In the interests of the development of higher education in the country along proper lines, it is important to make a detailed study of the style of functioning of the college libraries and the utilization of the library resources and facilities by the students and teachers. This will help in the preparation of more realistic and operational policies and programmes for ensuring the proper functioning, utilization and development of the college libraries. The college library has to be made the intellectual hub of the institution, serving equally, both the students and teachers.This is all the more necessary because about 90 percent of the students in higher education in India pursue their studies in colleges and they have only very small and substandard college libraries resources to fall back upon. Although, due to various efforts of the UGC as well as other agencies, the traditional concept that the college library is a custodian of books has changed, yet there is evidence enough to show that the condition of the college libraries is generally poor, their development is rather slow and that the position of the college libraries and their librarians in India, with a few exceptions, is pitiable.

5 Conclusion

University libraries all over the world have their own place of importance in the scheme of higher learning. Libraries are not only repositories of knowledge but also dispensers of such knowledge. There is no doubt that where libraries of universities and institutions of higher learning are ignored or not given due recognition, the country as a whole suffers because the standards of study, teaching and research very heavily

depend upon the qualitative and quantitative service rendered by the university libraries.

The Radhakrishnan Commission (1948–49) expressed that 'the library is the heart of all the university's work, directly so, as regards its research work and indirectly as regards its educational work, which derives its life from research. Scientific research needs the library as well as its laboratories while for humanistic research the library is both library and the laboratory in one. Both for humanistic and scientific studies, a first class library is essential in a university.[68]

The growth of university libraries since Independence can be seen in respect of the initiatives taken by the Central Government considering the vital importance of higher education and role of libraries in the educational development, commitment to fulfill the demand of higher education, and the foundation of UGC in 1953 by and Act of Parliament. As we have discussed earlier[69] the Radhakrishnan Commission (1948), recognized the value and importance of a well equipped and organized library system and its role in higher education. It had found many drawbacks and pitfalls in the university libraries and had made many recommendations for the improvement of library facilities. The Ranganathan Committee,[70] appointed by the UGC in 1957, made some outstanding recommendations, which included standards for library buildings, collection development, staff, services and furniture etc. These recommendations were accepted by the UGC and are being implemented. The Kothari Commission also made valuable recommendations for this purpose, but the role of the University Grants Commission deserves special mention, because it has played a vital role by 'regularily providing appropriate grants and funds to all universities for development of libraries, to purchase books and journals. . . ., construction of new library buildings and for library equipment and furniture'.[71] Dr D.S. Kothari, the then Chairman of University Grants Commission, said, 'libraries play a vital role in the development of institutions of higher learning. The University Grants Commission attaches great importance to the strengthening of library facilities in the universities and colleges and their efficient administration. The Commission has also been giving grants to institutions for books and journals, construction of library building and appointment of library staff'.[72]

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4

Growth and Development of Collection in Indian University Libraries: Policy and Procedures

RANJANA VOHRA AND RENUKA BATHLA

ABSTRACT

Define collection development, describe the procedures and policies for Indian university libraries. Give details the functions of collection development. Suggest methods and discuss their impact.

1 INTRODUCTION

Universities play a major role in contribution to growth and development of human resources by conserving, interpreting and advancing knowledge. The library is the backbone of the University. As a resource it occupies the central and primary place, because it serves all the functions of a University, such as teaching, research, creation of new knowledge and transmission to posterity of learning and culture of the persent and the past.

University library is a store-house of knowledge. The efficiency of the library services is governed largely by the quantity and quality i.e., the number of books and utility of its collection. Size of a collection does not necessarily reflect the quality or excellence of a collection. According to Richard De Gennaro, "Traditional emphasis on developing large collection must be shifted towards developing excellent collection and truly effective means of gaining access to needed research material wherever they may be".

Universities in India have grown with rapid speed after the advent of independence, so have the university libraries. There are now about 229

University level libraries, of these 151 are traditional university libraries having a long history and others are newly setup libraries. Besides, University libraries there are other professional/technical institutional libraries and 8600 college libraries. These libraries function in a way as to fulfill the aims and objectives of the University, namely, (1) conservation of knowledge and ideas, (2) teaching, (3) research (4) publication (5) Extension services and (6) interpretation of reading material.

In university libraries the major problem is in the field of collection development. Our Universities are not well-equipped as far as quality book collection is concerned and most of the Universities have confined their collection to books and periodicals only. Many of these collections do not satisfy the users either qualitatively or quantiatively. There are many libraries which are yet to start their collection development in other form, other than books and journals.

2 Concept of Collection Devlopment

Growth and development of collection is one of the most challenging and imaginative processes of the library profession, whereby, the library staff acquires a variety of materials to meet the demands of its users. It focuses on the bulding of library collection, ideally following guidelines already established and articulated in the library's written collection development policy.

The term collection development includes all such activities as assessing the user needs, evaluating the present collection, determining selection policy, coordinating selection of items, re-evaluating and storing parts of the collection and planning for resource sharing. Thus, it is not a single activity but a group of activities.

It is defined as the process of planning a stock acquisition programme not simply to cater for immediate needs, but to build a coherent and reliable collection over a number of years to meet the objectives of the service. Collection development is also defined as a cluster of functions which together shape the holdings of the library. The functions included are:

(1) Selection, acquisition and collection development policies, (2) Budgeting and fund collection, (3) Technical processing and (4) Resource sharing.

The concept of collection development demands a depth and quality of stock and includes accociated activity towards exploitation of the collection through publicity, staff training etc.

3 Collection Development Policy

A collection development policy (CDP) can be a set of theoretical goals or a statement of actual practice. It can act as a guiding point in the various activities related to planning, budgeting, selecting and acquiring of library documents.

K. Linda Word defines, "the primary purpose of a collection policy is to state the principal collection objectives of a library."

A collection development policy will boost the library staff for better performance and also facilities for a continuous, consistent and balanced growth of library collection. A collection development policy has a great impact on all the activities of the library which brings good dividends.

A collection development policy should clearly define as to:

1 What forms of material are to be emphasised? e.g. films, recorded or printed material only.
2 What subject fields are to be emphasised?
3 Which one are to considered in the general sense?
4 What are the levels of materials to be considered? e.g. scholarly, specialized or popular.
5 Who will select the material?
6 Who will decide the book fund for each discipline?

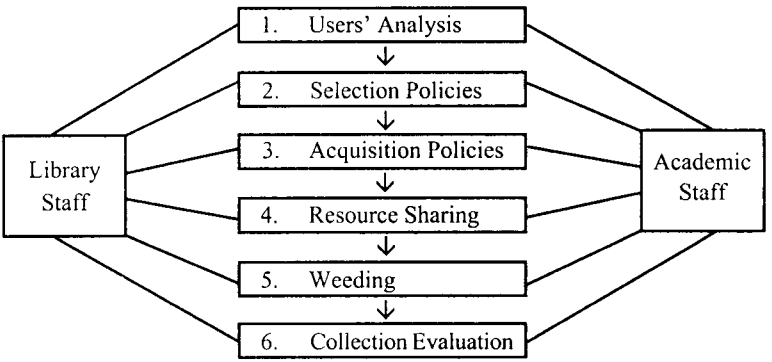
The policy statement should be under fairly constant review and should certainly be reviewed as a whole not less frequently than once in every five years.

4 Who should select

The librarian is usually charged with the responsibility of preparing the budget and where the library committee shares in the responsibility for allocating the book funds. Members of the faculty are usually charged with the responsibility for selecting materials in support of courses and programme research, whereas the librarian and library staff are held responsible for selecting general reference books, periodicals and other material intended for general recreational reading.

The book-selection programme of the University library is not confined to the librarian, the faculty, members of staff, special bibliographers and departmental and professional school librarians. Friends of the library groups, various societies and organizations and the student body also participate in an effective plan programme.

FUNCTIONS OF COLLECTION DEVELOPMENT



5 IMPEDIMENTS IN GROWING AND DEVELOPING COLLECTIONS

There are several impediments in the way of building a huge collection, the most obvious are :

1 Information explosion;
2 Inter disciplinary nature of research;
3 Production and availability of sources of information in multi-media;
4 Cost of publications;
5 Space and manpower limitations;
6 Automation of library systems;
7 Physical deterioration of documentary sources;
8 Changing concept from ownership to access; and
9 Networks.

Almost all the above factors are interlinked with each other. Criteria for collection development is derived keeping in mind the demands and constraints.

In recent years, information technology has advanced to such an extent that its impact on libraries is significant, particularly developments in the field of

- Electronic mail
- Electronic publications
- Internet
- CD-Rom's
- Multimedia and Digital libraries.

These factors have forced the librarians to change the way they are

now functioning. In this context, Librarians are giving more importance to 'accessing the other library's collection' rather than 'possessing almost all documents' on a given subject. In the electronic environment a publication need not be 'owned' to be readily accessible. An electronic collection can be more flexible and dynamic, leaving wider variety.

Nevertheless, collection development whatever form it takes, still requires policies and strategies governing the acquisition programme. An obvious challenge in developing countries is the problem of how to integrate electronic resources with traditional forms.

6 Co-operative Collection development

Now a days higher priority is being given to coordinated and co-operative collection management due to factors like changes in curriculum, research selectivity, expansion of higher education and growth of new information media. Mosher and Pankakey in their "Guide to co-coordinated and co-operative collection development", highlight that such activities involve two or more libraries entering into an agreement to share the development and management of collection. Hence, co-operative collection development should provide a national network of dependencies and distributed responsibilities. It can be greatly enhanced by the availability of shared processing, information management and programme accounting, decision making and commitment of shared information. The emphasis should be on arriving at and achieving common goals which require coordinated or mutually comprehensible collection or mutually comprehensible collection development policy.

7 Growth and Development of Collection: Policy and Procedures

A library collection is the sum total of library materials i.e. printed and non printed, such as Books, Manuscripts, Serials, Government pulications, Pamphlets, Catalogue, Reports, Recordings, Microcards & Microfische, Punched cards; and Computer tapes, that make up the holding of a particular library. Growing and developing a collection may occasionally involve the selection and acquisition of these materials, but in most of the cases it is likely to mean the planned, systematic development of an already existing collection.

Now a days the key question is need to restructure policy decisions and procedures of collection development to accommodate the emerging technolgies. The need, cost, speed and users satisfaction are the essential

factors determining collection development. In this information age, it is not practicable for any library to satisfy all the information needs of all its users all the time.

The libraries are still predominantly document oriented, and it is only in recent years publications in electronic media have become available. Hence, the collection development policy has to be devised as a guide to assist the library in exercising its collection development responsibilities, subjecting to changes, shifting functions and reflecting the environment in which it exists.

Thus, it is necessary to have a library committee to formulate clear-cut and flexible policies for the systematic and consistent growth of library collection. The general policies viz. the objective of the library, users requirement, existing holdings of the library, authority, accuracy, cost and the overall value of the item should be kept in mind while selecting printed and non-printed material. The procedures to be adopted for the selection and acquisition of material should be simple, flexible and aimed to have economy of funds, time and manpower.

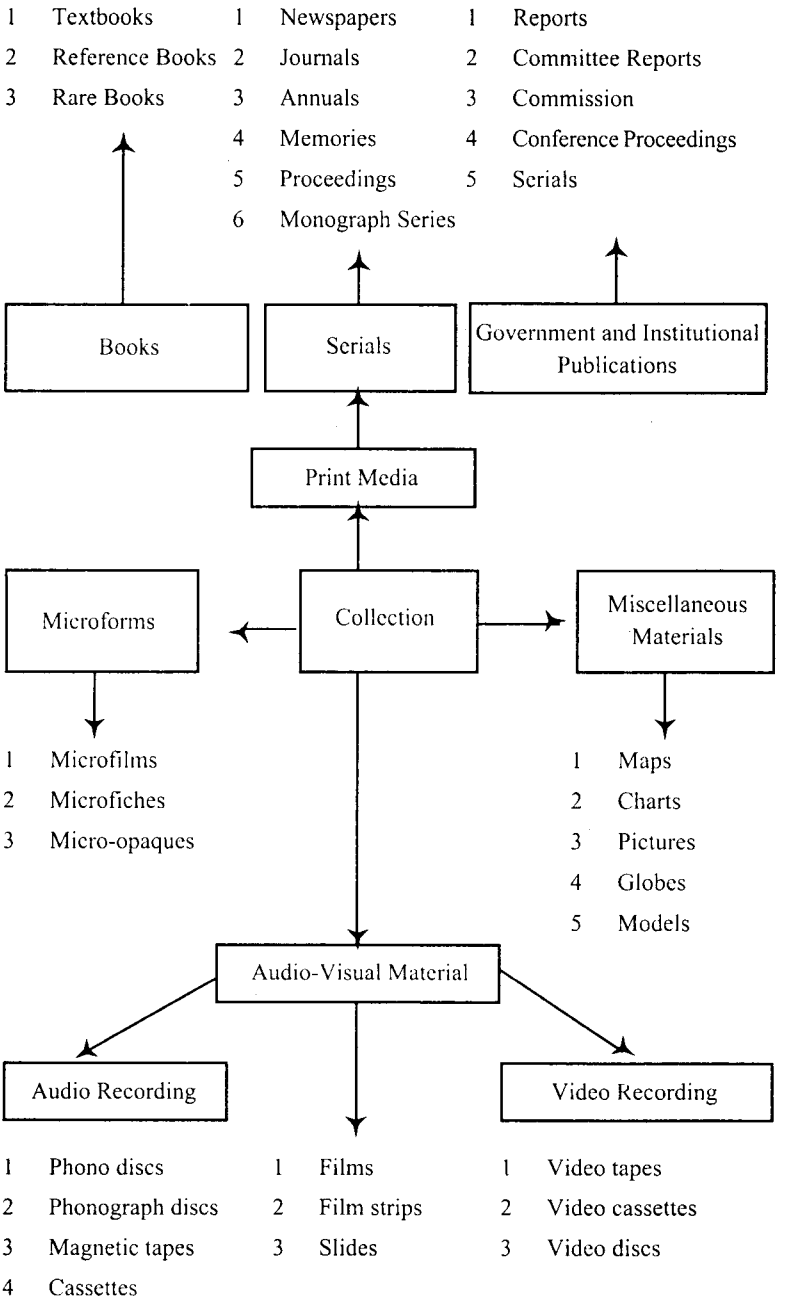
In the changed scenario, flexible descriptions that encompass the formats of information and resources both local and remote will require continuous adjustment as each field, methods, and materials evolve. Libraries will, therefore, have to focus continuously on users priorities and needs, strategies for acquisition will follow and derive from these general analysis. The collection development policy has to incorporate all the formats in which relevant information is available.

8 Formats

Books and non-book materials in various formats e.g., as shown in diagram on next page.

9 Evaluation of Collections

Collection evaluation is an intrinsic part of collection management. An effective collection development and collection management policy require an understanding of the strengths and weaknesses of the current library stock. An assessment of how well the existing stock, meets the needs of its present and potential users can help in rectifying the lacunas. A periodic evaluation of the collection helps in assessing the effectiveness of the collection development policy of a library. Different collection centered as well as user centred measurement techniques used to evaluate collections. These techniques include size, growth and quality as compared with external standards and objective data.


1 Textbooks
2 Reference Books
3 Rare Books
1 Newspapers
2 Journals
3 Annuals
4 Memories
5 Proceedings
6 Monograph Series
1 Reports
2 Committee Reports
3 Commission
4 Conference Proceedings
5 Serials
Books
Serials
Government and Institutional Publications
Print Media
Microforms
Collection
Miscellaneous Materials
1 Microfilms
2 Microfiches
3 Micro-opaques
1 Maps
2 Charts
3 Pictures
4 Globes
5 Models
Audio-Visual Material
Audio Recording
Video Recording
1 Phono discs
2 Phonograph discs
3 Magnetic tapes
4 Cassettes
1 Films
2 Film strips
3 Slides
1 Video tapes
2 Video cassettes
3 Video discs

In the context of electronic resources like computer floppies, CD-ROMs user centered methods can be used keeping in view the two dimensions of evaluation namely, availability and accessibility. No single performance indicator can adequately measure collection management performance, as there are several aspects of performance and number of different services. Hence, whatever be the methods adopted, one should always keep in mind that the ultimate objective or purpose of collection evaluation is to satisfy the needs of the users.

10 Problems faced by Indian University Libraries

Aspects like information explosion, literature scatter, rising prices, technological evolution, inelastic budget, etc. are the major hurdles in the way of collection development especially in Indian Universities. Therefore, Indian University Libraries are inadequate to support higher education and research, inspite of the efforts made by UGC to strengthen the library resources and services. Most of the universities have been running in considerable deficits for the last several years. They are unable to maintain their acquisitions and services at previous levels. The reason for this is that approximately 58% (upto 80% in quite a few cases) of the annual budget is spent on salaries. A relatively very small percentage (approximately 10% to 15%) is available for academic programmes. Also books and journals have become costlier and becoming more costlier than the general inflation rate. It reveals from the budgets of Punjab University library that grant for periodicals has increased from 11.5 lakhs to 68.0 lakhs from 1980-81 through 1996-97, but the number of periodicals subscribed during this period has decreased from 1017 to 840. similarly, grant for books increased from 2.0 to 12.0 lakhs from 1980-81 to 1996-97, but the number of books acquired during this period increased only from 4588 to 4673. Under these circumstances, maintenance of library standards would be a difficult tasks.

Hence, even if the present role of growth and development of libraries is to be maintained, more funds are required for the University libraries. Also the annual increase in the library budget should be proportionate to the increase in expenditure. The key issues to be considered would relate to ownership versus access, cooperative efforts and evaluation. Recent developments like Internet and the emergence of digital libraries have forced to change the way the librarian functions. He has to search information in the networks, act as a navigator and deliver actual information to the user. The challenge now is to maintain, nurture and optimize the resources of the libraries with the help of new Information Technology.

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2

Growth and Development of Indian University Libraries

AJIT SINGH SIWATCH

Abstract

The paper attempts to highlight the growth and developments of University Libraries in India including current state of Universities. University libraries in Anciet time, Medieval period, Modern period and Post-independent scenario. It also explains the efforts of U.G.C. in the development of university libraries to face the challenges of electronic information era through INFLIBNET center of Ahemadabad.

1 Introduction

Education is one of the most essential tools for any modern nation to achieve social, economic and political objectives for meaningful national development. The intrinsic intellectual dynamism, resourcefulnes and the moral strength of the nation is reflected in the quality of higher education, which provides political, intellectual, scientific and professional leadership. The progress of a nation: economic and social development of the people of a nation; welfare and security of the life of human beings; scientific and technological basis of the world; are dependent upon the quality of the higher education provided by the Universities of the Nation.

Pandit Jawahar Lal Nehru, former Prime Minister of India, in his convocation address to Allahabad University said 'A university stands for humanism, for tolerance; for reason, for adventure of ideas, and search of truth. It stands the onward march of human race towards even higher objectives. If the universities discharge their duties adequately then it is well with the people, and the nation'.

2 Current state of universities in India

A library is the heart of a university, so the growth and development of the university libraries in India is tied up with the growth and development of the university. After independence, Indian Government's emphasised on the establishment of universities to provide higher education. The Central Universities are established by Acts of Parliament and the State Universities by Acts of State legislatures. At present there are 242 university/university-level institutions in India. Of these, 154 are general universitis, 34 universities are providing education in agriculture (including forestry, dairy, fisheries and veterinary science), and 17 universities provide education in medicine and 22 universities in engineering and technology. There are 10 Open universities, which are providing education through correspondence. There are some specialized institutions, which include six Sanskrit Universities, five Women's Universites, one Population Sciences University, four Regional Language and Music and Fine Arts University, one Statistics University, one Law University and one Journalism University. In other way, we have 18 Central Universities, 173 State Universities, 40 Deemed Universities and 11 Institute of National importance. Every university has a well-equipped library to provide the services to its members and society.

The Indian Universities are basically of two types - Unitary and Affiliating. The Unitary universities have a single campus and largely concentrate on post-graduate studies and research. Affiliating Universities generally, have a central campus on which departments or schools are located that impart post-graduate instructions and conduct research. The Universities also have a variable number of colleges affiliated to them and these may be distributed over a number of districts in accordance with the jurisdiction of the University.

The University level institutions are also of two types: Deemed Universities and Institutions of national importance. Deemed Universities are institutions that are conferred the status of a University by virtue of their long tradition of teaching or specialization and excellence in a particular area of knowledge. The Deemed University status is granted by the University Grant Commission with the approval of the Department of Education, Ministry of Human Resource Development. The Institutions of national importance are established, or so designed through Acts of Parliament. These Institutions, including the six Indian Institutions of Technology, as a special case, are empowered to award their own degrees (privilege normaly restricted to universities). Today, there are 10,600 colleges in India. Of these - 1260 are for women and 119 are

autonomous colleges. We have 7000 teacher education/training colleges, 1100 polytechnics, 600 management institutions, 550 engineering and technology colleges and 655 medical colleges. Enrolled strength of students in higher education is around 7.5 million and the teachers number to 3.21 lacks. Around 74,000 have been enrolled for research and nearly 10,000 are awarded with PhD every year (Gautam, Hari).

The National Policy on Education 1986 has highlighted the importance of higher education as - 'it provides people with an opportunity to reflect on the critical, social, economic, cultural, moral and spiritual issues facing humanity. It contributes to national development through dissemination of specialized knowledge and skills. It is therefore, a crucial factor for survival'.

Indian Universities are functioning on the basis of the function stated by Wilson and Tauber (1965). He explained the functions of Universities as conservation of knowledge and ideas, teaching, publication, research, extension service and interpretation and, thus, university libraries are very essential to achieve the objectives of university education. The library exists not merely to help the instructional functions of the University, it does also a good deal in aid of research which is another major function of the University. The library therefore, performs a variety of functions, by way of helping students with text books, parallel studies, reference books and periodicals, by providing a large number of bibliographical tools and up-to-date literature on every subject for students, teachers and research scholars, as well as by maintaining an efficient reference and information service (Mukerjee, 1966).

The prime necessity for a University is a good library with a balanced and adequate collection, which can satisfy the needs of the university faculties and help to promote advanced study and research programmes and, therefore, a University is rated largely by the library it has. The essentialities of the University libraries can be gauged from the fact that on January 29, 1963 President Kennedy informed the US Congress that because today's trend in colleges and universities is towards less lecturing and more independents study. The college and university libraries become even more essential in the life of our students. The nation must strive to make its schools and colleges good enough to educate free men who think for themselves increasingly complex world. Education of the quality demands strong libraries (American Library Association, 1963).

The university library, being the pivot of all academic activities of the University, shall have the following objectives (Association of Indian Universities):

- to support the teaching and research programs of the University;
- to develop its collection by acquiring necessary reading materials to meet the present and future needs of its users for whom it is meant;
- to organize its collections, operations and services so as to provide for the reading materials and information needs of its users in anticipation and on demand. Networking and resource sharing among University libraries should be practiced by each institution towards utilization of all resources;
- to introduce, if necessary technological innovations like computer word processing etc. to facilitate users in getting prompt service;
- to provide facilities like reprography, inter-library loans translation and documentation to assists the users;
- to promote library user education and relate to technological innovations so that the academic librarian will no longer remain a craft-man but serving educationist through technological means;
- towards achieving the above goals, to get adequate financing, staff, storage and other facilities, and
- to maximize efficiency of services with reference to inputs/ expenditure so as to make library services cost effective.

3 Development of University Libraries

3.1 University Libraries in Ancient Time

The importance of libraries in academic institutions was recognized in India even in the remote past. In the vedic age instructions were imparted orally, without the medium of books (Agarwal, 1954) and this is perhaps the reason that no libraries have so far been discovered in the archaeological excavations at Taxila though it was a famous seat of learning from 700 BC to 300 AD (Chakravarty, 1954) with the advent of Buddhism, teaching came to be practised through written word and this in turn gave rise to libraries. Fahien a Chinese monk who visited India from 395 to 411 AD has hinted at the existence of a library at Jatavana Monastery at Sravasti (UP) in the fourth century AD. The Monasteries, then, were seats of learning where scholars not only taught but also composed their own books. In order to facilitate these scholarly works, libraries were maintained. After Fahian, Hiuen-tsang was the next important Chinese traveler who visited India in 629-45 AD His long stay in India was intended to see its far-famed shrines and all visible evidences

of Lord Buddha's ministrations - to procure these books in the original languages and to learn the true meaning of their obtuse doctrines from orthodox Pundits in India (Walters, 1905).

Hiuen-tsang left India in or about 645 AD and It-Sing came in about 672 AD. The number of literary collections that It-sing carried home from India comprised some 400 different texts of the Buddhist works with about 5,00,000 slokas, all this meant more or less thorough ransacking of the rich and rare collections of the texts housed in the libraries of the monasteries (Mukerjee, 1969). In 400 AD there came into being one of the biggest known Universities, the Nalanda University. Nalanda, near Patna, grew to be the foremost Buddhist monastery and an educational center. Most of what we know of Nalanda University during the 6th and the 7th centuries AD is due to the accounts left by Hiuen-tsang who lived in the institution for three years in the first half of the 7th century, and It-sing who stayed there for ten years towards the latter part of the same century. Information on the Nalanda University library is also found in the Tibetan accounts from which we understand that the library was situated is a special areas known by the practical name, the Dharmaganja (Pag-Sanjon) whichcomprised three huge buildings called the Ratnasagara, the Ratnodadhi and the Ratnaranjaka of which the Ratnasagara was a nine-stories building and housed the collection of manuscripts and rare sacred works like Projna-paramitra Sutra etc. The library at Nalanda had a rich stock of manuscripts on philosophy and religious and contained texts relating to grammar, logic, literature, the Vedas, the Vedanta and the Samkhya philosophy, the Dharamasastra the Puranas, Astronomy, Astrology and Medicine (Mukherjee, 1966). The university of Nalanda and its library continued to the 12th century AD until Bakhtiyar Khalji sacked it in 1197-1203 AD and set fire to the establishment of Nalanda (Mukherjee, 1966).

The other world famous universities, such as: (i) Vikramsila monastery in the 8th century AD, had a rich collection of texts in Sanskrit, the Prakrit and the Tibetan languages and a great number of books on religion of Hindus (Buddhists); (ii) Vallabhi, famous for its Hinayana studies; (iii) Kanchi possesed by a rich library (Pastaka Bhandaras); (iv) Jaggadal Vihara in Varendra Bhuman, an important centre of learning with considerable collection of reading materials. It was established by the king Rampala - 1084 to 1130 AD having the facilities for reading, writing, editing, and translating manuscripts; (v) Mithila, has been famous for its scholars since the days of Rajrishi Janak and had a rich collection of various commentaries on the different branches of

the Hindu Shastras; continued to enjoy its all Indian importance in the field of learning till the end of the 15th century AD (Mukherjee, 1966); (vi) the University at Sompuri occupied a significant position since the days of Dharampala (769-867 AD). This University also had its own library. Atisa Dipankar, a noted scholar, lived there. He with the help of other scholars translated into the Tibetan the Madhya-mkaratnapradipa of Bhavavieka. This University was destroyed by fire in the middle of 11th century AD (Misra, 1979); (vii) in 1063 to 1106 the Navadwipa in the West Bengal was a famous centre for intellectual excellence as well as for its rich library facilities, when Lakshman Sen, a king of Gauda, made it his capital. This library too was destroyed along with the centre by Bakhtiyar Khalji (Mukherjee, 1966); (viii) the Nagarjuna Vidyapieth, at Amaravati, in South India, on the bank of the Krishna flourished about the 7th century AD. Its library housed in the top floor of the five stories building of the University had an enormous collection on the Buddhist philosophy, particularly of the Mahayana school that Nagarjuna had founded, science and medicine. Its library also had books on several branches of scientific knowledge, such as Botany, Geography, and Mineralogy. It was a great attraction for scholars from the different part of India and from countries like China, Burma and Cylon (Mukherjee, 1966).

3.2 University Libraries in Medieval Period

The existence of academic libraries during the medieval period of Indian history is not known, though the Muslim rulers did patronize libraries in their own palaces. A lone exception, however, was a library attached to a college at Bidar, having a collection of 3,000 books on different subjects. Aurangzeb got this library transformed to Delhi to merge it with his palace library (Keay).

3.3 University Libraries in Modern Period

Lord Minto, Governor-General (1807-13) in his minutes of the 6th March, 1811, wrote that a library be attached to each of the college under the charge of a learned native with a small establishment of servants for the care of manuscripts (India, Bureau of Education 1920). Perhaps this is the first statement on record concerning libraries in academic setup in India. Lord Auckland, Governor-General of India (1836-40) further outlined the library policy in his minutes of the 24th Nov. 1834. "In order to make the greatest use of the advantages of the colleges. I would attentively watch the degree to which the students profit by their access

to the considerable libraries which are now attached to many of our institutions. Important deficiencies in these libraries should be promptly supplied (Hunter Commission Report, 1882). Library collections of the colleges started growing in 1992. Hunter Commission reported that some libraries have crossed the thousand mark of the collection of Books: (I) SPG College, Trichirapally (1120, books), Presidency College, Madras (3289 books), Government College, Lahore (1400) and Government College, Jabulpur (1000, books). Seven years after the Hunter Commission, in 1889 the library of the former Christian College at Lahore was established.

Within five years, this library had a collection of 1300 books, with a Librarian (H.M. Grawold) to administer it and this library "became an integral part of students education. The reading room was opened twenty four hours and student were encouraged to go in at all hours. It helped to promote the habit of self study stimulated general reading outside the prescribed text books (Bose, 1978).

Attempts were made to start Universities at Madras and Calcutta in 1834 and 1845 respectively but the proposal did not get the approval of the East India Company. Three affiliating Universities were established at Bombay, Calcutta and Madras in 1857 on the model of the London University, which itself was an examining body at that time. In the absence of their teaching function, no need appears to have been felt of creating the libraries simultaneously with the University. Bombay University Library was established seven years later in 1864, Calcutta University Library fifteen years later in 1873 and Madras University Library fifty years later in 1907. Two more Universities, the University of Punjab at Lahore and the University of Allahabad were established in 1882 and 1887 respectively. These universities were also started in the absence of library.

Sir Thomas Raleigh (Chairman, Indian University Commission, 1902) recommended that good reference should be provided in connection with both Universities and colleges in order that students may have an opportunity of forming the habit of independent and intelligent reading (India, University Commission Report, 1903). An immediate out come of these observations and recommendations of the Indian University Commission (1902) led to the Indian Universities Act (11904). The Act contained a specific statutory provision for the universities to maintain well-equippd libraries. Inspite of the statutory provisions, except the Punjab University (Lahore) has not followed it strictly.

The Calcutta University Commission 1917-19 also surveyed the position of libraries and found that in general the libraries were very

inadequate for the needs of the students and still more so for those of the teachers. The commission recommended to maintain a library on the amplest possible scale and to make it as useful as it may be to all teachers and serious students. The university should have the services of a Librarian, who should have the salary and status of a Professor and should be ex-officio member of the Academic Council. This was the positive attitude towards the University Libraries and librarians in Indian Universities.

During the period 1919-1930 eight new universities were established with associated university libraries. There were international contacts between Indian, British and American University Libraries. The administrative setup of Indian University libraries was often the model of the western libraries (Viswasnathan, 1981). After this, two universities at Utkal in 1943 and at Sagar in 1946 were established alongwith libraries. And, in this way, necessary climate had been created for the establishment of University libraries almost simultaneously with the incorporation of new universities.

Agra University established its library after 7 year and Kerala after 5 years. The University libraries of Indore, Ranchi and Sambalpur came to be established after 3 years while Mysore, Sardar Patel, Rajasthan, Dibrugarh, Saurashtra and SNDT were established after two years Karnataka, Gujarat, Poona, Punjabi, Jabalpur, Jiwaji, Kanpur, Kurukshetra, Meerut and Punjab established their libraries after one year from the date of inauguration.

3.4 Post Independence Scenario

After independence, vigorous efforts were made to improve the standard of higher education in India particularly in university education. The University Education Commission (1948) under the Chairmanship of Dr S Radhakrishan was appointed by the Govt. of India, which recognized the importance of the library in the University.

As a result of the recommendations of the University Education Commission, the University Grants Commission (UGC) was set-up in 1953 and it was made a statutory body in 1956. A library committee, headed by Dr S R Ranganattan, was appointed by the UGC in 1957 to advise on maters relating to the proper functioning and management of college and university libraries. The committee submitted its report in 1954, making suitable recommendation: on grants to libraries; book purchase; reading habits; documentation work; departmental libraries; library personnel; library buildings and furniture (UGC, Library Com-

mittee, 1968). The significance of this report was that the UGC accepted most of the recommendations of this committee and provide liberal grants to Universities for uplifting their libraries from their pitiable conditions. After this, in 1964-66, one more Education Commission (1964) was appointed by the Government under the Chairmanship of Sh D S Kothari and this commission also emphasized on student oriented education through libraries by increasing self-study periods.

In 1991, University Grants Commission (UGC) started a major programme named Information and Library Network (INFLIBNET) with its headquarter located at Gujarat University Campus, Ahmedabad. The programme is directed towards modernization of libraries and information centres and includes establishment of a mechanism for information transfer and access to support scholarship, learning and academic pursuits. It is also aimed at establishing a national network of libraries and information centres in universities, institutions of higher learning and R&D institutions in India. It is basically a co-operative endeavor in resource development, sharing and its utilization at national level. In May 1996 this programme has progressed and developed an autonomous Inter-University Centre under UGC to co-ordinate and implement the nationwide high-speed network using state-of-the-art technologies for connecting all the university libraries in the country. INFLIBNET Centre through University Grants Commission has been providing grants to the universities for the automation of the university libraries. Till now, 105 university libraries have been given grants for automation purposes.

After independence, the Indian universities have grown up by more than eleven times and today there are 229 Universities and University Level Institution. There were 19 Universities in 1947-48 and became 27 in 1950-51, 45 in 1960-61, 100 in 1970-71, 132 in 1980-81, 194 in 1991-92 and 229 Universities in 1997-98. All universities are attached with well-equipped libraries with fully qualified staffs which provides quick and up-to-date services like: INERNET,E-MAIL, computer service etc.

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8

Growth and Development of Public Libraries in India

HARPREET WALIA

ABSTRACT

The author has traced the Growth & Development of public libraries in various States of India. Suggestions have also been given to improve the public libraries.

1 INTRODUCTION

Libraries are the only sanctuaries where life long education, self education and education at one's own level and one's own leisure is possible, especially in the case of those who bid good-bye to formal education.

In the 20th Century Welfare State, the successful working of democracy is necessarily dependent on free education. It needs a crash educational programme inclusive of mass adult education which has to be taken up on national level, but to carry out this crash programme at a national level the public library will have to take recourse to the services of the society on a wide scale, and since the library is an educational concern of the State, the government has to take up the responsibility of establishing and developing public libraries both in urban and rural areas. We may classify public libraries into two broad categories (i) Government and (ii) Non-Government Libraries. Government libraries may not essentially be established under the mandate of law. Some of these however, may charge a nominal amount as membership fee. Non-Government libraries are run by various organizations/institutions etc. UNESCO manifesto for public libraries states "The Public Library must

offer to adults and children the opportunity to keep in touch with their times to educate themselves continuously". In a developing country like India where formal education is not possible to all due to many factors or those who had received formal education and need continuing education, public library assumes all the more importance.

2 Development of Public Libraries

2.1 Ancient & Medieval Times

In India, since ancient times a library has been functioning as a light-house. Reference are available to the effect that the great Sanskrit poet Banabhatt who composed the famous work "Kadambari" managed the Palatial Library of King Bhoj. References are also available to prove that the great Indian Universities like Nalanda, Takshila and Vikramshila (600 BC) had their own libraries with a massive collection of rare documents. The Moghuls also had set up royal pompous libraries. Well known among these libraries was a library set up by Moghul Emperor Humayun at Agra Fort with Lal Beg as Librarian and a library set up by Moghul Emperor Akbar with Faizi as Librarian. Among other rulers the names of Maharaja Man Singh of Jaipur & Maharaja Ranjit Singh of Punjab will always be remembered.

2.2 British Period

British were the first to set up Libraries like Institutions in India. Calcutta Public Library was established in the year 1836. Other important libraries set up in the nineteenth century were Andrews Library (1850 of Surat), Gay Public Library, Gays (1855) Connemara Public Library (1866) of Madras, Government Library of Junagarh. The libraries of this period were mostly used by the members of the upper class and the elites. The lower strata of society could not make use of these Libraries.

2.3 Libraries in 20th Century

The first three decades of 20th Century will be remembered as a golden period in the history of public library movement in India. In 1903 the reading room of Calcutta was opened by the British for the common man. This library developed later as Imperial Library and still later developed as National Library. Library movement in Baroda is also a fruit of this period. On the invitaion of Maharaja Sayaji Rao Gaekwd III, the then ruler of erstwhile Baroda state who was the first India ruler to

declare compulsory elementary education in his state in the year 1907. The fomous American Librarian Allenson Borden was able to establish a network of public libraries which included conventional libraries, mobile libraries, cinema libraries and manuscript libraries. Main objective and motto behind well knit network on public libraries was to provide free public library service to all and sundry. In the Eastern part of the country Muninderdev Rai 'Mahashaya' of Bengal who formed "Bengal Library Association" also did a lot for promoting and suporting library movement.

The Committee appointed by the Government under the Chairmanship of AAA Faizee in Bombay in the year 1939 also contributed to the development of public libraries. The Committee recommended building up a strong network of public library system in the State with State's Central Library, District Libraries, Taluka Libraries, Block Libraries etc. linked with each other in the form of a chain.

2.4 Contribution of Dr S R Ranganathan

In the third decade of 20th Century Dr S.R. Ranganathan appeared on the scene like a radiant luminary. Though he worked in the libraries of academic institutions owing to his efforts the Governments of four Indian States, (Tamil Nadu Andhra Pradesh. Mysore (Karnataka) and Maharashtra passed and enacted library legislation in their states in 1948, 1960, 1965 and 1967 respectively. Ranganathan, besides preparing "Model Library Bill" and "Development Plan" prepared draft library bills for almost all the Indian States.

3 Role of Government of India

The Government of India took interest after independence in providing Public Library service to the masses. During the First Five Year Plan, Governments included the scheme of improvement of public library services alongwith the Community Development Programme. Delhi Public Library (1952) and INSDOC (1955) were set up during this plan with the joint efforts and assistance from the Government on India and UNESCO. The Delivery of Books Act was passed in 1954 and later amended in 1956. The Government set up Advisory Committee for Libraries under the Chairmanship of KP Sinha. It submitted its report during the Second Five Year Plan. It recommended an integrated library system in the States. It also strongly recommended library cess. During the Third Plan the Government felt an adequate system of Libraries is an

essential part of any well organised system of education. During this plan the Planning Commission set up "Working group on Development of libraries" (1964). During the Fourth Five Year Plan the group formulated overall policies, priorities and programmes of public library development costing Rs. 30.99 crores. During this Fourth Plan period the Government of India set up Raja Ram Mohun Roy Library Foundation in 1972 as an autonomous body. Till today five states have enacted and adopted library legislation. These are Tamil Nadu, Andhra Pradesh, Karnataka, Maharashtra & West Bangal.

4 Development of Public libraries in various states

4.1 Andhra Pradesh

Andhra Pradesh is one of the leading states which has developed a network of public libraries and built up a sound system on public library service. The Andhra Desh Library Association was formed in 1914. Andhra Pradesh Library Act was passed in 1960. The State Central Library at Hydrabad is at the apex and block libraries including Book Deposit Centers and Panchayat Libraries and other libraries are at the bottom. In between are regional libraries, district libraries and branch libraries. Public library in the State is financed from three sources.

1 Government Fund
2 Amount collected as cess.
3 Library's own resources.

4.2 Assam

Assam Library Association was formed in 1938. However, Public Library Service in Assam was started in real sense during the First Five Year Plan. The State Central Library at Gauhati is at the apex of the State's Library System. Next in link are district libraries and sub divisional libraries.

4.3 Bihar

Most important year in the history of library development in Bihar was 1891 when the Khuda Baksh Khan Oriental Public Library of Patna was opened to the public. The library was previously owned by Maulvi Mohammed Baksh Khan who after his death left behind splendid collection of manuscripts. Bihar Library Association was founded in 1936. Some important Public Libraries in Bihar are Nagri Pracharini Sabha

Library (1901), Townhall Municipal Library Muzaffarpur (1919), Sinha Library Patna (1924).

4.4 Gujarat

Gujarat is the first Indian State to have a fully developed public library system. Gujarat Library Association was formed in 1939. Gujarat is one of the two states with more than one State Central Library. One is Gujarat Vidya Peeth which is aided library. It has been given the status of state Central Library. The second Central Library is at Braoda. A new State Central Library has been opened at Gandhinagr by the Government.

4.5 Haryana

Haryana Libary Association took its birth in 1967. In 1967 the District Library at Ambala Cantt was upgraded as State Central Library. The DPI looks after Public Library System. The other district libraries are at Narnaul, Hisar, Gurgaon & Rohtak.

4.6 Himachal Pradesh

Public Library services are administered and looked after Director of Education. State has set up a State Library at Solan. There are district libraries, tehsil libraries & village libraries. Villages are small and situated far from each other, thus it is very difficult to extend library services to all the villages.

4.7 Jammu & Kashmir

Jammu & Kashmir Library Association was formed in 1966 and is taking new interest in the development of library service. There are only three Public Libraries. One each in the city of Srinagar & Jammu and one in the town of Poonch. The director of Culture, Museum and libraries looks after public library service.

4.8 Karnataka

Mysore Public Library Act was enacted in the year 1965 for establishing and maintaining a network of public libraries both in urban & rural areas. Under the provisions of this act, library cess is collected for running these libraries in the from of surcharge on property tax. This surcharge is collected by the local body of the concerned district/city and deposited in library fund.

4.9 Kerala

The libraries have been set in the State through individual initiative and public donation since 19th Century. The Present State Central Library was set up at Trivandrum in 1847 due to the efforts of Public Library Society and handed over to the Government in 1898 and was given the status of State Central Library in 1959. Kerala Library Association was formed in 1945. State Central Library at Trivandrum is run by the State Government and rest of the libraries including district libraries are under concerned library authorities. Kerala Granthalaya Sangathan received aid from the Government depending their grade or category. There are six grades. There are unaided libraries also which are managed by their parent bodies. Library service in the State is an average good.

4.10 Madhya Pradesh

In the State of Madhya Pradesh The rulers of princely states had their private libraries but the first public library was opened in Indore in 1854. Among other old libraries of the State, the name of Madhav Pustakalya of Gwalior (1899) and Yuvraj Sarwajanik Pustakalya of Ujjain (1914) need special mention. Library service is scattered in the absence of library legislation. Administrative supervision, finance and maintenance of public libraries is the responsibility of three different Departments. 1) Department of Education. 2) Department of Panchayat & Social welfare. 3) Department of Harijan & Tribal Welfare.

4.11 Maharashtra

Concept of modern public libraries in the State is the contribution of Europeans particularly the British. They established in Bombay a branch of Royal Asiatic Society in 1804 with a rich library collection. In 1830 "The Bombay General Library" was established. By the start of 20th Century many significant libraries were set up. Many Indians also took keen interest in establishment of libraries. V.G. Ketkar, D.W. Joshi & D.R. Gadgill are some of worth naming personalities. The Maharashtra Library Association which was founded in 1920 has been instrumental in spreading library movement in the State. The Maharashtra Public Library Act of 1967 came into force with effect from 1st May, 1968. State Library Council was set up to advise the Government on all matters concerning libraries with Minister of Education as Ex-Officio Chairman and the Director of Libraries as the Ex-Officio Member Secretary.

4.12 Manipur

Department of Art & Culture manages the public libraries. Currently State Central Library has been established at Imphal. Five more district libraries have been set up. Library Act has been passed in the State in 1988.

4.13 Meghalaya

Meghalaya was created from the united province of Assam, so it inherited the State Central Library of Assam at Shillong. There are two district libraries out of five districts. DPI of Meghalaya looks after these public libraries.

4.14 Nagaland

Public library service in the State is of recent origin. The Government realised the need to set up public libraries in the State for the common people. In 1976 State Library was set up at Kohima, the capital. In 1975-76 provision was also made to register libraries under the Department of Art & Culture and to give assistance to voluntary organistions and trusts of running public library services.

4.15 Orissa

The State is providing library services through State Central Library, district libraries, sub div. libraries and rural libraries. The State Central Library, district libraries & sub div. libraries are Government libraries and rest are aided libraries.

4.16 Punjab

During the past, many libraries were set up in Punjab (undivided) due to the encouragement and patronage of the Britishers and Kings, philanthropists and library professionals. Dyal Sing Majithia, Asa Don Dickinson and R.L. Bhatia played singificant role in spreading library movement in the State in undivided Punjab. Punjab Library Association was formed in 1916 by Asa Don Dickson. The State runs Central State Library at Patiala and district libraries at other places. Rest of the libraries are either aided or run by local authorities. There are Panchayat Libraries also which are run by Department of Community Development but there are mere reading rooms.

4.17 Rajasthan

Rajasthan has a rich tradition of library service. Modern public library system in the State is a contribution of Maharaja Swai Ram Singh II who established Maharaja Public Library in Jaipur in 1866. Sir Mirza M Ismail, Dewan of Jaipur State also made significant contribution in the growth of library development. Rajasthan Library Association was formed in 1962. The Association has taken keen interest in promoting library service. Presently public libraries are functioning under the control of the Education Department.

4.18 Sikkim

Library Movement is spreading in the State. Public libraries are looked after, managed and controlled by Department of Education.

4.19 Tamil Nadu

The Madras Public Library Act adopted in 1948 came into force w.e.f. 1st April 1950. Under the provisions of the Act the Directorate of Public Libraries under the overall control of Education Department coordinates the public library services in the State. The State Central Library known as Connemera Pubilc Library is also a copyright library. Local library authorities have been constituted one for the City of Madras and one each for the revenue districts except Kanyakumari District. Each local library authority levies and collects cess through local bodies in the form of surcharge on the property of or House Tax. The State Government contributes and equal amount to the amount collected by levying library cess.

4.20 Tripura

State of Tripura attained full statehood on 21st June 1972. During past the Kings of the erstwhile Tripura State established a few libraries. One of such library is Birchand State Central Library. In 1953 it was taken over by the Government. The Director of Higher Education is the Chief Administrator of library service.

4.21 Uttar Pradesh

The State of UP has a rich tradition of libraries. Many important libraries were opened in 19th Century. Some of these are Raja Pampur Library (Rampur), Nagrik Pracharini Sabha Library (Varanasi), Allahabad

Public Library (Allahabad). The Government of UP also set up a Central Provincial Library in 1949 at Allahabad and authorised it to receive books under Press & Registration Act of 1867. Eight District Libraries were opened during Second Five Year plan period in Agra, Almora, Bareilly, Gorakhpur, Jhansi, Kanpur, Mathura and Meerut. In UP libraries are looked after by various departments. UP Library Association was founded in 1937. Inspite of many efforts made by professionals and UPLA the Government could not take decision enacting Library legislation in the State.

4.22 West Bengal

The State of West Bangal has a rich tradition of public libraries. The East India Company opened a library in a factory at Hoogli in 17th Century. The Christian Missionaries had their own libraries. Some important libraries opened in 19th Century were (1) Libra of Asiatic Society of Bengal (2) Hoogly Public Library, (3) Koon Nagar Public Library (4) Srirampur Public Library, (5) Shivpur Public Library. West Bengal Libray Association was formed in 1925 and since then it has been instrumental in developing library movement in the State. West Bengal Government enacted Library Legislation in 1979.

5 Suggestions to Improve Public Library System in India

1 State Libray Authority should be the real governing body of the public library system. Its powers and functions should be elaborately spelt out.
2 While constituting various library authorities adequate representations should be given to professionals like doctors, lawyers, agriculturists and regular users of the library.
3 In order to decentralize and improve the efficiency of the Administrative system of public libraries, it is desirable to establish divisional libraries in the various revenue divisions.
4 There should be in the Act clear statement to the effect that the status of the Department of Public Libraries should be at par with other Government Department like Home, Public Works etc.
5 There should be a provision in the Act that the process to set up new public libraries should be completed within a definite period.
6 At least 15 to 20 percent of the education budget should be spent on Public Libraries.

The existing library laws have miserably failed. It is high time to take immediate steps to update the Acts and make them more effective.

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9

Growth and Development of Public Library System in Karnataka

B D KUMBAR

Abstract

Gives an overview of the public library system in Karnataka. Traces briefly the history, growth and development of public library system in the state. It also covers the library movement in the state from ancient to modern period which includes the enactment of Library Legislation in 1965 and existing public library situation in Karnataka. Suggest the networking of public libraries in order to draw much needed information from the national and international databases. Opines that at least one model library on the pattern of British Library or American Library be established in each district head quarters to rebuild the real image of the library and its role.

1 Introduction

Library movement is a saga of organised growth and development of libraries giving the details of establishment, maintenance and functioning of libraries in a geographical proximity. These aspects, viz., establishment, maintenance and functioning make a library as growing organisation. No country in the world can progress without providing free public library services to the citizens. It is imperative on the part of a democratic country like India to establish the service institutions like public libraries in order to strengthen the democratic norms and to promote the social, cultural, historical and scientific and technical tempo in the public at large.

A general glance of libraries in several Indian states has revealed that their establishment and growth have been based on socio-cultural and social-economic background of the state. In the state of Karnataka, a

picturesque, colourful and glorious past is remembered and its language, literature, art, sculpture, culture, history, have a heritage of its own.

Libraries flourished and were nurtured along with the empires that were built and buried in the early past. The dynasties of Kadambas, the Rastrakutas, the Chalukyas, the Hoysalas, the Bahamanis, the Adil Shahi's and others in Karnataka, have given wholesome patronage to talented and gifted men, and promoted and glorified the existence of libraries of valuable collection. Library movement in Karnataka may be studied by categorising it broadly into three groups:

1 Ancient libraries;
2 Medieval libraries; and
3 Modern libraries.

2 Ancient Libraries in Karnataka

In ancient times Karnataka monasteries as well as temples were the established places where the libraries were maintained. Temples served as centres of learning in ancient Karnataka. The Someswara temple was one such temple where its library stored good manuscripts. The library served the large community of students and teachers engaged in academic activities. Librarians were there to look after, libraries were regarded as Saraswti Bhandarikas, from the point of view of maintenance of a library and the status of a librarian. It is stated that, 'Nagai inscription of King Trailokyamalla of the Western Chalukyas is very significant'. The inscription tells us that a residential educational institution, with provision for boarding and lodging of both the teachers and students was there at Nagai by Madhava of Madusudana, Minister of Chalukya Trailokyamalla. The place Nagavi or Nagavavi (Gulbarga District, Chittapur Taluk) was known for its 'ghatikasthanas' in the eleventh century. The 'ghatika-sthanas' were something like our present-day post-graduate institutions. Along with professors, librarians were also appointed. The librarians enjoyed equal status to that of a professor. He himself must have been a learned man in fields more than one.[1]

The monasteries like Kodiyamatha in Balligave of Shikaripur Taluk (Shimoga district) was a great center of learning in twelfth century. The monastery was headed continuously by a host of enlightened saints belonging to the Kalamukha Shaiva sect. The place attracted students and scholars from all parts of India. The monasteries must have contained a well equipped library. Even now, the Veerashaiva, Jaina and Brahmanical monasteries at Chitradurga, Mudabidre, Siregere and other places have maintained excellent collections of manuscript.

Epigraphic evidences are highlighting that many centres of higher learning with full-fledged libraries attached to them existed in Karnataka in the past. The places of their location were Talagund, Pallittage, Nagavi-Balligave, Kubatur and Aihôle.

Evidences also reveal that the manuscript libraries flourished during the time of the great social and religious reformer, Shri Basaveswara. Manuscripts containing the Vachanas—the special form of literature in which Shri Basaveshwara and his followers preached the new form of social life—were preserved and made available to those who cared to consult them. A scholarly librarian was also appointed to take care of volumes of manuscripts. The name of that great librarian was Vachanan Bhandari Shanta-arasa. He was taking note of the deliberations in the periodical meet of 'sharanas'. The discourses were collected and organised in 'Anubhava Mantapa', which was the centre of learning and discourse of all Sharanas of fame and name.

A glance at the history gives the beauitful account of the foresightedness of Vijaynagara kings, who lavishly sponsored the promotion of public libraries. It is stated that King Bukka donated the land in AD 1329 to Puranika Kavi Krishna Bhat for the renovation, upkeep etc., of libraries attached to a Math at Sringeri.

The libraries also flourished in Bahamani Kingdom. The Prime Minister like Mohammad Gawan built the library at Bidar which can still be seen. Aurangazeb took possession of the books, which were in stock in this library.

3 Libraries in the Medieval Period

In the medieval and renaissance period, many religious institutions prospered with royal patronage; they also imparted religious education to the masses. Each such institution had a library of its own. Numerous collections of manuscripts on palm leaves and copper plates have been discovered in Math's and testify to the fact that the library was a well recognized institution.

The fall of Vijayanagara empire, however, witnessed the darkness on the land. Karnataka was split into five parts. Mysore and Coorg were carved into two separate states and the remaining portions at Karnataka were distributed among Bombay, Madras and Hyderbad States.

4 Development of Libraries in the Modern Period

In Bombay-Karnataka area, Libraries were established with the starting of schools and colleges. Native libraries were established at Belgaum

and Dharwad in 1848 and 1854 respectively by the British Officers to curb the anti British movement in Karnataka. Though these libraries did not gain popularity, at the same time, they appear to be pioneers of the public library movement in Karnataka.[3] In addition to these two libraries, many reading rooms were opened in Hubli, Renabennur and Shirahatti in Dharwad district. At the same time, seven library-reading rooms in Belgalum district and a similar number of libraries in Bijapur district were established. As compared to the library movement in these districts of Karnataka, the movement in North Kanara district was rather very slow and steady.

5 The Karnataka Vidya-Vardhaka Sangh

This noted and premier cultural institution in Karnataka was established in 1890. Among other laudable objectives, the Sangha aimed at enhancing and giving an effective impetus to the library movement in Karnataka. The official magazine of the Sangha entitled 'Vaghbhushana' started publication in 1896 and has played a vital role in the library movement in Bombay-Karnataka. The year 1914 saw the coming into being of the Karnataka Historical Research Society in Dharwad. The society which had as its main objective the unravelling of the glorious past of Karnataka, soon began to build up a suitable library for the purpose. The other events like the All India Library Conference held at Belgaum (1924), the first All Bombay-Karnataka Library Conference held at Dharwad (1929), and founding of Karnataka Library Association helped considerably in giving library movement momentum.

6 The Library Development Committee (1939)

In the history of the country, the year 1937 is regarded as a memorable one. A historic decision was made by the Congress Party to contest for the state and central legislature elections, to take all the reins of administration. At the same time, the popularly elected Congress Minstry made primary education compulsory and initiated a programme for educating the illiterate adults.

The Library Development Committee was set up in 1939 under the Chairmanship of Shri A.A. Fayzee. The main purpose of this committee was to explore into the possibilities of the establishment of State Central Library in Bombay and the Regional Copyright Libraries in Ahmedabad, Poona and Dharwad. It was also concerned with the establishment of network of smaller libraries throughout the state. The committee submitted its report to the government in 1940. But unfortunately before taking

into consideration the recommendations in the report, the Congress ministries all over the country had to resign as per the directions of the High Command. The very next year, saw the launching of the 'Quit India' movement and leaders all over the country were arrested and kept behind bars. This lead to the dilution of the spirit of library movement. For a moment, there came a break in the growth of libraries.

7 Dawn of Karnataka Library Association

The establishment of the Regional Library of Dharwad gave the much needed impetus to Karnataka Library Association. The association secured recognition from the State Government (Bombay) in 1950. Its constitution was finalised, and it also started receiving grants from the Government. The association took up publishing activities and many Kannada books were brought out. It also conducted Library Training Classes.

Independence brought forward the Regional Libraries and Central Libraries. The Karnataka Regional and Copyright Library were declared open to the public in 1948. The birth of Karnatak University Library (1950) and the Department of Library Science (1962) has added a new dimension to the history of the library movement in this part of the country.

7.1 Hyderabad – Karnataka

Hyderabad-Karnataka in respect of libraries is progressing slowly but steadily. Besides libraries attached to a few schools and colleges, there were four libraries in Bidar district. Four subscription libraries were established in Gulbarga district with seven public libraries.

7.2 Madras-Karnataka

Mangalore, now called Dakshina Kannada, and Bellary districts were coming under this area. Bellary was educationally very backward, whereas Mangalore was very progressive. There were 169 Public and Panchayat Libraries in Mangalore district. Bassle Mission, which started in 1838, and Basesl Evangelical Mission High School have good libraries attached to them. The public library system for this district was provided by the Madras Public Libraries Act. It consisted of a District Central Library, 5 Branch Libraries and 28 Book Delivery Stations scattered throughout the district. South Kanara District Library Association formed under the guidance and inspiration of Dr S.R. Raganathan acted as a liaison body between the public and the Government.[4]

The tiny state of Coorg had some good libraries, viz., The Mercara Book Club was established in 1940's. The Ganapathy Public Library was established in 1926 at Virajpet. Mahatma Gandhi Public Library was established in 1954 at Mercara.

7.3 Mysore State

His Benevolence, Maharaja Krishnaraja Wodiyar III of Mysore, had started English medium schools in 1833 at his own initiation. Later, the Wesleyan Mission established schools in some of the district headquarters. The Department of Education in Mysore Province came into being in 1858. In the same year, the Government established a high school in Bangalore which was later converted into the present Central College. In 1868, the Government took much interest and established a good number of schools in some selected Hobli's. The Maharani Girls School established in 1903 later developed into a college. The Kannada and Sanskrit colleges, the Oriental Library at Mysore, the Industrial Schools at Mysore and Hassan, all these were endowed with good libraries.

The most illustrious son and the popular Dewan of Mysore, Late Sir M. Visveswarayya, was mainly instrumental in the development of the libraries in the province of Karnataka. He actually initiated library movement in the Mysore province. The Dewan sponsored a scheme which allowed for the sanction of grants to Local Library Committees and a state managed ciruculating library to feed the local libraries. Libraries were soon started in the cities of Bangalore and Mysore and in different district headquarters. The city libraries started in 1914–15 by the Government were transformed into aided institutions in 1920. Two important libraries were established, one each at Bangalore and Mysore. Later, the Bangalore Public Library was established.

The Government of Mysore also started libraries in villages which were managed by committees consisting for five important persons of the villages. The initial expenditure on establishment of libraries was usually met by voluntary contributions from the residents of the villages and a matching grant from the Government.

In 1956, all the Kannada speaking areas, which were scattered under five different administrative units, were unified. Since 1956, the new state of Mysore took keen interest in this regard. The government introduced free and compulsory primary educaion to remove illiteracy and it also aimed at establishing free public libraries throughout the state.

Prior to the re-organization of the state, the Madras Public Libraries Act (1948) was in operation in Bellary and Mangalore districts. So also the Andhra Pradesh Public Library Act (1960) was in operation in the

districts of Gulbarga, Raichur and Bidar. This factor gave an additional impetus to the then Government of Mysore to enact the Public Libraries Bill expeditiously. Mysore government was fortunate enough to get the wise counsel of late Dr S.R. Ranganathan in drafting the Bill. The same was introduced in the State Assembly in 1964. After getting the assent of the President, the Mysore Public Libraries Act in 1965 saw the light of the day. Kudos to Dr S.R. Ranganathan who spearheaded the whole scene and was able to convince the political leaders, intellectuals and educationists of the time to plead for the Public Libraries Act. But for him the Act would not have been brought into force.

8 Public Library Movement in Karnataka after the Enactment of the Act

The wise council prevailed on the minds of the great visionaries like educationists, administrators, planners of Karnataka to think and plan for the enactment of Public Libraries act in the state. The Department of Public Libraries came into existence from 1st November 1966 consequent upon the implementation of Mysore Public Libraries Act, 1965. The Act provided for the establishment of the following libraries:

A State Central Library at Bangalore;
Five City Central Libraries; and
A District Central Library for each of the 19 Revenue Districts in the State.

'During the 4th plan period (1964–70), it proposed to establish 19 District Central Libraries, 5 City Central Libraries, 408 Branch Libraries and 5,240 Delivery Stations. But at present there is a State Central Library at the apex of the State Library System City Central Library, Bangalore has opened 13 branches and 16 service stations. City Central Library Hubli-Dharwad opened 6 branches. Similarly, City Central Library, Mangalore, also started functioning during the year under report. Twelve District Central Libraries are functioning with 32 branches and 35 delivery stations.'[5]

Thus, the public library movement in Karnataka started with a big bang and a great concern to serve the public in promoting the life long education, and increasing awareness of culture, heritage, etc. of the land in particular and of the world in general.

At present, Karnataka public library system is one of the most popular and feasible systems, as compared to those in the other 25 states in India. The latest situation of the public library system in Karnataka is as under.

State Central Library (1);
City Central Libraries (11);
District Central Libraries (20);
Branch Libraries (354);
Mandal Libraries (451);
Grant-in-aid Libraries (84); and
Book Depository Centers (under RRRLF Schemes) (2655).

Karnataka Public Libraries Act is indeed a milestone in the library history of the country. There is even today wide applause all over the country about its vitality.

9 Application of Modern Technology

The new information revolution has absolutely emphasizing the professionals to redefine the concept and role of library and librarians. Information storage and retrieval devices of recent times have promised enormously the task of starring ordering and dissemination of vast amount of information when libraries are facing the financial crunch accessing the information through networks saves time, money and space. The time is ripe to convert the public libraries as community information resources centers rather than a mere collection of books. This can be done introducing rapid computerisation of libraries. Networking has to be established amongst all types of libraries at all levels. At present computerization of Public libraries is in progress but not so fast. But the task is so urgent that it cannot be delayed at all.

However it is a matter of worth mention that the public library system of Karnataka is seriously planning the libraries automation programme. In this direction state central library and the 5 city central libraries located in Bangalore have undertaken the task of computerization. Efforts are also made to get the NICNET connection to provide the database access. Attempts are also sincerely made to establish the GISTNIC booth at different selected libraries in Bangalore and some district head quarters.

In the Western Countries, it is observed that there are visible changes taking place in organizing and operating the public libraries. In the so called Cyberspace environment the greatness of libraries will depend far less on the size of their collections, but rather on strength of their service and their ability to connect electronically with one another. Shared collection development, institutions comprehensive collection to distributed collection linked electronically, reduction of geographical proximity and varied document delivery to the users community are some of the

important land marks. This trend predicts that the librarian can no longer a passive partner but a dynamic and aggressive professional. Librarians, information scientists, cybrarians or whatever is the designation in the next century, one must comeout of the four walls of the library and play proactive role in the information gathering process. The information professional must change and adapt to new electronic information environment.

10 Conclusion

It is an established fact that the contact libraries organized by British High Commission and United States Information Services in India. The British Libraries and American Centers have impressed the elite public in few state capitals and the national capital. It is hoped that in the 9th Five Year Plan period RRLF take the lead and muster all possible resources to develop a model public library which can make use of all modern technologies, at least one in each state, and Union Territory. Even the serious thought may be given to the Member of the Parliament Local Area Development Programme where in the funds can be diverted to the development of model public libraries in each district. In this direction strong co-ordinated efforts on war footing becomes inevitable.

All is not well with the Karnataka Public library system. With the existing provisions in the Act, the development would have been much more than what is existing today. Lot of negligence and indifferent attitude have marred the growth of the system as a whole.

The Government has shown a kind of step-motherly attitude to the public libraries. There were frequent changes in the post of Director. Many times non-professionals were given the charge and hence the development was curtailed. There is no noticeable growth of manpower. As a political gimmick, the mandals and other branches are expanding but no attempt is made to recruit the staff. Lack of incentives like promotions, new posts, pay structures, etc., has brought down the image of the profession.

On the whole, the rejuvenation of Karnataka public library system is much needed. Thirty-four years have passed and the Silver Jubilee Celebrations were held with full promise and assurance. But time is the only judge to declare the healthy and unhealthy conditions of the System.

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10

Library Associations in Assam

RITA SARMA

ABSTRACT

The activities of several Library associations of Assam have been described and a critical evaluation of the same have been attempted. At present there are seven library associations to improve library services in all its aspects in the state of Assam. Although the associations have tried to fulfill their aims and objectives by creating a library movement in the state, yet there are some aspects where much more is to be done.

1 DEFINITION OF ASSOCIATION

Association is an organisation of people with a common purpose and formal structure group of persons united and organized, generally under conditions set forth in a legal bond and acting together for some specific purposes, in fulfilment of common arms of a political, commercial, philanthropic characters, constitute an association.

The association whether rich or poor, new or old, specific or general is always result of dedicated, selfless and voluntary efforts.

2 WHAT IS LIBRARY ASSOCIATION

Library association is an organisation which works with a common aim for better management of librarianship.

The majority of the associations of general scope are open to both personal and institutional membership. Indeed library association

constituted in this way may be regarded as typical of the organisation of a profession on a world wide-scale [1].

3 Type of Library Association

Different levels of library associations are there (International, National State Regional and Local)

3.1 Major Activity of the Association are

- The continued education of members by the exchange of knowledge and experience at meetings, conferences and seminars.
- Research on questions of library policy and techniques.
- Publications : Periodicals, handbooks, directories, newsletters, studies embodying the result of research.
- Creation of standards for library services, book stocks, building and equipments.
- Promoting cooperation and coordination of libraries.
- Representation and advice to governments on legislation another government action for the promotion of library services.
- Training of new entrants to the profession by organising courses and promoting the creation of library schools.
- Maintenance of standards of professional qualifications, either by conducting examinations and awarding diplomas.
- Defense and advancement of the professional status and of the pay and conditions of work of librarians [1].

4 Library Associations of Assam

Years of Foundation of the Library Associations

S No.	Associations	Year of Establishment	Area
1	Assam Library Association	1938	To represent all types of libraries in Assam.
2	Assam Library service Association	1969	to represent Public Library' association.
3	Assam College Lib Association	1973	to represent college Library
4	Sodou Asom Gramya puthibharal sanstha	1985	To represent rural/ village libraries.

Contd.

Contd.

S No.	Associations	Year of Establishment	Area
5	Guwahati Library Association	1993	To represent all libraries inaugurator Guwahati Area.
6	Jorhat Library Association	1994	to represent all types of libraries *in Jorhat area.*
7	Golaghat Library Association	1994	To represent all types of libraries in Golaghat.

4.1 Growth and Activities of Library Associations in Assam

The growth and development of library associations both in number and scope are extremely slow. Late Kumudeswar Borthakur was the only person under whose persevarent and untiring effort. Assam Library Association (ALA) was formed in 1938. Once he participated in the ILA conference held at Baroda and he was so much inspired by the experience at the conference that under his guidance ALA was established. Between 1938 and 1964 the Association hold eight conferences. The first conference was held in Dibrugarh. The eighth conference was held in 1964 in Guwahati. Their main purpose was to press for a state library act for the establishment and management of a network of libraries forming a state library system. Some annual conferences were held in Dibrugarh, Tezpur, Nowgaon between 1937 and1952, at Jorhat in 1953, at Golaghat in 1955, and at Bokakhat in 1957. These conferences were successfully over with the co-operation and coordination among the delegates and general public [2]

The 8th conference of Assam Library Association was held in 24th and 25th October, 1964 in Guwahati under the Chairmanship of Dr. Maheswar Neog and its 9th conference washed in 1971.

4.2 Ala Activities

During this period ALA published "*Grantholok*"- a collection of articles in Assamese, in 1st, 2nd and 3rd year in 1971, 1972, 1973. The articles tried to paint a clear picture of various aspects of library movement. Being written in Assamese they reached a large number of people and inspired them to participate in library movement and take steps for better services. "*Granthalok*" published the bibliography of Assamese books

published during 1969–1970. Such a bibliography gives a birds eye view of the book publication scenario of the state. But it is a matter of regret that ALA failed to bring out further compilation of such information due, probably to financial constraints.

Slowly the Assam Library Association remained inactive for a long period. During this gap, the librarians and professionals felt the need of a common stage. As result a new library association known as "Assam Public Library Services Association" was established in 1965. The main objective was to improve the condition of public libraries in Assam.

During the British rule in 1902 Cotton College was established in Guwahati which was the first college in Assam. After that, many colleges were established in Assam, although the colleges were mostly without proper library building, furniture and qualified librarians. The staff, manning the college libraries faced many problems in respect of pay structure, enhancement of academic qualifications and adequate number of staff. For the stablishment of the common forum for library professionals to look after the problems, all librarians of colleges formed "Assam College Library Association."

Sodou Asom Gramya Puthibharal Sanstha (Rural Library Association) was formed in Nowgaon District. They conducted social education programme by the social workers. Slowly the Association became inactive and the Rural Library Association could not fulfil its aims and objectives. In such a situation all the library professionals, students and the teachers of the library and information science department felt the need for the common platform and as a result of this "Guwahati Library Association" (GLA) was born on 8th Feb, 1993.

4.3 Activities of GLA

The first general meeting of the Association was held on December 6, 1993 at the premises of Guwahati District Library.

The Association has three types of members.

(1) Institutional Member
(2) General Member
(3) Life Member

4.4 The Objectives of the Association

— Promotion of library movement and improvement of library services in all its spects in the state of Assam.
— Providing a common forum to all persons engaged or interested in library and information services by holding conferences,

meetings for discussion of professional, technical and organisational issues.

— Publication of bulletines, periodicals, books etc which will tend the realization of the objectives of the Association.
— To initiate the enactment of library legislation in the state of Assam.
— Promotion of bibliographical, documentation and information study and research in library and information science.
— Improvement in the status and conditions of services of library professionals. [3] The Guwahati Library Assocation advised the other librarians all over the state and as a result "Jorhat Library Association" and "Golaghat Library association" was born in 1994.

Under Guwahati Library Association study circle GLA organized twelve study circle meetings and seminars where the following topics were discussed.

— Village library service in Assam: Problems and prospects.
— Bibliographic control in the libraries of greater Guwahati.
— Problems and prospects of children libraries in Assam.
— Impact of personnal/private libraries on the growth of reading habit amongst children.
— Impact of personal/private libraries on the growth and develoepemnt of reading habit.
— Role of public libraries in eradicting illiteracy from the society.
— Role of village libraries in eradicating illiteracy from the society.
— Employment prospects of future librarian.
— Problems and prospects of agricultural librarianship in Assam.
— Future of college librarianship in Assam
— Periodicals : Its role and increasing demand-A dilemma of the librarians
— Impact of Internet in academic libraries with special reference to KKH Library [4]

To these study circle meet and seminars specialists or information professionals are invited to deliver talks on some specific topics and in open discussion everyone can put forward his opinion and exchange the views such meetings give a clear picture of various aspects related to development of library and information science in the State.

In the 12th study circle meet "impact of Internet in academic libraries with special reference to KKH Library was discussed. Through this discussion the library professionals get an opportunity to get a

cquinted with the modern aspects of library & information science, namely INTERNET.

GLA published two souvinious in 1995, 1997 in occassion of librarians day. In these sovinious many valuable articles are written by the library professionals, information experts and information technologists.

Assam Public Library Association and Jorhat District Library Association celebrated the Librarian's day on 12th August 1999. In the open session of the meeting various important topics were discussed.

1 Children library-Problem and progress;
2 The problem of libraries in secondary schools;
3 The problem of village public libraries;
4 The role of special libraries [5].

Indian Association of Special Libraries and Information Centres, Guwahati Study Circle was established in 1996. It has organised six (6) meetings, each of which discussed a single topic of importance. The topics are as follows.

1 Organizational structure of the state central libraries system in the context of proposed Assam Libraries Act.
2 Engineering and technological library network in India.
3 Computer application in local libraries.
4 Role of libraries in the promotion in Assamese literature.
5 Computer application in library activities in greater Guwahati.
6 General activities of IASLIC.

5 Conclusion and Suggestions

In comparison to other library related associations of India the association of Assam are lagging far behind. For examplethe Rural Libraries Act was implemented in 1985-86 for the better library service in Assam. As per the scheme there should be one rural library in each of the 714 Gao-Panchayats of plains areas and development blocks of hill areas of Assam. But only 204 rural libraries in plains areas and four rural libraries in Hill areas have been established. Due to financial crises the scheme could not be fully implemented as yet [6].

As a library play a vital role in the dissemination of knowledge, data and information, moderinization of the library system is most essential from the state level to village level. Modernization of the library system reflects the sociocultural life of the society. So association should organise computer training from time to time. But unfortunately no such training courses have been started by the associations. Moreover the associations have failed to revitalize the library movement in Assam.

We are living in the age of science and IT. In this juncture when the world is on the threshold of a new millenium and the unsatirable curiosity of human mind is increasing day by day this thirst for knowledge has been quenched by the libraries. So, library association of various types in Assam such as state level, district level, rural library association, public library association special & research library association should take most active part in spreading library education, so that it can lead to library movement, which ultimately may result in the improvemnt of system of library.

In addition to organising conferences etc. associations should organised book exibitions as it increases the reading habit of the public. Focussing the problems of the libraries through articles published in news papers, magazines, bulletins etc. has its own significance, because it increases the library awareness of the people.

The association should put some pressure on the government for implementation of the Library Act in its right spirit.

Moreover, the associations should take some steps to improve the status of a librarian and the working conditions of the libraries.

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12

Status of Libraries in Colleges of Physical Education in Karnataka

L USHA DEVI

ABTRACT

The paper highlights the need and importance of physical education, and the status of libraries of the colleges of physical education with special emphasis to Karnataka, suggests some of the measures that need to be considered in order to improve their present situations in terms of physical facilities, man power resources, financial constraints, services etc.

1 INTRODUCTION

Over the years physical education has emerged as a distinctive discipline. Its worth in the context of the modern space age has been fully realised. Physical education is conceived of as education providing 'whole some experience to the young and old alike through the medium of large muscle activity.' It is an activity oriented education, not confined to the four walls of the class room. Playgrounds, swimming pools athletic tracks, the gymnastics, library etc, are the temples of physical education. There is natural urge for activity in man, and to keep totally fit. Everyman must exercise his limbs for sufficiently long time and regularly too to derive real benefits, but in theory and practice physical education derives it principles from philosophies and sciences. Principles from anthropology, biology, physiology, psychology, physics, chemistry etc provide a great anchor as well as prop to the physical educationist to plan his policies and practices on sound basis. Hence physical education is an inter-disciplinary approach to the solution of human

problems to health fitness, performance and recreation, concepts of blunt approach of the 'drill master' and the 'skill master' to the achievement of the objectives of physical fitness, personality development, recreation etc has been discarded. Physical education is now a scientific discipline with much wider and varied objectives. Its status is being raised through constant and consistent efforts of the physical educationist through research on various aspects of this discipline.

2 Present Situation

The growing importance given to the field of physical education and sports has given rise to the establishment of a large number of institutions, organisation, universities and federations etc in the country. In parallel, there has been a considerable growth in the number of research scholars and sportsman, which has led to the situation where there is constant demand for current, accurate and immediate availability of information in this area.

In Karnataka there are colleges offering Certificate, Diploma, Bachelors and Masters degree programmes. Under such situation it is important to review the availability of resources—information, financial, manpower and physical facilities that these libraries are providing to the growth of physical education and sports.

3 Libraries in Colleges of Physical Education in Karnataka

3.1 Present Scenario

Thirteen colleges offering Certificate courses (C.P.Ed) and four Composite colleges offering Bachelors (B.P.Ed) and Master degree courses (M.P.Ed) has been considered for the study. Out of the four composite colleges, two colleges are governed by the university and two by private managements, and all the C.P.Ed colleges (N-13) are managed by private managements. Two composite college libraries were established earlier to 1960 and the other two in 1970 and 1976 respectively. Out of 13 C.P.Ed college libraries two were established earlier to 1970 and others (N-11) after 1980.

3.2 Manpower Resources

All the composite college libraries (N-4) are being managed by full-time professionals, with professional qualifications, Two colleges are man-

aged by bachelors's degree in library science and other (N-2) with post-graduate degree in library science and UGC scale of pay. Whereas in the case of composite colleges the situation is entirely different as they are fully managed by private management. The clerks or teaching staff of the college are placed in-charge of the library.

3.3 Financial Resources

The budget of the library in case of composite colleges is in the range of Rs 10,000 to Rs 13,000 and in the case of C.P.Ed college libraries 50% (N-7) have a budget lęss than Rs 3,000 and the other 50% (N-6) have the budget ranging from Rs 6,000 to Rs 7,000 and in these colleges the library fee collected from the students is the only major source of finance. In case of composite colleges (N-2) managed by university, UGC is the main source.

3.4 Library Buildings

Majority of libraries do not have independent library building. 50% of the composite college library (N-2) are housed in a separate room/hall, and the other 50% (N-2) managed by the university are housed in a separate room/hall of the main university library building, where collections pertaining to physical education are housed separately. In case of C.P.Ed colleges (N-8) library are housed in a independent hall (i.e. 61.54%) and the other (N-5) i.e. 38.46% do not have a separate room or hall and are housed either in the staff room or at place which are not frequently made use. On the whole study reveals that non of these college libraries posses separate buildings and those college libraries possessing a separate room or hall have no provision for expansion of the library building either vertically or horizontally.

3.5 Information Sources

Approximately 84.62% of the C.P.Ed college libraries have a collections of 2000 and 15.38% of them have less than 3,000 collections and non of these libraries subscribe to any periodicals nor they posses back volumes. In case of composite college libraries 50% (N-2) of them posses nearly 10,000 and 50% (N-2) of them have more than 4,000 collections. In case of college libraries managed by university subscribe to 4 to 5 professional journals and one abstracting and indexing periodicals and are housed along with the main collections of the university library. Non of the libraries subscribe microforms, audio visual aids.

3.6 Use of Computers

None of the C.P.Ed college libraries are aware of the use of computers. 50% (N-2) of the composite colleges managed by the university are exposed to the use of computers and Internet services rendered by the university library and the other 50% (N-2) are not enjoying this service as they are managed by the private management.

3.7 Furniture and Equipment

All the composite college libraries posses bulletin boards which are very much essential to display charts, records and latest information etc. 75% of composite college libraries (N-3) posses chairs, tables and book-shelves. Only 50% of the composite college libraries posses periodical racks to display current periodicals.

In case of C.P.Ed college libraries (N-10) posses bulletin boards, chairs and tables and book shelves, but are not used as most of the time the library remains closed or that there is no regular working hours. The remaining (N-4) do not even posses book shelves and the collection are kept in closed cupboard and do not even provide chairs and tables for the readers, and are very poorly equipped, even the existing conditions in not sufficient enough to accommodate the users. The very concept of cataloging is not seen.

3.8 Library and Information Services

None of these libraries are providing referral bibliographical, SDI, in-house abstracting, in house indexing and translation services. 50% of the composite colleges (N-2) managed by the university are providing circulation of book services followed by inter-library loan, along with reference services and 50% of these libraries have access to Internet. In case of C.P.Ed college libraries non of these services are provided and they follow close access system.

4 Suggestions for Improvement

The results of the present study indicate that the existing information services of the physical education college libraries are not up to the requisite standard. It could be due to a variety of factors, chief among which are the non-availability of mechanical devices, financial constraints, lack of proper administrative structure and professionally trained staff. All these factors need to be considered carefully for making appropriate improvements. While most of the suggestions furnished

below are intended to improve the existing physical education information services of college libraries of physical education.

4.1 Provision of Adequate Human Resources

The existing manpower in the college libraries of physical education lack the professional skills to exercise in the electronic information context. Hence, there is need to recurite professional trained personnel with library science qualification, and further there is need for those who are already existing to undergo training. These factors have to be recognized and needs to be linked to a proper plan of professional human resources.

4.2 Provision for Adequate-Collections

The present collection is dominated by print media and that too the collection is meager and inadequate to support the requirements of the C.P.Ed; B.P.Ed; or M.P.Ed courses. With this the librarians cannot dream of providing any services except circulation of books. Hence in order to have a balanced physical education and sports literature/information and on various subject field the following suggestions may be considered.

- A balanced acquisition policy should be adopted keeping in view the number of users in a particular subjects, a record of visitors with their specialistion and demand should be maintained to help in balanced collection of publication in different specialists.
- The library committee should formulate basic guidelines for collection development in the library according to the aims and objectives of the concerned colleges. Therefore, the librarians should be authorized to purchase the latest publications as per guidelines framed by the committee.
- Less formal methods such as encouragement of users recommendations for materials and the communications of information gathered by other faculty member/staff while assisting users should be considered.

4.3 Provision of Adequate funds

The budget of many college libraries is meager, in C.P.Ed college libraries it is Rs 3,000 to Rs 6,000 and in composite college library budget is Rs 10,000 to Rs 13,000. Libraries cannot think of procuring quality and standard information materials with such a sum. It is, therefore, suggested that provision should be made to provide more funds to these libraries.

4.4 Physical Facilities

The existing library building are not suitable for library purposes. To suit the requirements of electronic information environment, international standards should be followed to develop relevant standards, which are realistic and sustainable. The design of the library building must match the needs of the users and the growth of the library collection and changes in its range of services have to be considered.

Presently a large majority of physical education college libraries in Karnataka do not have computers and other infrastructure facilities required to exploit the opportunity provided by the electronic media. They cannot make best use of the electronic publications and on-line and networked access of international and national or regional databases backed up by systems based on photocopying or other forms of document supply. Keeping in view the importance of computers in electronic information environment, computer awareness should be created among the authorities of these colleges. The apex bodies concerned with higher education like UGE, AICTE etc should take measures to enhance the use of computers.

5 Conclusion

In present situation the importance of physical education is recognised and due status is given to physical educationist. But much importance is not given to the proper councelling the terms of their information needs. Physical education college libraries in Karnataka are under resource for current demands. In this situtation one cannot expect developing quality information sources and providing better information services, except lending of books. Unless the libraries infrastructure is improved it is impossible to improve the library services.

Table 1: Furniture and Equipment

Particular	Composite College Yes	Composite College	C.P.Ed College Yes	C.P.Ed College Percentage
1	2	3	4	5
Chairs	3	75%	9	69.24%
Tables	3	75%	10	76.93%
Book shelves	3	75%	9	69.24%
Periodical racks	2	50%	6	46.25%
Display stand	2	50%	5	38.46%

Contd.

Contd.

1	2	3	4	5
Bulletin board	4	100%	10	76.93%
Ctalogue cabinet	-	-	-	15.38%
Charging desk	1	25%	1	7.69%
Computer	-	-	-	-----
Telephone	-	-	-	-----

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7

Survival without Legislation: Development of District Libraries of North Western Madhya Pradesh

S KUMAR AND LEENA SHAH

ABSTRACT

Studies present situation of few district libraries in abscence of an act. Provides list of states having library legislation and not having it. Briefly points out history of library system in MP & their administrative control. Provides effects of proposed bifurcation of MP and recent implimentation of district governments on existing Public library system. Studies 4 district libraries of Ujjain Division, provides their basic data and 5 years expenditure. Users' survey of these libraries have been conducted to measure their satisfaction. Suggests various steps to improve services even in abscence of legislation.

1 INTRODUCTION

In India only ten states have so far enacted Public Libraries Acts which covers 43.09 per cent population of India as shown in the figure.

TABLE 1: INDIAN STATES WITH AND WITHOUT PUBLIC LIBRARY ACTS

States with Library Act		% of Population	States without Library Act		% of Population
1	2	3	4	5	6
1	Andhra Pradesh	7.86	1	Arunachal Pradesh	0.10
2	Karnatak	5.31	2	Assam	2.65
3	Kerala	3.49	3	Orrisa	3.74
4	Goa	0.14	4	UP	16.44
5	Tamil Nadu	6.60	5	Gujrat	4.88
6	West Bengal	8.04	6	Jammu & Kashmir	0.91

Contd.

Contd.

1	2	3	4	5	6
7	Manipur	0.22	7	Tripura	0.33
8	Maharashtra	9.33	8	Nagaland	0.14
9	Mizoram	0.25	9	Punjab	2.40
10	Haryana	1.94	10	Bihar	10.21
			11	M.P.	7.82
			12	Meghalaya	0.21
			13	Rajasthan	5.20
			14	Sikkim	0.05
			15	Himachal Pradesh	0.61
			16	Delhi	1.11
			17	Union Territories	0.23
Total		43.18			57.03

Source: *Manorama Year Book* ,1999.

Very small states like Goa, Manipur, Mizoram have enacted this act which provide service to only 0.57% of population of India. Haryana Act covers only 1.94% of population. Other 6 states are larger states covering 40.58% of India population. Thus 43.09% of Indian population is being served by libraries covered under Public Library Acts.

Big states like Orrisa, Bihar, UP, MP, Rajasthan & Gujrat have not enacted Public Libraries Act. Madhya Pradesh also has 7.82% of population which should be covered by such an act.

Madhya Pradesh is situated between 18–26–30 N latitude and 74–84–30 East longitute surrounded by 7 states of India namely Uttar Pradesh, Rajasthan, Gujrat, Maharashtra, Andhra Pradesh, Orrisa and Bihar. The Madhya Pradesh state emerged as a result of state reorganisation in 1956. It include 17 districts of Mahakaushal, 8 of Vindhya Pradesh, 16 of Madhya Bharat and the whole of Bhopal State.It is the largest state of the country with 4,43,445 sq km area comprising 14.52% total area of India.

The M.P. government have taken some steps to establish & run so called public libraries. They are striving but still alive. They are surviving some how. This paper studies how they are breathing with very little resources.

2 Library legislation in Madhya Pradesh

The first attempt was made by Dr Ranganathan in 1948 when he submitted draft Public Library Bill to the then Education Minister, Sri Gokhale. In 1952 FM Gardner prepared report on the libraries in Madhya Bharat

and emphasized for an Act. Again a Draft bill was prepared by Dr Ranganathan during his stay as visiting professor at Vikram University and submitted to state government, and after its approval by MPLA. Again in 1970 anothet draft bill was prepared by G D Bhargava and V S Moghe. In 1978 another draft bill was submitted to the state government which was passed on to Law Commission. After its finalisation, it submitted to Law Department. In 1982, the then Law Minister assured to present the Library Bill in forth coming session of assembly. But all these efforts are fruitlessas yet. With the introduction of Panchayati Raj & Jila Sarkar, these bills need modifications.

3 Ancient Libraries of Madhya Pradesh

Very little is recorded about ancient libraries in Madhya Pradesh though ancient cities like Ujjain are situated in the state. Raja Bhoj, the king of Dhar in twelfth century had a rich library which was merged with Royal Chalukyan Library, when he was overpowered by Chalukyan King Sidharaga and was shifted to Palcin city in the territory of Maharaja of Gaikwad and incorporated with the Royal Chalukyan Library there.

4 Ninteenth and Twentieth Century Public Libraries

The credit of initiating public libraries goes to the princes of states of Gwalior and Indore. Indore General Library was established in 1854 by Maharaja Tukoji Rao Holkar II. Madhav Pustkalya ,Gwalior was established in 1903. Few other ninteenth and early twentieth Century libraries are worth mentioning namely Municipal District Library, Jabalpur (1885), Public Library, Sagar (1909), Hamidia State Library, Bhopal (1911), Central Library, Gwalior (1918) and Museum cum Libraries in the state capitals of Rewa, Panna, Nagod, Chattarpur, Datiya, Tikamgarh and Mihar in early twentieth Century.

Personal collections of Maulvi Liyakat Hussain (Bhopal), Subhganapat Rai Bhandari (Bhanpure) and Hari Singh Gour (Sagar) provided good collection of books.

5 Modern Public Libraries

The year 1952 is a significant date when the Madhya Pradesh government invited Mr A M Frank and Mr F M Gardner of England to visit the state and inspect the libraries, with a view to suggesting possible development and improvement. They pointed out the defficiencies of the existing libraries and suggested a scheme for development of library

services over a period of five years with an annual state expenditure of Rs 6,00,000/- Unfortunately the recommendations made by Mr Frank and Mr Gardner could not be implemented even in part.

5.1 District Libraries

After independence, the then Madhya Pradesh (Madhya Bharat) government launched a library scheme under the Directorate of Panchayats & Social Welfare in 1956. One Central Library at Indore was established under this scheme 23 district libraries were also established. After state reorganisation. Madhya Pradesh emerged with 45 districts. Later on in the remaining 22 districts, district libraries were established. A few existig libraries were taken over by government and changed them to regional or district libraries.

The first publlic library, at government level, was established in 1st Five Year Plan. They were established in capital cities of earstwhile states of Vindhya Pradesh. Madhya Bharat and Bhopal ie at Rewa, Gwalior and Bhopal respectively. District libraries were also established in various regions, namely:

(a) Vindhya Pradesh (7): Satna, Panna, Chattarpur, Tikamgarh, Datia, Sidhi & Shahdol.
(b) Mahakoshal (14): Jabalpur, Mandla, Balaghat, Sagar, Hoshangabad, Chindwara, Betul, Khandwa, Raipur, Durg, Bastar, Bilaspur, Raigarh and Sarguja.
(c) Bhopal State (2): Sihore, Raisen.
(d) Gwalior State (1): Dabara.

In 1956, formation of Madhya Pradesh took place. A few district libraries were also established mainly in 1980 and 1981.

A chronological list of state regional and district libraries is given here:

State Regional Libraries

1951 Rewa
1955 Bhopal
1956 Gwalior & Jabalpur
1964 Indore

District Libraries

1955 (7): Sehore, Raigarh, Bilaspur, Shahdol, Satna, Chindwara & Hoshangabad.

1956 (15): Tjkamgarh, Dabara, Jabalpur, Sagar, Raipur, Datiya, Khandwa, Betul, Jagadalpur, Durg, Sarguja, Panna Sidhi, Balaghat & Mandla.
1957 (1): Raisen
1958 (1): Chattarpur
1973 (1): Nagod (Though not a district headquarter)
1980 (10): Dhar, Dewas, Guna, Jhabua, Narsimhapur, Ratlam, Raigarh, Shajapur, Ujjain & Vidisha
1981 (8): Bhind, Damoh, Khargon, Mandsour, Morrena, Rajnandgaon, Shivpuri & Seoni:
1983 (1): Bhopal (TT Nagar).

It is evident from the list that it took almost 13 years for the IInd phase of establishment of district libraries. Barmendra Library, Nagod (Satna) has been given status of a district library without being a district. Similarly Maulana Azad Library, Bhopal, has been accorded status of district library though regional library also exist at Bhopal. At other places, where regional libraries are available, district libraries are not establishmed in revenue divisions.

In the begining of finanicial year 1999–2000 when revenue divisions have been formally abolished, there were 12 revenue divisions but only 5 have State Regional Libraries. Only Rewa, Bhopal, Gwalior, Jabalpur and Indore have Regional Libraries .

The Revenue divisions at Ujjain, Sagar, Bilaspur, Raipur, Bastar, Hoshangabad and Chambal Morena have no regional libraries but have only district libraries.

5.2 Panchyat Libraries

Presently, in Madhya Pradesh besides existing 61districts, there are 347 tehsils, 459 development blocks and 74 Tribal Development blocks. It has 76,220 villages with 31,135 village Panchayats & 459 Janpad Panchayats.

It has 23 cities with more than one lakh population and 465 other cities. Out of these 18 cities have Nagar Nigams & 123 have Nagar Palik Nigams. There are 281 Nagar Panchayats. There are Janpad Panchayats in each development block & District Panchayat at each district, Tehsil, Block or City Libraries do not exist in public library system. Out of the 31,135 Village Panchayat, only 14,691 have libraries run by Surpanchs. About 10 Lakh Rupees are spent for these libraries for the purchase of books by a central book selection committee and distributed to these

libraries. Every year many Gram Panchayats are given Rs 200 for purchase of Newspapers and Rs 500 for furniture and equipments.

5.3 Administrative Control

The regional libraries are under the control of Divisional Superintendent of Education (DSE) & the district libraries are under the control of District Education Officer (DEO). These libraries are independent of each other. Though there is Deputy Director of Libraries attached to Directorate of Public Instruction but his work is only inspection and providing technical advise. On the other hand Rural & Punchayat libraries are looked after by Director, Punchayat & Social Welfare.

In MP Educational Divisions & District, for the purpose of controlling education aspect, are different then revenue divisions and districts. There are 13 educational divisions (as compared to 12 revenue divisions) & 54 educational districts (as compared to 45 revenue districts). (Now 61 revenue districts).

11 out of 45 district libraries are housed in rented buildings. Most of the district libraries are housed in small buildings having 2–4 rooms ranging between 200–1000 sq fit area. These libraries are run by a librarian assisted with 1 clerk and 2 peons in most cases.

6 Proposed bifurcation of Madhya Pradesh

As stated earlier, Madhya Pradesh had 45 districts with, 12 revenue divisions. Recently 16 new districts have been decleared and 7 new districts are due shortly. Thus at present there ae 61 districts which will become 68.

The Madhya pradesh may be bifurcated into proposed Chattisgarh state which will have 3 revenue divisions having 7 districts of Madhya Pradesh. 9 new districts have been constituted in proposed Chattisgarh area making this figure 16. Three out of seven proposed districts will also be in Chattisgarh area.

The 7 districts having mark (*) in the table 1 are newly formed districts. The districts libraries are yet to be established at these places.

Table 2: Districts of MP

1	**Bhopal**	5	Reigarh
2	Raisen	6	Vidisha
3	Betul	**7**	**Sagar**
4	Sehore	8	Tikamgarh

Contd.

Contd.

9	Chhatarpur	30	Burhanpur 0
10	Panna	31	Khargoan
11	Damoh		(West Nimar)
12	**Rewa**	32	Buravani *
13	Sidhi	33	Dhar
14	Anuppur 0	34	Jhabua
15	Shahdol	**35**	**Ujjain**
16	Umaria *	36	Shajapur
17	Satna	37	Dewas
18	**Jabalpur**	38	Ratlam
19	Katani *	39	Mandsour
20	Dindori *	40	Neemach *
21	Mandla	41	Garoth 0
22	Balaghat	**42**	**Gwalior**
23	Seoni	43	Datia
24	Chindwara	44	Shivpuri
25	Narismhapur	45	Ashoknagar 0
26	**Hoshangabad**	46	Guna
27	Harda *	**47**	**Chambal (Morena)**
28	**Indore**	48	Bhind
29	East Nimar	49	Sheopurkala *

Proposed Chattisgarh Area of Madhya Pradesh

1	**Bilaspur**	12	Dhamatri *
2	Pendra Road 0	13	Baloda 0
3	Koria	14	Durg
	(West Surguja) *	15	Kawardha *
4	Surguja	16	Rajnandgaon
5	Jashpur *	17	Bastar
6	**Raigarh**	18	Dantewada *
7	Korba *	19	Kanker *
8	Janjigarh Champa *	17	Bastar
9	Sarangarh 0	18	Dantewada *
10	**Raipur**	19	Kanker *
11	Mahasuamund *		

0 Proposed districts

* Newly decleared districs

Bold Revenue divisions till 31.3.99

Similarly librares at places where districts will be decleared in near future having (0) more will also have to be established. Similarly Chattisgarh will also have and State Central Library but unfortunatly all the five Regional Libraries established so far in Madhya Pradesh will remain in Madhya Pradesh. The proposed Chattisgarh area does not have any regional library at present.

TABLE 3: NUMBER OF DISTRICTS IN MP AND PROPOSED CHATTISGARH

States	Existing	Newly Formed	Proposed	Total
Madhya Pradesh	38	7	4	49
Chattisgarh (Proposed)	07	9	3	19
Total	45	16	7	68

* New Districts as declared on 25.5.98 and 6.7.98

7 CONCEPT OF JILA SARKAR AND PUNCHAYAT RAJ

Recently from 1.4.99 the concept of Jila Sarkar (District Govt.) has been adopted in Madhya Pradesh. The revenue divisions will not exist. The district govt. (Jila Sarkar) will get more powers. It will have a District Planning Committee (JilaYojna Samiti) with Incharge Minister of the district as President and Collector of the district as Secretary. It shall have powers to regulate Schools & Higher Education in the district. So powers to regulate and develop public libraries will also vest in Jila Sarkar. The concept of Regional Libraries at revenue divisions will not be feasible. Similarly 73 & 74th amendment in constitution of India has changed the concept of Panchayati Raj. The future library acts have to consider all these changes and modify accordingly.

8 PUBLIC LIBRARIES OF UJJAIN DIVISION

Ujjain Commissionary was separated from Indore Commissonary on 1.1.1977. It consists of 5 districts viz., Ujjain, Shajapur, Ratlam, Mandsour and Dewas.

Public libraries are controlled by DEO of the district. The educational division are different from revenue division and Dewas is controlled by Indore Educational Division, so it has not been included in this study. Area, Population and Literacy of these districts are given in Table 3.

TABLE 4: AREA, POPULATION AND LITERACY DATA

Districts	Area	Population			% of Literate Population		
		Total	Male	Female	Total	Male	Female
Ujjain	6,091	13,83,086	7,17,018	6,66,168	40.34	68.02	31.97
Shajapur	6,196	10,33,248	5,38,694	4,94,554	31.77	75.88	24.11
Ratlam	4,861	9,71,888	4,98,798	4,73,090	35.78	47.37	23.57
Mandsour	9,791	15,55,208	7,99,481	7,55,727	39.48	71.73	28.26

Source: *Manorama Year Book*, 1999.

A survery of 4 libraries have been conducted. The situation is almost similar in all 45 district libraries and it can be considered as representative survey. A summary of these libraries is shown in table 4. The table reveals that these 4 district libraries are housed in rented buildings with rentals of rupees from 5,000 to 30,000 per annum. The Buildings, are not meant for library purposes. These usually have 1 big room (hall) & 2 or 3 smaller rooms . These have capacity of 20–25 readers. On an average 50–200 readers visits these libraries daily. These district libraries open from 8–11 A.M. & 5–8 P.M. and are closed on Sundays. These libraries have a collection of about 10,000 books mostly collected by personal donations & from Raja Mohan Rai Library Fundation. The libraries subscribe 15–20 news papers and 5–10 magzines. Their membership ranges between 600–1550. All libraries have 1 librarian, 1 UDC and 2 peons.

TABLE 5: DISTRICT LIBRARIES: BASIC DATA

Particulars	Ujjain	Shajapur	Ratlam	Mandsour
1	2	3	4	5
Building	Rented	Rented	Rented	Rented
Rent Rs P. A.	30,000	9,432	4,800	8,400
Hall 1	15 × 30	–	100 × 15	40 × 20
Rooms 1	10 × 12	20 × 10	–	10 × 10
	10 × 15	20 × 10	–	10 × 10
	–	20 × 10	–	–
Capacity	25	25	20	25
Average visit	100–125	150–200	50–75	100–150
Opening Hrs.				
A.M.	8.00–11.00	8.00–11.00	8.00–11.00	8.00–11.00
P.M.	5.00–8.00	5.00–8.00	5.00–8.00	5.00–8.00
Collection	8804	9500	9778	10750

Contd.

Contd.

1	2	3	4	5
Newspaper	14	14	17	17
Magzins	10	8	9	6
Membership	1550	702	740	625
Staff: Librarian	1	1	1	1
UDC	1	1	1	1
Peons	2	2	2	2
Classification	DDC	DDC	DDC	DDC
Cataloguing	CCC	CCC	CCC	CCC
Circulation system	Brown	Brown	Brown	Brown

8.1 EXPENDITURE

From the five years expenditure given in table 5, it is clear that most of the amount is spent on salaries. It ranges between 72%–84% in most cases. The book & magzines expenditure is very less.It ranges on an average 4%–8%. Rent of building is 4%–10% depending upon place. Budget provisions sometime are less then the actual rent. Electricity & water expenditure is very less. It is only 0.5%–1% and libraries find it difficult to make their payments. Furniture allocation has been 1%-3% on an average. Allocations for other expenditure are not consistant. It ranges from 10%–12%. Budget for 1999–2000 also show similar trends.

Thus it is evident from the above study that govt. has not followed any standard norms allocation especially for books and magzine is very poor. As per general standards for budget, allocation should be 50% for salaries, 20% for books, 51% for periodicals & 25% for others. The librarians many times accepted subscription of newspapers & magzines as donation from the public. Efforts are also made for public donations for the purchase of book racks. The govt. should increase the budget especially for purchase of books & magzines.

TABLE 6: EXPENDITURES OF DISTRICT LIBRARIES

S	Budget.	Year	Ujjain	Shajapur	Ratalm	Mandsour
1	**Salary**	1994-95	1,40,779 (70.8%)	1,32,844 (78.3%)	1,30,844 (76%)	1,36,665 (83.9%)
		1995-96	1,67,816 (75.3%)	1,35,000 (80.3%)	1,40,000 (83.5%)	1,40,000 (83.8%)
		1996-97	1,97,841 (76.5%)	1,65,000 (83%)	1,70,000 (84 %)	1,70,000 (87.5%)
		1997-98	2,00,883 (74.2%)	1,70,000 (89.8%)	1,70,000 (90.0%)	1,70,000 (90.2%)
		1998-99	2,34,800 (72.0%)	2,34,800 (77%)	2,34,800 (76.1%)	2,34,800 (77%)
2	**Books & Magzines**	1994-95	13,000 (6.5%)	13,700 (8%)	20,000 (11.6%)	12050 (7.4%)
		1995-96	13,840 (6.2%)	8,000 (4.8%)	11,700 (7%0)	8,000 (4.8%)
		1996-97	9,210 (3.6%)	8,000 (4%)	8,000 (3.9%)	N.A.

Contd.

S No.	Budget	Year	Ujjain	Shajapur	Ratalm	Mandsour
-		1997-98	7,619 (2.8%)	4,939 (2.6%)	1,507 (0.8%)	4,860 (2.6%)
		1998-99	14,100 (4.3%)	14,100 (4.6%)	14,100 (4.5%)	14,100 (4.6%)
3	**Rent**	1994-95	30,000 (15.01%)	10,000 (5.9%)	6,000 (3.5%)	7,000 (4.3%)
		1995-96	24,230 (10.9%)	10,000 (5.9%)	6,000 (3.6%)	7,000 (4.2%)
		1996-97	30,000 (11.6%)	11,000 (5.6%)	11,000 (5.4%)	11,000 (5.7%)
		1997-98	30,000 (11%)	11,000(5.9%)	11,000 (5.8%)	11,000 (5.8%)
		1998-99	30,000 (9.2%)	11,000 (3.6%)	19,000 (6.1%)	11,000 (3.6%)
4	**Electricity**	1994-95	N.A.	N.A.	N.A.	N.A.
		1995-96	3,000 (1.3%)	2,000 (1.2%)	1,000 (0.6%)	1,500 (0.9%)
		1996-97	N.A.	N.A.	N.A.	N.A.
		1997-98	1,397 (5.1%)	1,235 (0.6%)	492 (0.3%)	1,400 (0.7%)
		1998-99	3,700 (1.13%)	3,700 (1.2%)	3,700 (1.2%)	3,700 (1.3%)
5	**Furniture**	1994-95	5,683 (2.8%)	5,000 (2.9%)	5,000 (2.9%)	5,000(3.1%)
		1995-96	5,980 (2.7%)	6,000 (3.6%)	5,000 (3.6%)	6,000(3.6%)
		1996-97	3,700 (1.43%)	3,700 (1.9%)	3,700 (1.8%)	3,700 (1.9%)
		1997-98	3,700 (1.4%)	N.A.	3,000 (1.6%)	N.A.
		1998-99	3,000 (0.9%)	3,000 (1.0%)	3,000 (0.9%)	3,000(1.0%)
6	**Others**	1994-95	9,650 (4.8%)	8,000 (4.7%)	10,000 (5.8%)	2,200(1.3%)
		1995-96	7,870 (3.5%)	7,000 (4.1%)	4,000 (2.4%)	4,500(2.7%)
		1996-97	17,880 (6.9%)	9,530 (4.8%)	9,530 (4.7%)	9,530 (4.9%)
		1997-98	14,600 (5.4%)	6,134 (3.2%)	2,998 (1.6%)	1,250 (0.7%)
		1998-99	40700 (12.5%)	38,200 (12.5%)	38,200 (12.2%)	38,200 (12.5%)
7	**Total**	1994-95	2,00,112 (100%)	1,69,544 (100%)	1,71,844 (100%)	1,62,915 (100%)
		1995-96	2,22,736 (100%)	1,68,000 (100%)	1,67,700 (100%)	1,67,000 (100%)
		1996-97	2,58,631 (100%)	1,97,230 (100%)	2,02,230 (100%)	1,94,230 (100%)
		1997-98	2,70,772 (100%)	1,89,308 (100%)	1,88,997 (100%)	1,88,510 (100%)
		1998-99	3,26,300 (100%)	3,04800 (100%)	3,12,800 (100%)	3,04,880 (100%)

TABLE 7: PROPOSED BUDGET 1999–2000

Budget	Ujjain	Mandsour	Ratlam	Shajapur
Salary	1,83,624 (72.8%)	1,50,091 (71.7%)	1,50.091 (71.7%)	1,71051 (69.7%)
Books & Magzins	12,536 (5.0%)	14,992 (7.2%)	14,992 (7.2%)	36,231 (14.8%)
Rent	30,000 (11.9%)	9,000 (4.4%)	9,000 (4.3%)	9,500 (3.9%)
Furniture	10,585 (4.2%)	–	–	7.058 (2.9%)
Electricity & Water	2,226 (0.9%)	3.562 (1.7%)	3,562 (1.7%)	2,226 (0.9%)
Stationary	1,867 (0.7%)	8,488 (4.1%)	8,488 (4.0%)	2,829 (1.6%)
Other	11,306 (4.5%)	18,061 (8.8%)	23,044 (11.0%)	16,339 (6.7%)
Total	2,52,144	2,04,194	2,09,177	2,45,234

Source: Annual budgets and reports.

8.2 BOOK CENTRES

Few district libraries have also established Book Centres but all the district libraries have not done so. Ujjain district library of the above four libraries have 9 such book centres at the distance of 16–60 kms of its

headquarter as shown below. Some of them are successfully running from 1985 & 1986:

TABLE 7: YEAR OF ESTABLISHMENT OF BOOK CENTERS

S No	Place	Tehsil	Km.	Year of Establishment
1	Kanasia	Tarana	48	1985
2	Jagoti	Mehidpur	30	1986
3	Nainawad	Tarana	58	1986
4.	Nalwa	Ujjain	22	1986
5	Chakrawada	Ghatiya	16	1986
6	Unhel	Khachroad	38	1987
7	Palkhanda	Ujjain	22	1988
8	Ghatiya	Ghatiya	22	1991
9	Chadavad	Tarana	30	1998

Librarian of the district carries few books and magzines to these centres once in a month but budget provison for travelling allowance is only Rs 2500 per annum which is too less to travel frequently. These centres are run by a teacher of a middle school at that place on honarary basis.

8.3 USERS SURVEY

A sample survey has been conducted in these libraries. 80 Readers were interviewed with the help of a schedule as shown in table 7. In the survey 74% belong to the age group 21-40 years. 35% are postgraduates and 30% graduates, 59% consult libraries frequently and 42% casually, 29% consult for academic purpose and 37% for book issue; Of these 70% are satisfied with availability of books and 63% with availability of novels. 75% consider staff very helpful but only 44% consider services provided as very good or good while 56% consider it as average, poor or very poor. This has been shown in Table 7:

TABLE 8: USER'S SURVEY

Particulares	Ujjain	Shajapur	Ratlam	Mandsour	Total
1 Age under 21	5	15	10	5	12
21-30	45	55	60	50	51
31-40	35	15	20	25	23
41-50	5	10	-	-	4
50-	10	5	10	10	9
2 Education PG	40	40	30	25	35
G	35	10	40	35	30
Under G	25	50	30	40	35
3 Membership					
Yes	70	50	60	55	59

Contd.

Contd.

Particulares	Ujjain	Shajapur	Ratlam	Mandsour	Total
No	30	50	40	45	41
4 Frequency					
Freq.	50	55	40	45	48
Casual	50	45	60	55	52
5 Purpose					
Academic	25	40	35	15	29
Professional or Ref. Books	10	-	15	15	10
Book Issue	35	35	45	35	37
News paper or Magzines	20	25	-	20	16
Others	10	20	05	15	8
6 Opening Hrs.					
Satisfied	80	100	75	70	81
Unsatisfied	20	-	25	30	09
7 Availability of Ref. Books					
Satisfactory	50	50	50	50	50
Un satisfied	25	10	45	30	27
Not Availa.	25	40	5	20	23
8 Availability of Navels					
Satisfied	70	75	50	55	63
Unsatisfied	20	25	40	35	30
Not Availab.	10	-	10	10	7
9 Staff					
Helpful	75	95	50	80	75
Unhelpful	25	5	50	20	25
10 Service provided					
Very Good	15	35	20	5	19
Good	25	20	10	45	25
Av/Poor/V poor	55	45	70	50	56

All figures in persentage.

9 Status of Librarians

The district libraries are at par with Higher Secondary School librarians. Govt. has always made distinction between teachers and librarians. They are not given similar scales & chances of promotion at par with teachers. In 1981 selection grades were given to all employees of the state government but these were not applied to the librarians. Similarly in 1987, promotions were given to Lower Division Tachers (LDT's) as Upper Division Teachers (UDT's) after 12 years of service. This too was not applied to district librarians though their qualifications are much higher (B.A.+B.Lib.Sc.) than LDT's (Matric only). Similarly senior time

scale grade is given to promoted UDT's but it is also not given to the district librarians. Thus their status has been lowered than a teacher in a Primary School. They should be equivalent to lecturers of Higher Secondary Schools with same promotions avenues.

10 Conclusion

The above study reveals that the public library system in Madhya Pradesh is some how surviving without proper legislation. The budget is so meagre that it can not meet the requirements of the people of a city. The concept of Tehsil libraries does not exist. The Punchayat libraries are for the sake of name only. We all are talking about taking nation to the 21 st century and taking libraries to the 21st century but in our democracy public libraries are treated as step son\daughter. Rising cost of publications and stationary budget have made survival of public libraries more difficult and days are not far when an order of the government may make them extinct or fossil.

Suggestions

1 Government must take steps for the enactment of public libraries act in the light of concept of Panchayati Raj and Jila Sarkar on immmediate basis.
2 For the time being a ten year development plan should be adopted.
3 The district libraries should be separated from the Department of Education and should be run by Directorate of Public Libraries with a full time professional Director.
4 There should be a District Library Committee to look after these libraries. It may include college/university librarians available at the district headquarter. Such committee should be formed at other levels of libraries too.
5 For the time being State Govt. must ensure a part of govt. Budget, especially of education budget for the public libraries.
6 State govt. should accept at least in principal, National policy on Libraries & Informatics as given by Planning Commission 1996.
7 Govt. must open district libraries in newly constituted districts.
8 Tehsil libraries, Block libraries, Janpad libraries, Panchayat libraries should be established in each district.
9 The Municipal Corporation/Nagar Nigam should contribute to district library fund.
10 Library may charge some nominal fees for various services to meet some expenditure.

11 Donations for buildings, furniture & books should be accepted more generously.
12 More Book Centres should be opened and school teachers running such a centre should be paid some honourarium.
13 For the proper service to the readers at least one Assistant Librarian should be appointed in each library .
14 The district librarians should be treated at par with teachers with regard to pay scales and promotions.
15 For the time being, present book and magzine budget should be increased in such a way that it becomes 20–25% of the total expenditure of a library.
16 ILA should take steps to enact library acts and pursue state government to pass acts on urgent basies.
17 Research should be carried out to study development of public libraries between the states having library legistatoin and not having it.

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11

UNESCO's Contribution in the Development of Libraries and Librarianship in India

N K BAR AND P BARUA

ABSTRACT

Gives UNESCO's history, origin and programme activities. The UNESCO grew out of the hopes for a better world following World War - II. The paper discusses the role played by UNESCO in the development of Public Libraries, Librarianship and Technological Scientific Documentation Centres in India. Also describes UNESCO's technical assistance in the form of fellowships given to Indian library scientists and Field Mission Experts to India and seminars, conferences and workshops in regard to pilot projects and other allied library and technical systems.

1 INTRODUCTION

1.1 WHAT IS UNESCO?

1.1.1 *The Need for UNESCO*

- The World cannot afford another war.
  Loss of life in World War I was about 8.5 million.
  Loss of life in World War II was about 26 million.
- With atom and hydrogen bombs and other new weapons, war might destroy humanity. Throughout history, men's ignorance of each other's ways and lives has been reflected in prejudice, suspicion and mistrust, the bases of differences which have led to war among the peoples of the world.
- Today, such ignorance could contribute to more frequent and more terrible conflict, if only because modern advances in the development of communications are continually bringing

people of diverse races, religions and political creeds and of different standards of living, learning and health into closer contact with each other.

The points of conflict are not merely political... they are also economic, racial and cultural. Any effort to achieve lasting peace must begin with an understanding of all factors that produce tension, and must seek to solve them.

- This new and positive concept of the way to peace produced the United Nations. Postponing war is not enough. Peace depends on the prosperity and goodwill of mankind. These in turn depend on such factors as better food, health, housing, trade, schooling... and better understanding of other cultures, other ways of life. Only a peace thus based on the intellectual and moral solidarity of mankind, in addition to cooperative political and economic arrangements, can receive the lasting, sincere and effective support of the peoples of the world. (1)

1.1.2 How it started

Although the subject of intellectual co-operation among nations was ignored by the peace conference following World War I, the League of Nations soon recognized the importance of promoting such collaboration. In 1921, Mr. Leon Bour Geois (France) was instrumental in the Assembly's organization of the committee of Intellectual co-operation. The committee was composed of a score of internationally prominent men and women, and in time it founded affiliated national groups in 50 countries. This was the forerunner of the expanded intellectual co-operation to come.

During World War II, conferences attended by Ministers of Education of the Allied Governments met regularly, from 1942 to consider common problems of education, particularly those concerned with rehabilitation of educational systems in occupied or war-devastated areas.

As a continuation of this war-time collaboration, the governments of the United Kingdom and France convened a meeting in London in November 1945 which was attended by representatives of 44 countries, and the constitution of Unesco was drawn up.

On 4'h November 1946, Unesco officially came into existence when 20 Member States had deposited instruments of acceptance. Dr Julian Huxley was appointed Director-General. At the beginning of 1960, Unesco had 82 Member States. (2) The preamble to UNESGO's constitution states; since wars begin in the minds of men. it is in the minds of men that the defences of peace must be constructed.

UNESCO grew in 1946, in the hope for a peaceful world through the promotion of education, science and culture. Currently membership of UNESCO extends to 185 countries including 20 founder members.

1.1.3 Functions

The main objective of the United Nations Educational, Scientific and Cultural Organization (UNESCO) is to contribute to peace and security in the world by promoting collaboration among nations through education, science and culture in order to further universal respect for justice, for the rule of law, and for the human rights and fundamental freedoms which are affirmed for the people of the world, without distinction of race, sex, language or religion, by the charter of the United Nations.

In support of this objective UNESCO's principal functions are:

- To stimulate educational, scientific and cultural activity and progress;
- To encourage international co-operation in these fields;
- To offer all possible assistance to Member States in their efforts toward greater progress in these fields, and
- To serve as a clearing house to make pertinent material readily available for practical use by Member States. (3)

Major programme activities include a literacy drive, teaching about the United Nations and human rights, compulsory education and the raising of educational standards, exchange of persons and provision of scientific and educational experts on request to Member States. Programme activities are carried out through national commissions.

In addition to activities carried out under the major project, the board fields in which the programme of the Cultural Activities Department operates are: (4)

- Philosophy and humanities studies;
- Arts and letters;
- Museums, monuments and archaeological sites;
- Libraries, documentation and archives and;
- Copyright.

1.1.4 Culture

The UNESCO's cultural programme is in three parts; activities design to foster the worldwide application of three international conventions, that aim to protect and conserve cultural property; international safeguarding campaigns to hold member states to conserve and restore monuments and sites (in 1988 there were 22 such campaigns in progress); and the training of museum managers and conservationists and promotion of public awareness of the cultural heritage.

UNESCO's World Heritage Programme, launched in 1978, aims to protect landmarks of outstanding universal value, in accordance with the 1972, UNESCO convention concerning the protection of the World Cultural and Natural Heritage, by providing financial aid for restoration, technical assistance, training and management planning. By the beginning of 1989, the World Heritage list comprised 315 sites in 67 countries. UNESCO has participated in the restoration of the Buddhist temple at Borobudor, Indonesia (1973-83), the resisting of the temples of Abu Simbol, Egypt, preliminary work on preserving the ancient city of Mahenzodaro, Pakistan'and many other conservation projects.

UNESCO encourages the translation and publication of literary works, publishes albums of art, and produce records, audiovisual programs and travelling art exhibitions. It supports the development of book publishing and distribution and the training of editors and managers in publishing. UNESCO is active in preparing and encouraging the enforcement ofinternational legislation on copyright.

2 Development of Libraries

Libraries perform an essential service in advancement and diffusion of knowledge. When they work together internationally, they help "to give the people of all countries access to the printed and published materials produced by any of them." UNESCO's work has gone forward along three main lines:

(I) Promotion of libraries for general public;

(II) Encouragement services to research and scholarship, particularly in Bibliography; and

(III) International exchange of material in library collections through gifts, loans and microfilm.

UNESCO paid special attention to libraries not only in terms of their reconstruction following the damage sustained during the war, but in relation to their organization and improvement. Mr. Emerson Greenaway from the Enoch Pratt Library in Baltimore worked as an adviser for two months with the library staff of UNESCO and drew up a programme of action for 1948 which was to be presented as a separate report to the General Conference.

A programme for exchanges of librarians was worked out, and preparations were made for an international seminar for librarians to be held in 1948 and for a survey of existing library schools, their curricula and their degrees and diplomas. A project was also drawn up for comple-

tion in 1948 of a multilingual dictionary of librarianship which had been in preparation before the war under the auspices of the International Institute of Intellectual co-operation. The Institute and the representatives of the editor, the late Henri Lemaitre, had handed over all the relevant materials to UNESGO.

An appeal was addressed to all countries inviting them to publish selected national bibliographies, and a report was drawn up on the international aspects of the interlibrary loan service.

Two pilot projects for public libraries have been established - in Delhi, India and Medellin, Columbia. Five seminars for public librarians have been held since 1948, and one Conference in Latin America. National bibliographical centres have been established in Turkey and Brazil. National and regional meetings are being organized to stimulate the international exchange of publications.

3 UNESCO Information and Documentation Systems and Services

Under this programme special attention is paid to as under:

- development of the specialized information services of UNESCO;
- the needs of information users and potential users;
- developing user-oriented information systems;
- the importance of improving and encouraging the flow of and access to information creativity and innovation of the production and use of local information;
- the applications of information technology and
- the need to evaluate the activities undertaken.

4 Unesco and its Concern for Library Development

4.1 Organisational Devices, Facilitating Programme, Formulation and Implementation

The complex tasks of programme making requires the deployment of a wide variety of operational methods. UNESCO's rules of procedure provide for conferences, seminars, symposia, meeting of invited specialists, and other subsidiary bodies, serving as a multitiered system of communication and consultation. Much of the organization's work is carried out through these bodies. They proved to be effective as a means for enlisting the interest of governments and professional groups in

projected programmes, forgoing consensus's, setting priorities, and promoting the goals and objectives of UNESCO in general. In a regional setting, conferences and seminars have been used as the main vehicles of co-ordination and evaluation of fielded projects.

In library related programme areas, the organisation has frequently also restored to smaller scale functional' organisations, such as round tables, working parties and groups to focus on tasks of a technical character. They were created on an adhoc basis and had no constitutional status.

A few data will illustrate the scope of these activities. In the field of librarianship, documentation and archives alone, UNESCO has convened, or assisted financially in the convening of 295 conferences and meetings between 1948 - 1972. This figure includes the meetings of the international advisory committees. The tabulation of these conferences and meetings shows certain area of concentration. It also indicates certain shifts of emphasis since 1967 when the pervious Library Division was elevated to the department rank.

TABLE 1: CONFERENCES AND MEETINGS RELATED TO LIBRARIANSHIP, DOCUMENTATION AND ARCHIVES CONVENED OR FINANCED BY UNESCO DURING 1948-1971 (1ST 25 YEARS)

Topic	1948-66	1967-71	Total
Scientific documentation	55	19	74
Bibliography	30	03	33
Library development in general	12	14	26
International Cooperation	16	09	25
Archives	11	13	24
World Science Information System (UNISIST)	00	20	20
Abstracting	13	01	14
Copyright	08	05	13
Adult Education	04	06	10
Publishing and Distribution of Books	01	08	09
Public Libraries	06	00	06
Braille and Services to the blind	06	00	06
Information and Science (Automation)	03	01	04
University Libraries	02	01	03
Standardization	02	01	03
School Libraries	01	02	03
Space Communication	00	03	03
National Libraries	02	00	02
Music Libraries	02	00	02
Library Education and Training	01	01	02

Contd.

Contd.

Topic	1948-66	1967-71	Total
Cataloguing	02	00	02
Audiovisual Service	02	00	02
Other	03	06	09
Total	183	113	295

These figures are derived from conferences, seminars, and other meetings referred to in the following issues of the UNESCO Bulletin for Libraries: - 20 (September - October 1966): 157 - 275; 21 (May - June, 1967): 131 - 132; 25 (May - June, 1971): 136 - 138; (November - December 1971): 330 - 331.

The table indicates that between 1946 - 1971 there was an average of at least one conference or meeting a month, involving UNESCO's library programme.

There was always a strong concern for problems of scientific documentation. This concern was augmented after 1967, when UNISIST, a project to create a World Science Information System, was launched. There are signs that, the trend will continue with UNESCO's efforts to cope with the complex problems of information management and world wide access to scientific literature.

The decline in conferences on bibliography, after a strong initial thrust, reflects the view that in the final analysis all bibliographic matters must become subsidiary to UNISIST. (5)

The data also point to a shift from individual public library projects as models for service to the planning of a national integrated library systems. The emphasis moved to the legislative, budgetary and structural aspects of the problem. The inventory of conferences highlights certain priority areas, but by no means tells the whole story. Some of the issues which received considerable attention are barely reflected in the table. Library education is a case of point. While conferences and other forums provided UNESCO with regions and intercontinental platforms, at the same time they have enhanced communication and interaction among libraries across national frontiers and continents. Thus, they were instrumental in engendering a sense of common purpose and fellowship among them. (6)

4.2 Library concerns of UNESCO

There is evidence that library matters were given considerable attention right from UNESCO's inception. Implicit reference was made to librar-

ies at the London Conference where the organisation was urged to establish close working relationship with the various adult education agencies - libraries being considered among such agencies. (7)

In the opinion of some, however, this attention was not effective as it might have been in the early stages due to the placement of the library division in the Department of Cultural Activities, apart from education and mass communication. This may have seemed justified on traditional grounds - librarianship was usually considered as specifically related to literature - but it had rather unfortunate consequences in that other programme sectors within the Secretariat (especially Natural Sciences and Education) set up their own documentation units with much wasteful duplication and imperfect co-ordination. Several attempts have been made later to remedy this situation, showing the Secretariat's perpetual conceptual difficulties in filling libraries into an organisation structured along traditional disciplinary subject areas.

One indication of the importance of UNESCO attached to libraries was the fact that the first periodical issued by the agency was the "UNESCO Bulletin for Libraries", a bi-monthly organ which began publication on April 1947, barely months after the Secretariat was organised, staffed, and its headquarters set up in PARTS. By the time the Director-General was drafting his first report in the fall of 1947, the Bulletin had reached 6, 500 libraries and institutions, thus establishing contact with libraries all over the world. (8)

In his first survey of UNESCO's activities in 1947, its first full year of operation, the first Director General, the late Julian Huxley, was able to report on a wide range of library related activities already began by the organisation. The encompassed efforts to reconstruct libraries devastated by the war, the collecting, exchanging and distributing of books and periodicals on a world wide scale, a concern for library education, the drafting of a multilingual dictionary for librarianship, bibliographic services, international book lending, the book coupon scheme, abstracting services and documentary reproduction and archives. (9)

And, for 10 years out of the first twenty five, two of the organisation's Chief Executives were from the library field: one was a library specialist and the other was a professional librarian. The first, Jaime Torres Bodet, was the former Mexican Minister of Foreign Affairs, who had a strong record of library development in his country. In 1920—21 he had been the Chief of the department of public libraries in the Ministry of Public Education. Later, as a Minister of Education, he came to world attention for his campaign against illiteracy. He was Huxley's successor and remained at the helm of UNSECO from 1949 to 1952.

The other librarian—statesman to occupy the post of UNESCO's Director General was Luther H Evans, a former Librarian of Congress of USA. Evans served as UNESCO's Chief Executive Officer, from 1953—1958. He had a successful and distinguished library career at the Library of Congress spanning over fifteen years, first as Chief of Reference Services, then as Chief Assistant Librarian and from 1945 as Librarian of Congress. With ad academic background in political science, Evans was a student of the League of Nations, and was able to bring to his job highly specialized knowledge of librarianship, combined with and understanding of complexities inherent in the functioning of an international organisation. (10) During his tenure as Director General, library matters received particularly sympathetic consideration.

4.3 The Influence of Librarians on Decision Making by UNESCO

UNCSCO's Constitution limits official delegations to the general Conference to five members per member State. (11) Delegations from the more developed countries, however, usually included almost as many alternates as representatives, along with an intermediate number of advisors, experts and auxiliary staff.

The number of librarians among these delegations has been relatively small. For one thing, a large part of UNESCO membership, and an important part in UNESCO terms, consisted of countries with virtually no library services, or which services limited to academic bodies rather than the public. This was a handicap to programme design for library development because the more advanced countries had little experience in the kind of library service appropriate to technologically less sophisticated societies. There was a tendency among some simply to impose the American pattern universally. This was often incorrect policy.

Even among advanced countries, there was no consistent pattern of librarians being members of the delegations, since some national delegations always comprised of librarians, while others, despite strong library infrastructure at home, did not seem ever to have included them. One reason for so, few librarians being included in the national delegation to the General Conference was the cost in time and money that such membership would entail. Few librarians in executive positions and teaching members of library schools can be furloughed for the six to eight weeks required. Thus', national delegations would have a high contingent of government officials, ministers of Foreign Affairs and education, ambassadors, ambassadors, officers of scientific academies, chancellors of universities and the like.

The relative scarcity of librarians among delegates necessarily restricted the pool of professionals and experts from among whom specialized sub-committees and working parties, mandated to deal with libraries and library related matters and programmes, could draw their members. An attempt to rectify this situation by a resolution, introduced to the second session of the General Conference, urging governments to give librarianship fuller representation, proved to be too controversial and was ultimately withdrawn. (12) The issue surfaced again at the 61st session of the Executive Board. (13)

The Chairman of the American delegation to the preparatory conference in 'London in 1945 was Archibald Macleish, Librarian of Congress from 1939 to 1944. Macleish was an influential member of UNESCO's initial legislative assemblies, and was also elected to the Executive Board. He was more the international cultural statesman than agent strict of library interests. Carl H Milam, Executive Secretary of the American Library Association, served on the libraries and Museum's Sub-Commission where, together with Julien Cain, he was one of the architects of the initial policies and programmes of UNESCO in the field of libraries. (14)

It can be concluded that UNESCO represented a more advanced form of organisation than the League of Nation's Committee on Intellectual co-operation. It was much better equipped than its predecessor to espouse and promote library causes.

4.4 Library Philosophy and Programme

In assessing the evolution of UNESCO Library programmes, we must look at the philosophy of the organization as a whole, to harness the arts and sciences in the service of peace, security and international understanding. The magnitude of the problems facing the organization and the painfully limited resources at its disposal have made for a constant and Organising search for priorities. To avoid fragmentation of effort and dissipation of resources, the Secretariat has consistently tried to formulate unifying themes around which to organize its many projects. It was unavoidable that some fragmentation should exist due to the tension between the UNESCO's desire and determination to advance the substantive aspects of librarianship and information science, on the one hand, and its obligation to render financial and technical aid where it was most desperately needed, on the other.

Responding to the universal trauma of World War II and the subsequent division of the world into ideological camps, UNESCO defined its first mission to be the education of the masses of mankind in the spirit of

international understanding and cooperation. This task implied three requisites: Literacy, free access to knowledge, and the presence of the technical and intellectual means of communication. Its library programme was conceived of, as supportive of this mission.

4.5 Efforts for The Immediate Needs of Member States

UNESCO directed its earliest efforts after the war to the reconstruction of libraries in devastated areas of Europe. The PARIS headquarters served as a clearing house for the collection and distribution of large quantities of free materials destined to needy libraries all over the continent. In the emerging countries, the task of developing a book industry of necessity preceded the establishment of libraries. Here, UNESCO felt a pressing need for its assistance in overcoming the obstacles of wide spread illiteracy, the multitude of vernacular languages, the paucity of writers and translators, the lack of managerial and technical competencies and the scarcity of money for royalties and book imports.

In addition, one of the most urgent problems throughout the world in the post war period was the condition of the international monetary situation. Lack of an adequate supply of hard currencies made it impossible for libraries in many countries to purchase books and periodicals abroad, especially from the United States and other western markets. To remedy the situation, UNESCO launched the Book Coupon scheme in 1948, creating a virtual international cultural currency which enabled libraries everywhere to pay for foreign acquisitions in the currency of their own countries. (15)

4.6 Promotion of Public Library Development

UNESCO assigned the public library an important place in the drive against illiteracy. It set forth its philosophical position on this matter in a manifesto.

4.6.1 *The Public Library: A Living Force for Popular Education* (16)

In it the traditional role of the public library was expanded to include functions in the service of fundamental education. (17) This term as used means teaching illiterates to read and write and fostering these newly gained skills for the purpose of imparting information to improve living conditions.

In a resolution of the General Conference in 1949, UNESCO described the public library as the "Centre for popular education and for the growth of the international understanding". (18) The same general Conference decided to create such an institution in one of the member states for the purpose of demonstrating its effectiveness, especially for persons who have just learned to read and write. (19)

The idea appealed to the Indian Government. Interested in eliminating illiteracy in the Country, it accepted UNESCO ' proposal to set up jointly in Delhi the first pilot project public library to serve as model, as well as centre for experimentation. The organisation envisaged that here the concept of the public library as a centre for a fundamental education system would be studied and tested. Edward Sydney and Frank M Gardner, two prominent British Public Librarians, deputed by UNESCO, were engaged to act as consultants for the project in the initial period. Once the project was established, the library was directed and manned by indigenous staff.

UNESCO made it a policy to review the achievements of the pilot project libraries after a few years operation. This was done through regional seminars, conferences or meetings of experts where survey findings were discussed, usually in connection with plans for additional public library services.

Even so, the Delhi Pilot Project Library was followed by one in Madellin, Colombia,which began operation in 1954. Two were set up in Africa: one in Enugu, Eastern Nigeria, in 1959 and the other in Abidjan, Capital of the French speaking Ivory Coast, in 1963. Demonstration school libraries were also organised as pilot projects in several parts of the world.

4.7 Establishment of Scientific and Technological Documentation Centres

UNESCO has been instrumental in creating a number of regional scientific and technological documentation centres in different parts of the world. These centres have been described'as specialized agencies with a selected stock of pertinent books, periodicals, reports, and other forms of literary products. In addition to performing library functions, these centres were equipped to generate a variety of subject bibliographies, prepare abstracts, translate articles and papers, provide indexes to the material they processed and stored at the centre, and reproduce such materials on demand at the low price. Most UNESCO established documentation centres have also been responsible for the compilation and publication of

bibliographical organs of the scientific and technical literature produced in the country or countries they serve. (20)

Other areas where UNESCO has played an important role in world library and information services have been in the preservation of research materials through large scale microfilming projects in the Third World, arrangement for the systematic exchange of Government publications, and the ratification and publication of the Universal Copyright Convention by most major countries. In the wake of UNESCO's coordinating efforts, progress has been toward international standardization of bibliographic description and cataloguing rules. Uniformity of terminology in many areas of the pure and applied sciences has been made advanced with UNESCO assistance by means of specialized thesaury mainly through the clearing house activities of two bibliographic research centres, one at Western Reserve University, Cleveland, Ohio, and the other is in WARSAW, Poland. In almost all areas of involvement loomed the problem of professional manpower and the question of library education.

5 India and Unesco

5.1 UNESCO, Initiative-the Development of Libraries, Librarianship, Documentation and Information Services

India is a founder member of UNESCO and was the first developing country to host the General Conference (9'" Session 1956) in Delhi. While discussing India's relations with UNESCO in the field of education, therefore, it is necessary to keep in view the fact that India as a new independent state was interested in an all round development as a viable nation. After the initial period of interaction between India and UNESCO, that is, say after the year 1950, the Indian attitude to UNESCO's educational role began to assume a more concrete shape, in as much as India highlighted the practical problems of the expansion of education more than the value of spirituality. It was realized that the ability to read and write is a step towards a better life including improved housing, health, agriculture and better nutrition. How to provide free and compulsory education to all? This was the basic question uppermost in the minds of the Indian planners. India considered the availability of suitable reading material for the neo-literates to be an essential requirement of the success of the programme of social or fundamental education. It helps to stimulate the consciousness of human dignity and development and can also serve as basis for the cultural and moral solidarity of the common man.

(21) One of the ways in which the neo-literates could get suitable reading material was to establish good public libraries all over the country.

5.2 Public library pilot Project-Delhi Public Library (DPL)

Delhi Public Library was established as a Public Library Pilot Project in 1951 by UNESCO in collaboration with the Government of India, Ministry of Education. It was intended that the Library would provide a Public Library Service for the people of Delhi and that it would be a model for all public library development in India and to inspire other countries where similar development of public libraries can be undertaken.

The library was inaugurated by Late Pandit Jawaharlal Nehru, the then Prime Minister of India on 27" October, 1951 accompanied by the honourable Maulana Abul Kalam Azad, Minister of Education and a distinguished company of over 1200 persons.

Its first aim was to be a model public library, conceived along western lines, offering a free, open access service to all who lived or worked in Delhi. It was to be a living embodiment of UNESCO's 1949 manifesto declaration that "the public library should open to free use on equal terms to all members of the community, regardless of occupation, creed, class or race"

The establishment of a modern public library in a metropolitan city was undoubtedly a landmark in public library development in India. The Indian public was not used to a public library service, let alone a free one, and it was certainly not used to open access to books. It has open shelves, allowing unhindered access to books; it did not insist on a cash security for enrolment and of course, did not charge any fee or subscription from its members. The library flourished; however, and quickly developed the levels of use and activity including the long queues, which have earned it the tag of "The busiest Public Library in Asia". (22)

5.3 Scientific and Technical Documentation

In a mixed economy like ours in India, where government initiative and private enterprise have created industrial and scientific complexes side by side with fiercely autonomous privileges, the work of a documentalist has very interesting challenges. Documentation service is a two-way activity in which dissemination and feedback are closely interlinked. This means that the tempo of the service is a factor of the intensity of research and developmental activities of the society. Hence, the organisation and functioning of national documentation and information

service can best be appreciated against the background of the total research and technological effort of the country as a whole. In a fast-developing country like India, the documentation and information activities need constant observation and planning to sustain the efforts of scientists, research workers, engineers, managers and all other engaged in such activities. (23)

5.4 INSDOC

The Indian National Scientific Documentation Centre (INSDOC) was set up in Delhi by UNESCO in co-operation with the Government of India to aid research workers by keeping them in touch with the latest technical articles appearing in learned periodicals.
The main objectives of the INSDOC are follows:

(i) To receive and retain all scientific periodicals which may be of use to the country;
(ii) To inform scientists and engineers of articles which may be of value to them by issuing a monthly bulletin of Abstracts;
(iii) To answer specific enquiries from information available in the centre;
(iv) To supply photocopies or translations of articles required by individual workers;
(v) To be a national depository for reports of the scientific work of the nation, both published and unpublished and
(vi) To be a channel through which the scientific work of the nation is made known and available to the rest of the world.

5.5 MANPOWER DEVELOPMENT FOR INFORMATION WORK

In 1961, a Regional Seminar on Scientific Documentation in South and South East Asia was organized in New Delhi by UNESCO Science co-operation Offices in New Delhi and Jakarta. A survey of the present state of documentation in Asian countries, a study of the principles and techniques of documentation and ways and means of co-operating in the field of scientific documentation were discussed at this seminar. Two short-term regional training courses were carried at INSDOC in New Delhi under UNESCO sponsorship, Documentalists from Burma, Geylon, India and Thailand undervent a six weeks training course in scientific documentation in May 1956. In the second INSDOC course held in 1963, the service of a senior Swedish expert were made available and the senior staff of INSDOG and other experienced documentalists from

India delivered lectures. Malaysia, Korea, Indonesia, Thailand, Singapore, Pakistan, Nepal, Ceylon and India participated in this course.

5.6 Training in documentation and Reprography

To ameliorate the situation, INSDOC started a full time course leading to the award of Associateship in Information Science in 1964. The objectives of the INSDOC course have been to train personnel and equip them with necessary skill and technical knowhow to plan, organise, manage, control, supervise and evaluate documentation and information services in Research and Development, industrial and other cognate establishments.

5.7 UNESCO Book Coupon Scheme

In 1948, the UNESCO devised the Book Coupon Scheme under which the participating countries in the soft currency areas can purchase publications without exchange of dollars from hard currency areas. The Government of India have been participating in this scheme from the very beginning and have, to-date (1956) received book coupons worth $ 2, 33,000. In 1949, the scheme was extended to include scientific films and UNESCO coupons worth $ 3,20,000 ($ 2,90,000 for Scientific materials and $ 30,000 for films) have been received. (24) It has enabled India to obtain much-needed Scientific and technical publications, equipment and films from hard currency areas without spending any dollars.

5.8 Microfilming

In the interests of the conservation of cultural heritage, UNESCO has sent microfilming teams to India to reproduce manuscripts and other archival documents to protect them from the effects of time and other hazards.

5.9 UNESCO unit in India

The UNESCO Microfilm Unit was sent to India on June 1966 with the following objectives:

- To microfilms selected valuable manuscripts, to preserve and make them available for researchers;
- To train people in microfilm technique;
- To assist the national authorities in installation or the improvement of microfilm services and
- To make a list of microfilmed materials to let researchers know what has been photographed.

378 negative rolls were used to microfilm 1, 308 manuscripts with more than 142,901 exposures. (25) The unit visited 12 centres in India.

6 Training

In National Library, Calcutta, two persons were selected as trainees. Both of them were trained to run the microfilm camera and the dark room process.

6.1 Library Field Missions and Fellowships

In the first years of its work UNESCO depended largely on the help of experts sent to restore and replan damaged libraries and other institutions. UNESCO has assisted a large number of countries to organise their library services on a national scale, by providing them experts. They have also helped in setting up public, national, special or university libraries; planned library buildings, worked as advisory directors and technical experts in a wide range of library activities. Table - 2 gives an account of UNESCO experts who were sent to India on field missions to advise, organise and management of public libraries as well as scientific documentation centres.

Fellowships are regularly provided to give further training to the persons who have to take over the library after the UNESCO experts leave. Such fellowships have been awarded to Indian librarians and documentalists during the initial period.

Table 2: Unesco Field Mission Experts to India

Date of Mission and Duration	Name	Country of Mission	Category of Mission	Country of origin
1951-6 months	Edward Sydney	India	Pilot Public Library	U.K.
1951-6 months	Frank M Gardner	India	Pilot Public Library	U.K.
1952-3 years 1955	J B Reid	India	Scientific and Tech. Documentation.	Canada
1952-3 years 1955	A L Gardner	India	Scientific and Tech. Documentation (Photographic Reproduction)	U.K.

Contd.

Date of Mission and Duration	Name	Country of Mission	Category of Mission	Country of origin
1952-3 years 1955	A Pelletier	India	Scientific and Tech. Documentation (Mechanical Processing)	U.S.A.
1957-3 years 1959	P Grade	India	Libraries	Unspecified
1966 1972	P Lazar	India	National Inf. System for scientific and Technical Documentation.	Hungary
1966-1967	O V Malugin	India	Scientific Translation	Unspecified
1966-1967	A Salem	India	Mobile Micro filmUnit	Unspecified
1966	S V Nazarjev	India	Scientific Documentation	Unspecified
1956-1959	Y Tschentsov	India	Scientific Translation	U.S.S.R.
1978 3months	Johnson, Gerald G	India	Numerical Data	U.S.A.
1978	S Rahda Krishan	India	STI Application	Unspecified

Source:

a *UNESCO Bulletin for Libraries*, X-No-11-12, 1956. 281.

b. Parker, JS, UNESCO and Library Development Planning, London Library Association, 1985 (Appendix).

TABLE 3: UNESCO LIBRARY FELLOWSHIP HOLDERS FROM INDIA

Year of Award	Name	Field of Study	Duration	Place of Study
1950	D R Kalia	Librarianship	6 m	Sweden, USA and Netherlands
1950	N N Chatterjee	Scientific Literature	6 m	Netherlands, Switzerland, Belgium, UK and France
1951	M S Dandekar	Scientific Translation and Abstracting	Unspecified	

Contd.

Year of Award	Name	Field of Study	Duration	Place of Study
1951	Dr J V Karandikar	Photographic Reproduction of documents	Unspecified	Netherlands, FRG. Switzerland, UK and France
1951	S K Mookherjee	Librarianship	6 m	UK, Sweden
1951	K S Nagarajan	Photographic Reproduction of Scientific Documentation Centre.	Unspecified	Unspecified
1954	M M Tondon	Librarianship	Unspecified	Unspecified
1955	P Basu	Scientific Translation and Abstracting	Unspecified	Unspecified

Source:

a. Directory of UNESCO fellows Asia and Oceania 1948–1968. UNESCO. Paris.
b. *UNESCO Bulletin for libraries*- X No. 11–12, 1956, 284–85.
c. Parker, J S , UNESCO and Library Development Planning, London: Library Association, 1985, (Appendix).

6.3 Seminars Conferences and Workshops

Through the years, India has participated in a number of International Conferences and Seminars organised by UNESCO held in India. Some of them are mentioned below:

1949: Seminar on 'Rural Adult Education' Mysore, India, 2nd November to 4th December, 1949.
1955: Regional Seminar on the development of Public Libraries in Asia. 6–26 October, 1955, New Delhi.
1956: UNESCO, General Conference, 9' Session, 1956, New Delhi.
1959: Seminar on reading materials in South Asia, Madras, India.
1960: Regional Seminar on Library Development in South Asia, 3–14 October, 1960, New Delhi.
1961: Scientific Documentation in South and South East Asia, 7–16 March 1961, New Delhi.
1975: Workshop on Training users of Scientific and Technical Information.
1976: SPINES.
1976: Library and Information Science Manpower Development in

the Asian Region, collaboration with DRTC, Bangalore. 9 –12 November, 1976.

1976: Scientific, Technical and Industrial Information Services in South and Central Asia.

1985: Asian Regional Seminar/Workshop on "Thesaurus Construction" - New Delhi 18 - 29 November, 1985.

6.4 The General Information Programme and Unisist

The General information programme (PGI) was established in 1976 to provide a focus for UNESCO's activities in specialized information, documentation, libraries and archives. It is the programme within which activities undertaken under UNISIST are carried out-UNISIST comprising the internationally developed methods, norms, standards, principles and techniques governing the processing and transfer of information, particularly through the use of modern computer and telecommunication technologies and their application to the development of compatible information systems. PGI also aims at strengthening national capabilities for handling information through the development of national information systems.

6.5 Role and Functions

The primary role of PGI is to act as a catalyst in promoting and coordinating action to improve the provision and use of information throughout the world. It performs this role through consultation and collaboration with a variety of organizations including .

- other UNESCO programmes;
- Member States;
- the United Nations and its agencies;
- intergovernmental and non-governmental organizations; and
- individual information specialists.

PGI fulfils its role by promoting, sponsoring and supporting such activities as

- meetings, consultations and conferences;
- education and training courses and seminars;
- pilot projects and consultancy missions; and
- research, studies and publications.

7 Conclusion

UNESCO's not so visible but extremely useful achievements in promot-

ing the development of Museums, libraries, archives and documentation services often remain unnoticed, they also make a substantial contribution to widening access to knowledge.

UNESCO made available to Governments experts, in all its fields of competence, a unique and expanding network of international intellectual cooperation: fifty-three years after it came into being. UNESCO is more than an idea and a hope. It has a past of achievement and experience, striking in its continuity, which constitutes its present strength.

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Role of Public Libraries in Literacy and Developing Reading Habits in India

S D VYAS

ABSTRACT

India has been making a good progress in improving literacy during the last decade yet it is estimated that India will have 500 million illiterates when we enter in the 21st century. It would constitute 50 per cent of the total illiterates of the world. Thus our country will have to provide them informal education programmes. Recently the Government of India claimed that India made a good progress in literacy, as our literacy which was 55 per cent in 1991 has now gone up to 62 per cent in 1997. If these trends continue it is estimated that India would achieve 67 per cent literacy by 2001, and perhaps cross 80 per cent by 2011. As librarians, we are concerned more with post literacy programmes. We will have to see that the neoliterates get access to public libraries. If this does not happen then the neolearners shall again lapse into illiteracy. A permanent solution to this problem is to have a networking of public library system. In our country, public library system through library legislation is still a dream although situation has changed considerably. It would be wrong to presume that all rural people are illiterate. In a state like Rajasthan where illiteracy is still rampant one finds that not all those who live in the villages are illiterates. There are matriculates, intermediates and graduates in the rural areas. The need is to provide them reading literature suitable to rural people. In remote areas mobile library service should be introduced. But it is easier said than done.

1 KEEPING NEOLITERATE A LITERATE: A CHALLENGE

To develop continuing education programmes for neoliterates, different strategies are to be developed to meet the needs of such groups. Development of 'neoliterate literature' is one of the programmes that can be

included in the continuing education programme for neoliterates. A neoliterate is one who had no schooling at the proper age, and who avails literacy skill later. A neoliterate is expected to acquire certain specific 'learning skill' through the literacy programme. They can be classified into the following.

1 Tool skills (understanding of letters, writing etc),
2 Process skills (the process of reading, writing, understanding etc),
3 Communicating skills (like writing letters, questioning, explaining etc).

With the keep of these learning skills, a neoliterate will be able to collect more information and knowledge relevant to his life. It is revealed that the majority of the neoliterate were not able to achieve the expected level prescribed in the National Literacy Mission document. Some of the areas in which neoliterates' reading interest lies are welfare measures and provisions and income generating.

2 Women's Literacy

1901 census indicates that there was great inequality in male and female literacy for every 1466 males there were only 100 women literate. In 1931 the gap between male and female literacy was filled. For every 560 male literate there were 100 females. In Rajasthan, Bihar, Andhra Pradesh, Madhya Pradesh, Uttar Pradesh, Orissa and Haryana 75 per cent women are still illiterate. In Rajasthan the female literacy is the lowest in the country. In 1981 the women literacy accounted for 11.33 per cent. It rose to 20 per cent in 1991. Hopefully that the women being quick learners shall achieve a target of 40 per cent by 2001. The need of the hour is to give special attention to the women's literacy in the above states.

Those women who have attained literacy have given a good account of themselves. They are getting respect of the community, which is quite praiseworthy. Women have become self-reliant and understand the issues related to health, family welfare, social and economic issues. It has been realized that women who have attained literacy can earn more money. They are even venturing out into the areas, which were earlier domain of males. They are performing better than male counterpart. In small scale industries women are getting engaged, and in some cases they are supervising them. A few statistics related to women are revealing. Sex ratio is alarming. According to 1991 census the sex ratio has gone down as compared to 1981 census. As regards to their marriageable

age it is satisfactory to know that earlier it was 17.3 years. It rose to 18.3 years in 1981 and it is near 20 years in 1991. Girl's death rate is more than boys are. An average Indian woman gives birth to 3.6 children. Half of the women do not get balanced diet because of which 66 per cent population suffers on account of lack of protein, vitamin and calcium.

In recent years, there seems to be some consciousness among women. They know the value of their rights and duties. They have become leaders of their own organization. Women are capable of playing a double role. They teach their children and encourage them to go to the schools. They also find out the activities of the children particularly about their health. In developing countries the rural women have shown more interest in attending to adult education programmes. The importance of literacy has been accepted because the men have to go to towns in search of jobs, whereas the women have to correspond with their husbands and get to know by a staying at home. They read newspapers and can send reply for which earlier they used to depend on others. Still there are several instances where women face objections to attending to adult education classes by their in-laws. Since women illiteracy is more than male illiteracy, poverty and economic condition have generated unskilled labour. We can only overcome the problem by giving top priority to women literacy.

About 250 million women are still illiterate which is equivalent to the population of USA. For such a vast population, illiteracy and inequality among women are not far to seek. Mass poverty is equally responsible for the poor enrollment among girls and women. Sending a girl child to a school is to pull her out of paid labour of domestic work. Due to cultural values, irrelevance of curriculum and gender bias, the girl child is subjected to indifference and discrimination.

3 Role of Public Libraries

Unesco says, 'without public library support there can be no true democracy, no real freedom of mind or of body'. The public library is one, which is open to public use. It is the property of the general public. In the modern society, it is essential that the people be provided with correct and up-to-date information. It is also said that man does not live by mere bread alone. He has a natural tendency of seeking necessary information for the development of spiritual and cultural values. The man requires healthy entertainment during his leisure and until he gets it, he indulges in malpractice as an idle mind is a devil's workshop.

Ernestine Rose, a well-known American public librarian says that

people's libraries possess four distinguishing attributes. (1) They are repositories of books i.e. vehicles of our culture and tools of education. (2) libraries give the use of their books free of charge, (3) libraries hardly makes distinction between castes, creed, race and nationality, and (4) they force none as their use is voluntary.

Public libraries are social intelligence centres. They are essentially concerned with intelligence, its nourishment and growth of the society. Ernestine Rose says that Darwin's biological principle i.e., survival of the fittest proves the point that the stupid will perish eventually. Hence librarians have more responsibility on their heads to save the weaker sections of the society. In 1930's, E.L. Thorndike discovered that adults between 25 to 35 years of age learn faster. It has been proved that learning power diminishes with growing age and this loss is quite gradual. Use of libraries is informal and voluntary. The philosophy and objective behind adult education is also informal rather than academic in character. Public libraries should have a department of adult education with counseling and reader guidance and a regularly established programme of activities, including lecture courses, discussion groups, exhibits and concerts. Public libraries are also concerned with learning. The libraries have important job to do in the intellectual progress and continuing enlightenment of the people, which alone can lead to widespread use of intellectual heritage. The public libraries are responsible to both the groups-those who are well educated as well as those who could not get formal education

Public libraries have been termed as the 'people's universities as these social institutions have potentialities of universities and can face challenges presented by modern age. A top class library is required for the literate, informed and maturely developed citizens. It is not easy to gain education as its process is not simple. There are two points involved in it. One is the acquisition of the background of knowledge and one is training and exercise in learning to think. According to Rose the people hold world's destiny and unless they think clearly and soberly with a sense of values we shall have a world prejudices, ignorance and shallow thinking. Therefore the library is an agency with a considerable potency.

4 Reading Habits

A few years ago a survey at Delhi University revealed that the teachers hardly read a book in a year. This is an eye opener because this is a scene of one of the Premier University of the Country. Imagine the prevailing condition in other universities as well as of the people who have got no

access to public libraries. In past fifty years Tamilnadu,Andhra Pradesh, Karnataka, Kerala, Maharastra,West Bengal, Haryana, Mizoram, Manipur and Goa have made a provision of public library legislation. The purpose of public library is to provide for every person the education obtainable through reading. Books can develop the culture of mind in the life of the people. The knowledge gets diffused in the minds of the people, which could be used for any purpose like material, spiritual and intellectual profit. The idea behind people reading books is to become something rather than having a paper degree or qualification. Reading books, magazines and other reading material can bring new values to life. This could be possible through organized librarianship. Public libraries are maintained to fulfil the human wants land tastes and to develop in them a capacity to read more and more according to one's calibre and grasping capacity.

The census of public library legislation speaks that our 843 million population of the country we have provided public library legislation to only 360 million (42 per cent). Thus remaining 483 million (58 per cent) of which 352 million people of Hindi states are without any provision of free public library facility. Women are mostly still groping in the darkness. In such a situation we can not really do much as unhealthy democracy can not think of well-informed citizenry. People do not know much about how the government machinery functions at the centre and in the states. The government has thought of people's need rather lazily. The poverty is still so rampant t in Uttar Pradesh, Bihar and Madhya Pradesh that the people do not know how to live like human beings. Thus the people have to be given minimum literacy so that they can do their job or occupation successfully. Presently our democratic set up is not so strong. Selfish politicians manage the fate of the gullible people to their advantage. We have to throw off the feeling of inertia as this is hampering our progress. In the changing scenario telecommunication as well as information technology should help us to achieve our targets in time bound period. It is hopped that remaining illiterate population will not take so much of time to become literate. Public libraries have become an integral part of the community. If the people's representative have become selfish someone from the community will come forward to help the people in meeting their educational needs. People of the library profession will have to come forward to establish relationship with the people, and if need be also conduct social surveys to find out their needs.

How to select books for the people implies how to judge the value of individual books. Problems of small libraries are more than big libraries. In big libraries standard works are already purchased. Selection in big

libraries is divided among the departments each responsible for its subject. A library will have functions with many kinds of books. Users will have various interests and therefore there shall be many books weith different subject interest. Radio, movies, television and computers with international networks like Internet are faster and effective medium and relating library to its public and stimulating appreciations of books. Television can help us in reviewing and publicizing books as it covers 100 per cent population of the country.

There is need to have a closer relationship between public and school library organization. Few years' back Unesco advocated for school and public library organization to co-operate with each other. People should get access to school and college libraries. A public library offers a great opportunity to fulfill its high aim as an agency of self-education through reading.

Newspapers are equally important for the people to read and a link between the library and the public. Through newspapers, libraries learn about books and immediate community and gives familiarities with local celebrities as well as various organizations. Newspapers highlight the role of public libraries and the public towards it, by adopting to library techniques as 'Book Recently Added' and 'Books of the year.'

Librarians should understand community and immediate problems of the day. Librarians should also read newspapers regularly and keep in touch with the broad range of magazine topics. This helps in knowing; their problems and anticipating requests by readers. Since public library readers represent the whole community to understand community needs the librarian must have a cross sectional knowledge of the community. The librarian and his staff should take interest in drama, music, exhibition, lectures, religion, art and every kind of activity of the community so that they know their interest, and can involve library in the matter. The more one develops interest, the more one could understand them in order to tune library service accordingly. The librarian can develop sympathy and understanding of the people to bring them in touch with the books so that the use of public libraries is guaranteed and people depend upon public libraries for support.

Librarians should help in improving reading habit of the people. Long back, Melvil Dewey advocated for making available the best literature at low cost to the maximum number of people. He said that book are not for mere preservation, but for use. S.R. Ranganathan made 'books are for use' as a first law of Library Science. Helen Haines says 'without a reading, a book is in suspended animation, land without use a library is dead.' Hence real library service is in action only when a right

book goes to a right reader in right time. S.R. Ranganathan advocates for human converter who helps the readers when they need it. According to him if books are to be used we have to work like a kaleidoscope, conduct house to house survey, open popular departments, publicize our library activities and use techniques of extension education. About reading of a book, Ralph Waldo Emerson rightly says 'many a times the reading of the book has made the future of man.' Ernestine Rose says that 'a book may look fragile, but it can be a dynamite.' Unesco Charter says, 'since wars begin in the minds of the men, it is in the mind of the men that the defense of peace must be organized.'

The reading habit as a hobby has to be developed by the people. Textbook reading does not amount to reading habit. One should involve in reading a novel, poetry, biographies, and books on travel, gardening, health, and entertainment. The issues involved in reading habit are related to cultural ethos, development of education and economic condition. In fact a reading habit influences one's personality which is visible whether one reads or not. Book production of 60,000 books per year for 50 crore literate population does not represent our country's total educational out put. According to the present Home Minister L. K. Advani our book production should be ten times more than what it is today. Even if we take into account the number of high school students our book production should be more than what it is today. L. K. Advani was expressing these views while inaugurating the seminar of Federation of Indian Publishers. Only a few cultural pockets of our country show strong reading habits. These are Kerala, Maharastra and West Bengal although per capita income of these states is lower than Haryana and Punjab. But Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh are neither showing high per capita income nor higher literacy.

It is said that the price of the books is out of reach of the common men. But those who can afford to pay also do not buy books as a matter of habit. They spend more money on movies or going to restaurants, but not on buying books. Our per capita income can be gauged from the fact that the people who earn more than ten lakhs a year are only two lakhs in India. This is a sad state of affairs that our common men do not buy books. It is the duty of any democratic government to provide a free public library service to its people. If we compare our reading habits with other countries, we find that average American reads 2000 pages a year while Indian only 32 pages. Another indicator is that an average American spends Rs 12/- a year, a Britisher Rs 6/- and Indian 5 paise on buying on books. There is need of networking of public libraries through public library legislation in the remaining states. NCERT survey reveals that

only 41 per cent schools have library facilities. This includes those schools, which have only 100 books. The situation is quite bad that even after fifty-two years of independence we have not been able to develop a strong school library system. It is at the school that the students get exposed to a library, which should be full of books, magazines and audio visual aids. It would then help college and university libraries to run their libraries efficiently as students will then have some background as how to use library resources.

5 Conclusion

The cost of formal education, the need for adults to retrain and adopt to change, and the emphasis on lifelong learning have resulted in alternative and more flexible learning system. Academic libraries should be asked to allow adult independent learners to access to their collection. Adult learners need encouragement, clarification, motivation and review. It is important for librarians to concern themselves with the intention of those who use their libraries and not simply with delivery of material. The future will tell how far electronic resource centres will replace libraries as resource centres for adult learners. It is the need of the hour that we give serious thought to public library legislation besides earmarking a higher budget for education in our five-year Plan grants. The people writing books in various languages should be given encouragement either financing them or buying their number of copies of the titles so that publisher does not incur any loss.

Not all books are reviewed in book reviewing journal magazines, newspapers or in any subject journals. We find that medium of television has been misused rather than to use it for making people well informed. In the name of entertainment trash films are shown without caring of our rich Indian culture. Melvil Dewey's message to provide the best books at affordable cost to the maximum number of the people should be translated into action. There is need of research in the area of informal education. A research shall open new ideas and facts. This is true that the people belonging to different section of our society irrespective of the caste, creed, religion and sex want to read. There is something wrong with our educational system. We do have the ability, but lack will power to see that the people want to read. Aldoux Huxley says 'every man who knows how to read has it in his power to magnify himself, to multiply the way in which he exists, to make his life full, significant and interesting.'

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Significance of Archives in an Electronic Age

H S CHOPRA

ABSTRACT

Although we are heading towards a complete electronic age yet the archives which possess official records will continue to have their importance as before. The term 'archives' designates the organised body of records produced or received by a public, semipublic, institutional, business or private entity in the transaction of its affairs and the same are preserved by it. It is a known fact that archives have been in existence among Oriental peoples, Greeks, Romans, Hittites, Assyrians, Medas, Persians, Babylonians and Egyptians. Governments all over the world are making efforts to preserve the old records. National Archives of India started in 1891, has 75,000 running feet of records. It has 1,10,000 bound volumes 6,00,000 loose documents, 18,000 maps and a significant number of microfilms. Official records have been divided into Pre-mutiny and Post-mutiny periods. NAI has records by residencies and agencies, private papers and some newspapers. It has also a library. Nineteen states have their own archives which possess valuable records. There is difference between archives and libraries. Electronic library will be an advanced phase for Archives. Use of automation has started in archives which will help in the preparation of the 'finding aids'. Official records need special care and preservation as these are permanent sources of information. Microfilming and feeding of records to the computer through scanner can help in the preparation of CD ROMs which would be useful for the coming generations.

1 INTRODUCTION

Albeit we are heading towards an absolute electronic age, yet the archives, which possess official records will continue to have their importance even during the next millennium. The term 'archives' designates

the organised body of records produced or received by a public, semipublic, institutional, business or private entity in the transactions of its affairs and the same are preserved by it. The term is a collective noun derived from the Greek word 'archlion' (that which belongs to an office) and originally was applied to government records (public archives). While usage varies throughout history and from country to country, in the United States the term archives has been extended to include the records of private as well as public institutions. Less common is its application to the records of families and individuals, which are generally described as 'private' a 'personal papers' or less aptly as 'historical manuscripts'.

Significance of record was considered as must even in the ancient times when the account of cattle and grain was to be maintained. Even during the ancient civilizations the kings wanted to have permanent records of land grants, decrees etc. Concept of maintaining records was considered by the kings and officials even when only clay-tablet was the form of writing. These clay tablets were put in an envelopes which were also made from the clay. It was also sealed so that one might not be able to do any forgery.

It is generally agreed that archives have been in existence among Oriental peoples, and among the Greeks and Romans since the written word came into common use. Surprisingly archives were known to Hittites, Assyrians, Medas, Persians, Babylonians and Egyptians. Originally archival and library materials were preserved in the same place. Early civilizations made no distinction as to source or type of documentation, and the Sumerians, Hittities and Egyptians for administrative convenience often combined archives and libraries. During the middle ages monasteries were used for keeping the records. Even during these days archival records are being maintained in the churches. Record consisted of laws, decrees, reports of meetings, decisions of the criminal courts, financial records, copies of the decisions made by high officials of the state.

2 Concept of Archives

The concept of an archives as a public service agency, however, did not reach its full development until the French Revolution. The recognition of the importance of records to organized society was one of the important gains of the revolution.

During the past two centuries almost every country has made some provision for a system of national archival service, adapted to its particu-

lar government structure, and today it is an established maxim that in every civilized state there should exist a system of archives administration corresponding to the nature of the state.

3 Libraries and Archives

There is a difference between the libraries and archives. Archives have their origin in administrative activities. They are generally unpublished and are primarily intended to accomplish functional purposes. While libraries are essentially collecting agencies, archival institutions are basically receiving agencies. Because of the origin and character of Archives, the principles and techniques governing their arrangement and description are necessarily different from those generally employed in the classification and cataloguing of library materials. However, there is a 'Manual of Archival Description' prepared by Liverpool University.

4 Principle of Provenance

Basic to the preservation of the official and legal character of archives, and of their internal relationships as an organic body of documentation, is the 'principle of provenance': (maintaining the natural archives bodies of creating agencies or offices separately from each other). This basic principle and the techniques developed for its application, govern the arrangement at every level of archives—at the repository, the record group, the sub-group, the series, and the filing unit.

5 Finding Aids

Application of the same principle has also resulted in the development of techniques for the collective description of archives. Products of this descriptive process are generally referred to as 'finding aids' and include 'guides', which describe briefly all or part of the holdings of an archival agency; 'inventories' or descriptive lists, usually by series of the records or part of the records of a particular record group; and 'calendars' or 'abstracts' of individual documents chronologically arranged. Other types of finding aids for archival materials are catalogues, special lists, location registers and shelf lists.

6 Archives as Sources

Apart from their basic character and use, however, archives have an additional value and use. Because of the informational data they contain, archives constitute an unsurpassed source for research on virtually every

aspect of human existence, past and present, regarding which records have been created and maintained.

7 Areas of Study

As an intellectual descriptive archives administration today embraces study of the following functional areas; records management, which may be defined as that of field of general management that deals with the creation, maintenance, and disposition of records; records appraisal, accessioning, and disposal, archival buildings and storage facilities, record preservation and rehabilitation, archival management; archival description; reference service, including photo duplication; exhibit and publication, including historical editing; and the administration of personal papers.

8 National Archives of India: A Case Study

The archives of State Governments and National Archives contain a wealth of historical material relating to the modern history of South Asia. The material can be divided as follows: (a) National Archives; (b) State Archives; (c) District Records; (d) High Court Records; and (e) Private Archival Collection.

The National Archives of India (NAI) contains the records of the supreme Government of India, under the British East India Company, under the British Crown and, increasingly since independence. Most Indian states have set up their own state archives. Apart from containing their own records, these hold either the records of the presidencies or provinces that extended over their present areas in the past, or such records pertaining to their area as they have managed to collect, particularly those belonging to local erstwhile princely states. A coordinating body conceived with archives in India is the 'Indian Historical Records Commission', which publishes its proceedings.

National Archives of India offers the documents for consultation upto 1945 but not the files of Ministry of External Affairs. Home Affairs records relating to Kashmir are not, however, open for the period after 31 December 1913 unless special permission has been secured. Records of the Ministry of External Affairs which are over 30 years old are open to inspection except those of a later date than 31 December 1913 which may relate to India's relations with areas which now comprise Pakistan, Kashmir, Nepal, Tibet, China, Sikkim, Bhutan, North-East. Frontier Agency. However, prior permission from the Ministry of External Affairs can sometimes be obtained to consult some of the later material.

The National Archives of India (formerly known as the Imperial Record Departmental) came into existence in 1891, as a result of the efforts of the Government of India to find an adequate and permanent solution to the problem of storage and preservation of the ever-increasing bulk of their records, which were till then kept in the custody of each creating department.

Sir G W Forrest gets the credit for suggesting the Government that all the records should be kept at one place. The proposal was accepted and Professor Forrest was appointed its first officer-incharge.

The Imperial Record Department was under the administrative control of the Home Department till 1910 when it was transferred to the care of the newly created Department of Education. The designation of the officer-incharge of records was subsequently changed to keeper of Records of the Government of India. With the transfer of the capital of India from Calcutta to Delhi in 1911, it was felt necessary to transfer the official records also to the new headquarters. The present archives building was completed in 1926, but the transfer of the entire bulk of records to Delhi could not be accomplished till March 1937. With the advent of independence in 1947 in India, the name of the Imperial Record Department was changed to National Archives of India and the post of Keeper of Records was redessignated as the Director of Archives. A departmental library is attached which possesses about 20,000 books and journals. Most of the works are government publications.

8.1 Sources of National Archives of India

The NAI has in its custody mainly non-current records, which include public records, private papers, maps, microfilms and books. The total holdings of the NAI are estimated to be around 1,10,000 bound volumes, 6,00,000 loose documents, 18,000 maps and thousands of authenticated copies of bills passed by the various state legislatures and accepted by the President of India.

Holdings occupy about 75,000 running feet of shelves. The Bombay and Madras factory records are available in the Bombay Secretariat Record Office and the Madras Record Office respectively. The early Bengal records are not available. Possibly these were destroyed by cyclone and flood of 1737 and partly during the sack of 1756 but these are available in India Office Records, London.

A number of organizations like Geological, Zoological Surveys of India, Survey of India, Dehra Dun, Office of the Epigraphists of India, Ootacamund, Iron and Steel controller, Calcutta and the Textile

Commissioner of Bombay are outside Delhi. In 1954 a regional office of NAI was opened in Bhopal (Madya Pradesh).

National Archives has collections of private papers both in Western and in Oriental languages. These are constantly being added to. The important one is correspondence between Peshwa Darbar and the East India Company.

8.2 Newspaper Collection

The National Archives of India does not have a newspaper collection: there is one in the National Library of India, Calcutta. It has, however, an incomplete set of the reports and native papers, which were compiled by the Home Department and consisted of abstracts or summaries, in English, of vernacular newspapers. These reports have been microfilmed and the gaps filled by microfilming copies borrowed from other repositories: with the microfilm the set is, therefore, complete.

8.3 Division of Holdings of Archives of India

It can be divided as pre-mutiny (Though the word mutiny is irksome to Indians yet Britishers used this as they were the rulers at that time.) series which include records of finance, foreign, home, legislative, military, Persian, public works and Thagi and Dakaiti department and post-mutiny series. It also preserves correspondence of Governor General.

8.3.1 *Post-mutiny Series*

In 1860 the Supreme Government of India consisted of five departments: home, foreign, financial, military and public works. However by 1947 these have developed into eighteen ministries. Official records of Department of commerce, industry, revenue, agriculture, finance, military, public works, railway etc. have been preserved.

9 National Archives of India Records of Residences and Agencies

Control over the Indian princely states during the British period, from about 1813 AD onwards, was exercised by the Governor General through his agents, the political officers, who generally resided in the states. In the larger states the resident was appointed.

9.1 Central India States Agency

(a) Bhopal Agency
(b) Bundel khand Agency

(c) Baghel Khand Agency
(d) Indore Agency
(e) Malwa Agency
(f) Bhopawar Agency
(g) Malwa and Southern States Agency
(h) Gwalior Agency

9.2 Eastern States Agency

(a) Bengal State Agency
(b) Orissa States Agency
(c) Chhattisgarh State Agency

9.3 Hyderabad Residency

(a) Kashmir Residency
(b) Kolhapur Residency
(c) Madras Residency
(d) Mysore Residency
(e) Nepal Residency
(f) Punjab States Agenciny
(g) Baroda and Gujrat States Agency
(h) Baroda Residency
(i) Rewa Kantha Agency.

10 Publications and School of Archival Studies

National Archives is also publishing printing aids to reference works. Annual Report, Journal, Bulletin, Brochures, Pamphlets etc. are being published by NAI.

NAI has a school of Archival studies which provides training to professionals and non-professionals. It offers annual as well as short term courses.

10.1 State Archives

About nineteen states have archives which possess important documents, manuscripts, newspapers etc. of the region in which there are situated.

11 Care and Preservation

Care and preservation is the most perplexing and unyielding problem confronting the Archives of the world today. Man seems to be worried about the permanence of his writing ever since he attempted to write. It is

well known that most of the existing records are written on paper. Although all materials tend to deteriorate yet the paper has attracted special attention.

Sometime back NAI got birch back manuscripts from the Kashmir Government. For proper care of these manuscripts the temperature should be 72–77°F (22–25°C), and recommended relative humidity is 45–55 percent.

There are some factors like light, infrared radiation, heat, humidity, dust, dirt, smoke, acidity, pastes, ink, gaseous pollutants, fungi, microbiological agents, bacterial actinomycetes, macrobiological agents, water, etc. which can cause harm to records.

Airconditioning is must. However, in its absence dehydrating agents like anhydrous calcium chloride and silica gel should be used. For various types of bacteria use of naphthalene balls, para dichloro-benzene, thymol etc. will prove very useful.

Because of peculiar nature of archives almost all archrives are under the control of central government or state government. Its administration, organisation, preservation is the duty of the government.

12 Archives and Electronic Phase

Table 1: Types of Material in the National Archives

Archives	Library	Electronic Library
Records official/private	Books/journals	Unpublished records
Relation Policy	Collection	e-book/e-journal
Classification	Classification	Pick and choose
Records Analysis	Cataloguing	Information producers
Retrieval methods	Computerisation	Internet, Intranet
Indexing	Administration/	CD-ROM, DVD
Administration	Organisation	
Services	Services	Services
Users	Users	Users
Consultation	Reference service	Information poor/rich
Photocopy	CAS/SDI	Accessibility at every time
Microfilm	Databases	Electronic Printing
Finding aids etc.	Internet	Serve cultural purposes.
		E-mail Downloading
		of text.

12.1 New Media

The advent of new technology of collection development has revolutionised traditional methods of collection building. The emphasis is now

more and more on procurement of publication in microfilms. Archives and archival libraries are no exception to this change. NAI has started collecting oral information from the important personalities who are related to important events of our national history.

Computers are slowly replacing traditional methods of preparation of indexes in archives, which will ultimately result in non-acquisition of traditional form of book indexes. The archival libraries can now make effective use of computers in preparation of indexes, abstracts etc.

The NAI has also embarked upon a major programme for obtaining microfilm copies of documents of Indian interest from various repositories the world over. The present collection of microfilms acquired is more than 3,500.

13 Archives in Future

The way computer industry is making new changes the days are not far off when the complete data will be available on Microfilms, CD-ROMS or DVD.

In order to preserve records of the archives all efforts should be made yet microfilming sounds the best solution. Similarly through scanners the records can be fed to the computers also and CD ROMs can be prepared. This process may prove very costly yet nothing is more precious than the official records or history of our motherland.

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13

The Dawn of Virtual Libraries in 21st Century

PREM SINGH AND INDRA BAJAJ

Abstract

The various concepts that have been discussed in this paper are: the gradual shift from traditional library to digital info-high-tech library; virtual reality; virtual library; difference between digital, electronic and virtual libraries; Internet; need and benefits, constraints; strategies for developing digital libraries; and challenges before the librarians in the age of digital world. The scenario of digital libraries in India has also been discussed. The study of the above concepts led the authors to conclude that the application of new information technologies and digitisation of information are converting the libraries with boundary into virtual libraries having no boundary.

1 Introduction

Every work of an literati, scientist, philosopher and artist and every piece of information can be put on the World Wide Web (WWW). Libraries can be totally web-based, and ultimately, free of books. These can be accessed over the global telephone network from communication terminals on their person. So far, it is through PCs that the web could be accessed, information seen and then printed if required. The obvious inconvenience is that one has to sit in front of a PC. We, however, know that we read books while sitting in a sofa set or resting in the comfort of a bed.

Fortunately, latest developments enable flat panel, book-like hand held PCs connected to the Internet through wireless devices. Such book like PCs promise to be a complete replacement of the physical book. These technological transformations facilitate the provision of innova-

tive library services to the patrons outside the physical plant of the library and converts the library with walls in a library without walls. All of this is a part and parcel of an inevitable 'moving the library into the home'. In other words, the world is heading towards what we call virtual library, though it has a long journey ahead.

2 Traditional Concept of the Library

The main aim of setting up institutions like libraries is the storage, organisation, retrieval and dissemination of information—the most vital and prominent heritage of the mankind. The mankind have been storing, retrieving and disseminating it since the very beginning of human life and civilization. Information, in the ancient times, was stored in Smrity (Memory) and assimilated after its dissemination through Sruti (Hearing). The universe of knowledge was then very small, and therefore, it was possible to store it in memory. Human brain is also a computer. It stores and assimilates information in an organised manner, and retrieves it when its dissemination is required. Gradually, the Universe of Knowledge grew and it became difficult for humans to store all information in memory. They, therefore, started recording it on various media which led to the birth of manuscript library. At that time, standard and defined pattern of organisation of the manuscripts was not required because their number was so small that it was not very difficult to retrieve a manuscript at the time of need. With the invention of printing in the middle of fifteenth century, the number of macro and micro documents immensely increased. Advances and researches in various disciplines also resulted in the growth of Universe of Knowledge in a big way, which forced the custodians of information to develop devices for the organisation of the information. This led to the development of catalogue codes like AACR, Classified Catalogue Code, etc.; and systems of classification like Dewey Decimal Classification, Colon Classification, Universal Decimal Classification, etc. The growth of information further necessitated the recruitment of technically and professionally trained personnel for information management. But the explosion of information made it humanly impossible to achieve the very aim of the libraries defined in the opening sentence of this paragraph.

3 Changing Image of Libraries

Libraries are the first institutions which felt the impact of technologies related to recording, storing and disseminating information. Paper, printing, photographic, computer and communication technologies, immedi-

ately on their invention, have influenced library services tremendously. The change of recording media from cave walls to paper to laser discs are the examples of this evolution. The library and information technologists and some other futurologists have predicted the paperless libraries in the near future. In line with this prediction, the libraries are shedding away their traditional forms, and moving away from the idea of building up large collections to facilitate access to information. Speedy access to information is more important than storing information or documents. Information superhighway and Internet enable access to maximum area of universe of knowledge from any place at any time at the touch of finger. Devices for 'home information delivery' are becoming operative, that is, libraries are moving towards the delivery of new and traditional services to their patrons via electronics and computers-home access to library catalogues, electronic encyclopedias, and interactive cable television book discussions. These technological transformations facilitate the provision of innovative library services to the patrons outside the physical plant of the library. All of this is part and parcel of an inevitable 'moving the library into the comforts of the home'. Though all these trends are signalling that the libraries are heading towards the prediction, yet total dissipation of the information on paper seems to be a distant dream to achieve.

4 Virtual Reality

In recent years, the new terms like Virtual Reality, Virtual Library, Electronic Library and Digital Library are emerging. The concept of Virtual Reality was conceived around 25 years back, but this term started becoming buzz word in trendy magazines, cable news networks, and in academic and research journals only recently. The dictionary defines virtual 'as existing or resulting in essence or effect though not in actual fact, form or name', and reality as 'the quality or state of being actual or true'. The term Virtual Reality refers to 'an environment or object stimulated by computer hardware and software in such a way that the viewer experiences the environment or object as though it were real [Nader,1995]. For example, in the Mahabharata Serial, the arrows shot by Arjuna at Bhishma pierced through the latter. The movement of arrows through air and their piercing through Bhishma are not realities, but the T.V. watcher gets the impression as if it were true. These are the miracles of computer hardware and software technologies, which give so fast and intuitive interactive computer system that the computer disappears from the mind of the T.V. watchers, leaving the computer generated environment as the reality.

5 Virtual Library

The application of computing technology to library and information activities has revolutionised the library services. All the housekeeping activities such as acquisition of books, serial's control, cataloguing and catalogues, circulation control and office routines such as Pay Rolls, Inventory, Stock Position, Ledgers, Balance Sheets and the like can be automated. There are Management Information Systems (MIS), which systematically and promptly connect all the divisions, be they the top management, the middle management or the lower management, enabling the flow of information from one to another. The luxuries of such information technologies as e-mail and video conferencing have made the connection of various branch libraries for easy flow of information a child's play. Multimedia added that streak of creativity and aesthetic quality to the wide gamut of library services. But that is not the end of it. The information technology has now added new dimensions to the technological revolution that is taking place in the libraries. 'From library automation to virtual library' has been the slogan over the last few years. 'Adopt it or left out', assert the library and the information managers.

Though the libraries witnessed the application of computers in 1960s, yet the concept of 'Virtual Library' is still in its infancy. Different phrases such as digital library, electronic library, virtual library, and library without walls have been used interchangeably to describe this broad concept. Digital library is the most current and widely accepted term which is now used almost exclusively at conferences, online and in the literature. A popular vision of the digital library is that a library user at one location using one interface can seamlessly search the digital collections of hundreds of libraries with locations in different parts of the world. A.N. Yerkey defined digital libraries as 'electronic libraries in which large number of geographically distributed users can access the contents of large and diverse repositories of electronic objects'.

6 Difference Between Digital, Electronic and Virtual Libraries

There is a confusion in the use of terminologies like 'virtual', 'digital' and 'electronic' libraries. One person's digital library is often another's virtual library. However some useful distinctions have recently been made, though the difference between them is hair-thin. Electronic Library is a library that has collection in electronic forms such as hard

disks, optical disks, CD-ROMs, on-line, etc. and provides services over cables and telecommunication lines.

A modern digital library is a group of interlinked servers and workstations which are connected to each other through high speed networks. Unlike traditional libraries, digital libraries do not reside in the building. Correctly designed, the information reaches the users screen whenever required, like a waiter who is ever ready to fill your glass of water before it is empty. The three main characteristics of digital libraries are the storage of information in digital form, usage of communication networks to access and retrieve information, and 'copying' by either downloading or on-line/off-line printing from a master file. Preservation, search and access, content creation, and delivery are its essential components.

Virtual Library is a library without walls, spread across the globe from where one is able to retrieve the whole world of information through a properly networked workstation. Here, the user gets impression as if he is moving through a large library. In other words, we can say that though the library does not physically exist, yet the user is able to retrieve the information needed by him. Most often, it is used to denote a library with distributed collections or services that appear and act as one. Group of Websites is the typical example of this.

The information is stored in digital form in all these types of libraries. The form of information storage is indicated, in real terms, by the term 'digital library' only. May be because of this simple reason, this term has come to stay in usage. Therefore, the current usage of the term 'digital library' appears to include both electronic and virtual libraries.

7 Networked Digital Libraries

The introduction of computers in libraries has given impetus to the networking of libraries and information centres for sharing of information. It does not, however, mean that before the advent of computers on library scene, library networks or at least its concept, did not exist. The computers had not entered library scene, when Dr Ranganathan had conceived the idea of network of libraries in India. He, time and again, advocated the need of establishing a network of libraries in which Block Llibraries are linked to the District Libraries, District Libraries are linked to the Regional Libraries and Regional Libraries are linked to the National Library. As a matter of fact, he very emphatically said that library movement does not imply opening of libraries here and there, but establishing a well knit network of libraries.

Networking of libraries implies putting together sub-sets of library and information centres in order to act in a cooperative and coordinated manner with a predetermined obligation. It offers potential for increased access to larger resources, and for a greater measure of service than the sum of all the constituent parts. Network of digital libraries mean a formal grouping of digital libraries following a common pattern or design for information exchange and communication with a view to improve efficiency and effect economy in an overall manner. Digital library networking concept is a cooperative venture of all the participating libraries with the provision to transmit data on short and long distance lines from one library to another. Some of the national digital library networks which are in operation or in implementation stage in the country are INFLIBNET, NICNET, INDONET, SIRNET, ERNET, DELNET, CALIBNET, MALIBNET and BITSNET.

7.1 INTERNET

The Internet is the world's computer network, a distinction it has earned by virtue of being a 'network of networks'. It is an outgrowth of a network (ARPANET) established in the late 1960s by the United States Department of Defence to meet the needs of researchers working in the defence industry in the United States and few of their colleagues in other countries. The ARPANET grew slowly, from a handful of computers in 1971 to more than half a million in 1990, when it ceased to exist, but Internet continued to grew to 65, 000 networks, 32 million computers and 100 million users spread over 140 countries in 1998. It is further expected to swell over 100 million machines and 200 million users by the turn of next century.

Internet is the world's first digital information utility, an all purpose network that lets anybody send, particularly any thing digital, to almost anyone anywhere, without argument. There are a variety of tools and services to access the Internet. Three basic services: E-mail for exchange of messages, Telnet for remote login and File Transfer Protocol for copying files between computer systems, form the foundation for other Internet services. Hytelnet, Archie, Gopher, Wide Area Information System, WWW, Usenet, mailing lists etc. are the other services. TELENET, TYMNET, UNINET, BITNET (based in USA) and EURONET and DIANE (based in Europe) are some of the leading international networks which are used for these services.

Libraries in over 100 countries now have access to Internet. It is becoming omnipresent in India. Ever since the Internet space has been

deregulated by the government of India, the number of Internet subscribers is growing. Till date, there are more than 2.5 lakh Internet subscribers in India. The leading market researcher International Data Corporation forecast that there will be a quantum leap in the next two years. They have projected more than two million Internet subscribers in India by the end of 2001.

Presently, more than 40 Internet Service Providers (ISP) having national, regional and local coverage are offering services across the country, and another 100 are waiting in the wings. The national ISP scenario is dominated by early birds like VSNL (Videsh Sanchar Nigam Limited), Satyam Infoway and Bharti BT. VSNL is leading the pack with an estimated subscriber base of more than 1 lakh, followed by Satyam Infoway which has around 60,000 subscribers. Bharti BT (Mantra Online) Internet Limited stands at number three with more than 25, 000 connections. ETH Disnet (Education To Home) and Wipro Net Limited are the other national ISPs. Despite being a regional ISP, MTNL has managed to notch up a modest 15, 000 subscribers in Mumbai and New Delhi in a short span of three months of its launching in July 1999.

8 Building Digital Collections and Strategies

Offering information resources with multiple features like expeditious, exhaustive and pin-pointed access to information accompanied by sound and picture effects is a major driving force for digitization of documents. The success of any digital library depends largely on the nature, content and quality of its digital collection. The digital collection includes such resources as electronic journals, electronic books, CD-ROM databases, connectivity to external databases, etc. There are essentially three methods of building digital collections.

8.1 In-house Digitization

This is the primary method of building digital collection. There are documents which do not interest the commercial houses for their publication in digital form because they are not commercially viable. The libraries will have to prepare their digital copies in-house. The digitization involves the conversion of any fixed or analogue media such as books, journal articles, photos, paintings, etc. into electronic form through scanning, sampling or even rekeying [Chepesuik, R, 1997]. The multimedia features can also be added to the information stored in digital form.

8.2 Off-the-shelf Purchase

The reference books, indexing and abstracting journals, etc have a large market through out the world. Such documents were the first to attract the attention of commercial houses for their publication in digital form. Silver Platter of USA is the most notable commercial house in the electronic publishing. They have published several hundred CD-ROMs containing the databases of abstracting and indexing journals. Some of them are CABCD, AGRICOLA, BIOLOGICAL ABSTRACTS ON CD, AGRIS, MEDLINE, Cummulative Book Index, etc. It is economical to purchase such CD-ROMs off-the-shelf.

8.3 Online Access to Databases

Online access involves direct interrogation of databases for Ðretrieval of required information via computer terminals connected to telecommunication lines. Commercial as well as non-commercial databases are available for searching. Commercial databases include CAB ABSTRACTS, AGRICOLA, MEDLINE, AGRIS, BIOLOGICAL ABSTRACTS, COMPENDEX, databases of Dialog Information Services, databases of BRS Information Technologies, etc., while non-commercial databases include the library catalogues, home pages and the like. Besides the bibliographic databases, some of the publishers of primary journals are struggling to put their journals in digital form. American Chemical Society, Institution of Electrical and Electronics Engineers (USA), Institute of Electrical Engineers (UK), and Elseviers Science Publishers are some such Publishers. Commercial databases can be accessed by paying licence fee; to the contrary, non-commercial databases are available for searching free of cost. The libraries must have online access to such databases to augment their resources to meet the informational requirements of their patrons.

9 Need and Benefits of Digital Libraries

The information explosion has thrown a number of challenges before the information managers. The amount of information being produced is so vast that it is practically impossible to manage it with traditional printing technology. The demand of the information consumers for speedy, pinpointed and exhaustive delivery of the required information has further compounded this problem. The variety of forms in which information is available is another obstacle. The digital technology offers solution to these and some other problems. For instance, libraries and archives with

unique collections are digitizing their materials for preservation, and for providing more extensive access to their contents from multiple locations to enrich the teaching and learning environment, which is not possible with traditional printed materials. Thus digitization provides solutions to some traditional library problems such as expeditious and pin-pointed access to information, remote access to information collections, preservation, storage space and multimedia documents. Some of the key benefits of the digital libraries are briefly discussed hereunder.

9.1 Ability to Search

The ability to search provides an enormous potential for retrieval of information from resources available in electronic form. For instance, manual consultation of the public catalogue is cumbersome, may even lead to nowhere, may be because of misfiling of catalogue cards; but searching of digital catalogue is faster and easier. Similarly, culling out the required information manually from such abstracting journals as Biological Abstracts, Chemical Abstracts, etc. is hell of a job. It may even be impossible to extract the information exhaustively. If at all the user succeeds in making an exhausive search, it would be time consuming. These problems vanish in the electronic environment. On-line searching has thus been replacing printed abstract journals

9.2 Ubiquity

Electronic databases or electronic copies of documents are ubiquitous. It means that an electronic copy of a document available in a library or a commercial organisation can be accessed from many locations by more than one user at a time. For example, the databases of CAB International located at Slough in Great Britain can be accessed by the users from New Delhi, Mumbai, Calcutta or any other city of the world. Conversely, the electronic copies of documents or databases with multiple locations can be accessed by a user from a node in any part of the world. For instance, the CABI, MEDLINE and DELNET databases with locations at Slough, Washington, D.C., and Delhi, respectively can be searched by a user from Berlin, Tokyo or Moscow.

9.3 Support to Wider Range of Materials

Digital storage of material also permits libraries to expand the range of material they can provide to their users. Digital material can also permit access to video tapes. New kind of multimedia materials that are created only on computers have no equivalent in any traditional format.

9.4 Preservation

Preservation is another major benefit of digitization. Digital information can be copied *sans* error. As a result, preservation in the digital world does not depend on having a permanent object, keeping it under guard, but on the ability to make multi-copies, assuming that at least one will survive. Moreover, of late, optical discs with life longer than paper print form are pouring in the market.

9.5 Access to Nascent Information

Information is available in a variety of forms like printed form, microform and digital form. The scientists need nascent as well as retrospective information, but nascent information is more important to them for survival in the competitive world. The scientists who have faster access to nascent information would always be better placed. Printing of information followed by its transportation across the world is a complex and time consuming mechanism. If the same information is put in the computer, those information seekers, across the world, who have a PC connected to the host computer, will have the benefit of faster, rather instantaneous, access to the information. For instance, the abstracts of research papers in agricultural disciplines are entered in the computers maintained by CAB International, Slough, U.K. The database so prepared is used for printing of various abstracting journals. These journals are then lifted across the world for distribution. The printed journals take about three months' time to reach the libraries, while the same abstracts can be accessed as soon as they are placed in the host computer for searching, provided the information seeker has the facility of online access. Thus, the digital form of information provides faster opportunity for access to nascent information.

9.6 Space Conservation

There is an acute shortage of space in almost all the libraries in the world. The storage of information in compact disk would definitely reduce the pressure on space. For instance, the printed version of the 'Encyclopedia Britannica', which is in 30 volumes, occupies about two shelves of library space. A 650 MB CD-ROM disk can store more than 2,50,000 pages of information or the entire Encyclopedia Britannica, with some more space left. The CD-ROM copy of this encyclopedia, with 145 mm × 130 mm × 10 mm dimensions of the plastic enclosure, occupies only a fraction of space in comparison to the printed version. Thus, the digital copies have provided the much needed relief to the library and information managers.

9.7 Time Saving

The data stored in digitalized form can be retrieved almost instantaneously. Suppose literature on a particular subject say 'Mushrooms' is available in a library in the form of: books, chapters of books, articles in journals, articles published in the Proceedings of Conferences, and so on. If a user comes to the library with a request for literature on 'Mushrooms', the Reference Librarian would have to search entire gamut of books which deal with it; and scan journals, Conference Proceedings and those books which contain or suspected to contain one or two chapters on 'Mushrooms'. Still he/she would not be able to trace all that is available in the library. One or two persons will be rquired for several days to trace this information manually. Even then, we would not be even near to comprehensiveness. But with a few clicks of mouse of the computer, the same information can be retrieved more exhaustively, pin-pointedly and expeditiously.

9.8 Constraints

Despite several advantages of the digital libraries, they are not problem-free. Electronic publications have some special problems of management as compared to printed documents. These include cost, intellectual property rights, infrastructure, acceptability, training, readability, standardization, user interface, etc. These problems are discussed briefly in the following paras.

9.9 Cost

Cost is the major obstacle to digitization, especially when a library has to embark on in-house digitization alone. According to an estimate, the cost of digitization of a page has been put at US$2 to 6. From this estimate, it can be said that the digitization of information will certainly improve the accessibility to information, but at very high costs. Indeed, digitization will involve heavy investment, often taxing book budgets.

9.10 Intellectual Property Right

The Intellectual Property Right has been the single most vexing barrier to the development of digital libraries. It is the right that protects the creative work or ideas of their producer. The right of the intellectual property owner, whether in analogue or digital form, has to be protected, and must be financially compensated for use of his property. The ease with which digital objects can be copied, transmitted and used simultaneously poses a major problem to enforce intellectual property laws, which

are violated in digital environment due to lack of control over content access and reproduction of multiple copies of digital media.

9.11 Infrastructure

Electronic publications can be accessed only when the necessary telecommunication links and computer systems are available to the user. This necessitates the creation of infrastructure needed for accessing the information in electronic environment, for which one time heavy investment has to be made. The compatibility between hardware and software is another important factor which must be taken care of. Once the infrastructure is created, the life for the librarians and information managers as well as users becomes easier.

9.12 Acceptability

The authors and the users of information, particularly in the developing and under developed countries, are accustomed to conventional forms of documents. The electronic publications are yet to gain popularity. In an evaluative study of the electronic issue of New Zealand Journal of Marine and Fresh Water Research, doubts about universal access to information, preference to screen displays over hard copy, and the quality of graphics were expressed. The respondents opined that the electronic publications must supplement and not replace the printed copy. This may be because the promotions, appointments, etc. are still linked to the number of research papers published in journals, and in addition, the technology has not percolated to the required level to make the electronic publications acceptable on par with their printed counterparts. However, in future, the research community is expected to heavily use networks, e-mail, bulletin boards, etc. for scientific communication. This will necessitate speedy publication and distribution of scholarly information, enhancing the acceptability of electronic publications.

9.13 Training

Users/subscribers can retrieve the information from electronic publications only when they are trained in the mechanics of search and retrieval techniques. If they do have skills in these techniques, the information 'available' will be as good as lost and non-existent. This calls for the establishment of training facilities for the subscribers/users to access electronic publications over networks.

9.14 Readability

Even the computers with best resolution cannot match the print equiva-

lent for reading, that is, reading of printed material is more pleasant than the reading of text on screen. This, in addition to the lack of pagination, ease of usage, and transportability of publication for a leisurely reading at a convenient place and time, make printed material preferable over the electronic copies.

9.15 Standardization

At present, the electronic publications are available in various forms, formats and through different access points, which create access obstacles for the information consumer. Some of the electronic publications do not include page numbers as the size of the page in different computers (VDUs) is different. This raises citation problem because the same material to be cited can appear in different pages. The hardware and software are also to be standardized to enable the end-user to retrieve information irrespective of the make of the machine. A common command information retrieval language, which can work with any sort of computer and retrieval software, may be useful in such situations.

10 Strategies for Developing Digital Libraries

There is a need to develop a strategic development plan before the implementation of any new technology. The plan should be very systematic, keeping in view the goals and present and future requirements of the organisation. The unplanned introduction of the new technology will land the organisation in a mess. The plan should be developed by a team consisting of Library and Information Managers who are responsible for information management and the experts with computer applications background. While preparing the plan, the issues like physical resources, library collection, library and information services, hardware and software requirements, personnel issues such as training needs of the current staff and recruitment of new staff with computer background, and role of information professionals within the organisation, should be deeply studied and addressed. Information access policies and procedures should be assessed carefully and precisely. In addition, budget planning for long term maintenance and replacement of systems should be included throughout the planning process.

10.1 Indian Scenario

The digital libraries in India are still in the embryonic stage. This concept came to be recognised in India during the Fifteenth Annual Convention and Conference on Digital libraries, organised by the Society for Infor-

mation Science at Bangalore from 18–20 January 1996; though, here and there, a few libraries made attempts in this direction earlier also. The scenario on the Indian horizon is changing at a snail's pace; but it has to gain momentum to survive in the competitive world.The Indian Institute of Science (IISc), Bangalore, a premier scientific institute in India, has established a digital library, using the IBM's digital libraries software running on fast computers. The IISc produces about a thousand research papers and around two hundred doctoral dissertations every year. The digital version of these documents and the journals published by IISc is available. Information sources in CD-ROMs are also available in its digital library. The efforts made by Indian Petroleum Industry to digitize and use electronic communication for geoscientific data and information date back to 1970s. Library and Information Units of Indian Petroleum Industry, especially that of Oil and Natural Gas Commission (ONGC), have evolved a number of specialised bibliographic databases, OPAC, on-line catalogue of holdings of periodicals and retrieval services. Efforts are continuing to cover full text of articles and other in-house publications, images, maps, graphics animation, etc.

Other institutions which have taken initiatives for the establishment of digital libraries are National Informatics Centre (NIC), All India Institute of Medical Sciences (AIIMS) in New Delhi, National Institute of Mental Health and Neurosciences in Bangalore, MGR University in Madras, etc.

10.2 Subsitute or Supplement

Both the user and the information manager can summon Nehru's Discovery of India or Kalidasa's Abhigyan Shakuntalam with the touch of a finger and a few clicks of the mouse. Some experts and futurologists have been making forecasts that the printed book, as a cultural delivery system, will become as obsolete in a cyberspatial society as the manuscript did after the discovery of printing machine by Gutenberg in mid-15 century. But will these forecasts hold true? Though the advent of information technologies has revolutionised the information world, it is estimated that only 1 per cent of the total information is available in digital form. Majority of the books are still in printed form and will remain so, because they have no readership big enough to justify the tremendous task of converting them into bits. One can well agree that the digital versions of fundamental classics like Ramayana, Mahabharata, Geeta, Bible, Quran and the like shall be published to satisfy the mass demand of people. But what about the millions of titles for which there is

absolutely little or no readership and, therefore, no popular demand. Their production in digital form is not profitable. Such books can be consulted only in printed form. The notion regarding replacement of printed book with electronic version in the foreseeable future is unrealistic and full of fancy. Not to speak of India and other developing and under-developed countries, everyone even in developed countries like USA can not afford to have an expensive electronic machine for accessing information available in electronic form. Only relatively well-off people can have the benefit of this luxury until the new technologies come within the reach of the common man. Any one and every one in developed countries and a large majority in developing countries can spend money, say $ 0.50 in USA and Rs 2/- in India on a newspaper. Wide accessibility of the projected digital newspaper of the future in the slums and ghettos of third world countries is skeptical. Though Bill Gates has been able to spend $ 30.8 million on Leonardo manuscript that does not have a single drawing of real aesthetic significance in it, yet how many Bill Gates are there in the world, and how many of them come forward to foot the bill for digitizing innumerable documents in the world? And the more you make the information flow dependent on costly hardware and software, the deeper gorge you create between the info-rich and the info-poor in the third world countires, thus making the already existing class inequalities sharper. The traditional and the digital libraries will co-exist in the next century; they will not replace each other, rather one will supplement the other.

11 Librarians in the Age of Digital World

Responsibility, performance and control are the essential ingredients of modern quality management techniques. These techniques are as essential for the successful libraries and other information service agencies as they are for any other enterprise. Library and information service management is, therefore, entering the new age of accountability. Provision of information in a more traditional or even modern library setting is no longer accepted as satisfactory by the funding agencies as well as users. Library and information professionals, who are reluctant to learn the modern technological advances for bettering the information services, must justify their existence. With this changing scenario, the role of the librarians and information managers is also changing. In olden days, librarians were the custodians of books as their use was restricted only to a privileged few. But the librarians in the digital world would become the guardians of information, and would be the vehicles to provide demo-

cratic access to information. Their mission would be to work towards meeting the information needs of users by providing high quality information systems, services and products, based on the recorded human knowledge of the world, through the application of current and emerging information technologies. Their role will be increasingly towards offering consultancy to the users in their efforts in navigating through the web of documents that span the global library. They would be the integrating link between the computer scientists and the information seekers, and would require a common language to establish a linkage between them. They will be the embodiment of information brokers who would ensure that the wares that they have, are used effectively and easily.

The digital environment demands multiple literacies-computer literacy and information literacy. The librarians have to be computer and information literate. There is a growing demand of employees with computer technology skills. This situation calls for the new professional role of the librarians to develop computer programming abilities to learn software package skills that help in information storage, retrieval and dissemination. They should have knowledge of library-oriented as well other application programmes like Techlib Basis Plus, LIBSYS, MS-OFFICE, etc. They should also have awareness about the operation of the Internet and offering of E-mail facilities to the new generation of information seekers who need immediate feedback for their information requirements.

12 Conclusion

The libraries have changed with the passage of time from static storehouse of books to dynamic service centres, serving all the library users by providing the required information exhaustively. The medium of information storage has also changed from cave walls to paper and microforms, and now to electronic and optical media. The library building is no longer the limit of a library. There is an equal emphasis on traditional library and digital library, thus expanding the scope of information services beyond the four walls. In the age of digital world, the library is now becoming a digitized storehouse of information. Though the attempts are on to make the vast amount of information accessible and available to the user at his work place, yet the users will have to visit the library to collect information. The libraries in the 21st century shall be an amalgam of printed material and digital copies. They will be judged by the quality and worth of information service, rather than the number of titles it holds and the aesthetics of the physical plant. The new

information technologies and aggressive demand of information consumers for nascent information wil pose new challenges to library and information managers in the new millennium.

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Threats and Challenges to the Libraries and the Profession from Developments in IT

D K SHARMA

Abstract

Though the information technology has posed a great threat to the profession of library and information science but it also have provided lot of opportunities to develop the profession. The main threat is from use of Internet which lead to information revolution and reduced the role of library and information centers but it also has number of drawbacks which will force user back to the traditional libraries. The other threats to the library and information centers is decreasing budgets and escalating cost of infrastructure required to develop libraries according to the latest technology. The challenge can be faced by marketing the product and services of library and information centers. If the library professionals make their work more systematic and visible then they could take their rightful place as human agents alongside search engines.

1 Introduction

Due to the rapid development of information technology and particularly in the Internet, the information will grow exponentially with the multimedia as carriers leading to break down of traditional library system and consequently making the profession of library and information in danger.

The recent information revolution has rendered the accessibility of information more urgent. New communication technologies and also sizeable reduction in computing cost have resulted in the shrinking of distance and improved greatly accessibility of information in any part of the world.

With the upgradation of communication technology, India is now on

the threshold of information revolution, both the government and private sector acting as a hi-tech communication technology evengelists. A recent survey estimates that there were about one million Internet users in India in July 1999 and this number would rise to about 4.5 millions by the end 2000. Information technology and the communication networking system have a crucial bearing on the library and information centers.

With the help of internet one can get the desired information on his/her desk. Therefore, in future, use of traditional libraries will be very limited unless and until the professional of library and information science take quick corrective steps to face the challenge of fast developing information technology and change themselves and their Libraries accordingly.

In the developed countries almost all the libraries are being linked through Internet. The process will soon be followed in the developing countries also. With the development of e-journal , electronics books, cellular telephony, super computer and networking will soon result in creation of virtual library, open 24 hours a day. They will allow users to search, use and download the required information at their desktop and at any time. The concept of digital library and virtual library are taking place very fast.

The trends that are driving instability are becoming easier to spot.

1 As Internet use in a community goes up, the library notices a decline in the use of reference service.
2 Many users say they find what they seek on the internet, so they don't need a Library.
3 library professional can't keep abreast of the new resources that appear daily on the Internet.
4 Commercial services are doing an aggressive job of attracting information seekers at their point of need and providing satisfactory information service.
5 The users say the new technologies will do in the digital world what the librarian have always done in the physical world.

The other main challenge which library and information professional are facing is reducing budgets particularly in the government libraries. After the implementation of the Fifth Pay Commission Report, almost all the State Governments as well as Central Government are facing huge fiscal deficit and to overcome this problem, the most easy target is to cut the library budget. On the other side the cost of infrastructure to update the library as per the changing information technology is increasing rapidly. In such circumstances, it is very difficult to keep the library up to date

and manage it efficiently. So, it is the time for the professional of library and information Science to take steps to overcome the problem. One such step which the library and information professional could take to face the challenge is 'Information Marketing.' It will not only help in generating necessary resources for the library but will also help to face the challenge of development of information technology.

The other challenge is rapid development of information technology to the profession of library and information science. Everyday some new program or advance package comes in the market. The library professional are supposed to not only keep track of these development but also have thorough knowledge of these developments. The library association and research centers can help the professional to overcome these problem by conducting seminars and training camps on the latest development in the field of library and information science.

2 Strategies to meet the challenges and Opportunities available for Library and Information Profession

Technology provides both opportunity and challenge. It is true that development in information technology has posed a challenge to the profession but it has also provide opportunity to develop our libraries and the profession. There is still lot of scope for the profession.

The Journal of *Library and Information Science Research* in its third issue of 1997 published an editorial on 'the research agenda beyond 2000'. The editorial reports that

Early in 1997, members of the Board of Editors were asked to submit a short list of areas they felt would or should be faces of library and information science research in next millennium.

Though different diverse areas of research were identified but a closer look at all the different areas suggested that there is still lot of scope is left for the library and information professional in the development of information technology. Their responses are presented below:

- Internet and WWW (Information retrieval aspect)
- Search engines and algorithms
- Bibliographic control on the Internet
- User interface including common user interface, national language interface etc.
- User need/requirements analysis
- Information seeking behavior of users and cognitive approach
- Digital libraries

- Summarization and representation of information
- Visual information
- Intelligent Information retrieval including intelligent agents

Moreover, the Internet and other technologies are just latest phenomena, therefore, more and more people are attracting towards it but the technology has many drawbacks, which will force users back to the traditional libraries.

Lack of comprehensive coverage, the inability to distinguish between popular material and serious research work, lack of controlled vocabulary and moreover a casual approach of the web page designer often make the web databases more difficult to search. In addition to that as per the latest report, the search engines covers only 15 per cent of total database available on the Internet. As there is no interaction between the library professionals and IT professionals, therefore, the system of online services will collapse and frustrate information surfers.

No system and technology is always perfect, so we keep backup to face challenge of system failure. The human reference and traditional libraries will be kept as a backup if technology doesn't work. Recently Y2K problem has shook the whole world and lot of efforts have been made to solve the problem and still no one is sure whether the problem will be solved completely or not. The problem has forced the IT professionals to have physical backup of transactions in banks and other institutions.

3 Search Engines Vs Librarians

If we make our work more systematic and visible, then we could take our rightful place as human agents alongside search engines. If a user has to make a choice between a search engine and a library professional then we would be chosen over a search engine numbers of time to justify making point of need reference not only viable but a thriving.

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Threats and Challenges to the New Millennium Librarian

N GANGADHARA REDDY

Abstract

Ours is science age and technological life. The major notion is that science and technology have cropped in all spheres of human life. Machine is every where in all its endeavour to over power man and it has gained success in its efforts. In the post modern era after industrial revolution, human life has witnessed reform in all walks of life. Hence revolution has proved its identity in all fields and all walks of life Libraries are not remain exception. Changes in society and demands for information utilisation have forced the information profession to look for more effective and efficient methods for processing, storing and retrieving of information. The paper examines threats and challenges to the library profession.

1 Introduction

Today, we are living in the 'age of information'. Countries are moving from an 'Industrial Society to 'Information Society'. Changes in society and demands for information utilisation have forced the information professionals to look for more effective and efficient methods for processing, storing and retrieving of information. To cope up with these challenges, librarians and other information professionals have resorted to the application of modern information technology (IT). With the emergence of information technology, it has been possible to store the information in electronic form. The required information from the electronic databases can be accessed and retrieved quickly through networks, Internet, global information structure, PC based hardware and software

development such as faster. Multi-tasking and user work stations and friendlier point and click graphical, user interfaces, bar code system, electronic publishing, hypermedia, multimedia, e-books, e-mail, CD-Rom's and DVD's etc., Hence in the next millennium the libraries is going to engage all library operations with information technology, electronic storage devices and virtual realities. So, we may visualise Librarian is Morphing into cyberarian.

The concept of 'Librarian' an information scientist being the person who classifies printed documents, so that these documents are stored for easy retrieval of information related to any specific topic is fast disappearing. The recent developments in technology-computing, new communication technology etc., have had a profound impact upon the education of librarians. Librarianship must explore new approaches and methods applicable to the various aspects of this discipline; these new approaches will require imagination and originality based on strong and proven provisions that are to be objective and carefully analysed.

2 Librarianship Today

This profession is still in the making. The present bread of the librarians have greatest of the responsibilities as torch bearers for the generation to follow. Professional status can be achieved only by hard work, sincerity, perseverance and sacrifice.

Library and information science, as a profession is concerned with knowledge and skill by which the records of human communications are collected, organised and utilized. Librarianship today, has arrived at the information age where the role of information is increasingly emphasized as an economic resource, a marketable commodity and a social wealth." A librarian is a mediator between man and the graphic records that his and previous generations have produced and the goal of the librarian is to maximise the social utility of these records for the benefits of humanity "As such a modern librarian has a very important role to play in the process of communication of information in today's world for which he/she must be well educated, highly qualified and professionally competent. He/She will have to act as a facilitator, advisor, consultant, instructor, navigator, searcher, researcher, evaluator, organiser, preserver, promotor, communicator, technical expert as well as a manager, leader, entrepreneur and visionary.

The fast changing environment of the LIS profession has left the individual professionals in utter confusion. The profession is confronted with the problems of (1) Copying up, (2) Distance maintenance

(3) Fragmentation (4) Craze for false and baseless identities (5) Craze for new titles and designations for the same functions performed at different places and situations. The identity of LIS professionals is under threat due to diverse names of the profession and the professionals practitioners for good the distinct titles. Librarianship is to be retained or else there is every danger that we may be lost in the masses as anonymous entities. It is indeed time for a second cradle ceremony for the profession.

3 Impact of Information Technology

Information technology (IT), the fastest growing industry, has been witnessing developments in several areas of activity such as the central processor technology, the technology for high density memory and disk storage, the broadband technology, ISDN technology, ATM technology, the gigabit ethernet technology. The coversence of these technologies have since led to the development of Internet, Intranet, extranets, web servers and multi-media.

In the making of these developments library profession has had very little direct control. But their impact on improving flow of information, information retrieval and on the scholarly communication has been unique. Scholars now use a variety of networks to access sources needed in their research, to exchange information with colleagues and to collaborate with them in research and publishing activities. Electronics offers the potential for more effective dissemination of information, for example journals tailored to individual interests, hypertext and hypermedia capabilities are adding a new dimension to information retrieval. Network resources have also caused a significant increase, in informal communications-informal journals now exist within electronic mail and computer conferencing facilities. Such resources diminish the role of conventional printed journals as a vehicle for the disseminations of research results. The changes in the scholarship that have occurred so far may be merely cosmetic compared with changes that could take place in future. Most radical possibility being that networked scholarly publications could become the direct responsibility of the universities and other research institutions. But will such publications be able to stand in competition with journals from established publishing house?

Clearly, the medium of publications for journals and for other forms of literature is shifting from paper print to electronic and their mode of distribution is also shifting. It is becoming network centered. Besides, libraries have converted their card catalogues into online catalogues. Efforts are being made now to provide union catalogues so that the

library becomes essentially a gateway to a universe of resources in printed, electronic or other forms. Use of terminals or work stations to access databases of various kinds is now routine for many libraries. Most of them now add electronic resources to their collections in CD-ROM or other forms. Surely, all these developments are directed at creating an electronic library a virtual library a digital library, or a library without walls. In the information age, libraries may be existing in two states; the physical state and the visual state. The impact of information revolution on the both states is going to be profound.

4 Threats to the Profession

"Library professionals would certainly lag behind or even be thrown out if they would not accept the challenge of the changing scenario of information services, wherein their role as "Information Providers" or "Information Brokers" would be most vital in the rapidly energing information society.

Library professionals are facing a threat of being eliminated today because of lesser awareness of the value of information, dissinterestness in developing co-operation and co-ordination in resource building and sharing of information. Financial constraints, poor communication linkages, lack of the required dedication, motivation and even knowledge in the available manpower, and lack of standardization in methods and procedures of providing information constitute some other threats before the library professionals. It is apprehended that a large number of library professionals will loose their jobs as their traditional services will not be required and will be replaced by persons equipped with knowledge of modern information technology.

Authorities unwillingness and lack of recognition about the library staff information technology capabilities in handling a computerized information system and giving priorities to computer division instead for such works are also posing threats before the library staff in most of the medium size organizations.

5 Need for Curriculum Development

To every school of librarianship its role and just as some schools will quite properly adopt a reserved stance about a more theory oriented curriculum, and continue along established and more traditional lines so will some of them not wish to be come heavily involved in research. Hence LISC courses offered by indian library schools in different universities have become partially irrelevant since long. The debate about changing the LISC curriculum has been going on for the last few years,

but nothing concrete has yet been done at the national level, except for some suggestions to restructure the syllabus of LISc education. An attempt has been made to collect the syllabus of different library schools, scan and analyse them. It has been found that in many library schools the curriculum of LISC does not contain one or the other aspect of rapidly changing information technology to produce professionals capable of functioning in divese information settings.

In view of restructuring and strengthening LISC, curriculum with the given options the course duration of master degree should be extended to two years. In additions, for effective teaching and learning we will have to follow the Technology based Learning and Teaching (TLT). Computer Assisted Learning (CAL) is the need of the hour. The existing faculty members should be trained to cope up with the new requirements of LIS schools. The Government of India should come forward to help LIS schools for experience to the students of the next millennium.

The librarians who are on the verge of retirement may not be inclined to learn about latest technology. But the others should be aware of the latest developments in the electronic information environment. Library professionals need to change their attitudes now. They should develop the capacity to evaluate the precise requirements of the users besides having knowledge of how to access the world resources available online. In other words "they should be ready for coping with technology advancement and be able to integrate new information technological methods and devices into the mainstream of library and information systems and services. If they want to be re-engineered and thus survive, they should further improve their skills via good quality continuous education programmes such as refresher courses, conferences, seminars, short courses as offered by some institutions and practical training. It will assist the professional in moving from the Librarian into Cyberarian.

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Contribution of School Libraries Towards self Improvement: An Evaluative Study

K PADMINI, B VIJAY KUMAR
AND MURALI PRASAD

Abstract

Education conducted in its true spirit should lead to the development of the human personality in all its richness—intellectual, physical, social, moral and spiritual.

In this modern age, the store of accumulated human experience is so vast that inspite of the manifold media for publicity and inter communication the great bulk of it can only be transmitted through the written word; and a library is the essential channel by which the wisdom of the past can be brought to aid or to satisfy the needs of the present. Library is the place for the students to bring their individual and varied experiences, the problems and the questions, and to discuss and pursue them so that new light may be thrown on them - particularly new light from the experience of others, the accumulated wisdom of the world garnered, arranged and displayed in the library.

1 Introduction

Every school even in the lower stages of education will be in possession of a library which deserves to be called in Ranganathan's words 'a live workshop'. A school library is a ready centre for browsing and enjoying books, for investigating problems and for creating self study habit.

1.1 Aims of School Library

a The training of character to enable students to participate creatively as citizen in the emerging democratic social order;
b The improvement of their practical and vocational efficiency;

so that they may play their part in building up the economic prosperity of their country.

c The development of their literary, artistic and cultural interests, which are necessary for self-expression and for the full development of the human personality, without which a living national culture cannot come into being.

2 Objectives of the Study

- To identify the collection of the school libraries;
- To examine the organisation of information in the school libraries;
- To obtain the opinions related to the sufficiency of resources;
- To assess and evaluate the collection in terms of volume, variety, scope and contribution to social, ethical, physical, educational and psychological aspects which lead to self improvement; and
- To suggest measures to provide better library environment for self improvement.

3 Methodology

The main aim of the present study is to bring out the role of school library in moulding the personality of the child, the future citizen, by providing required reading material. For this 9 schools (private, aided and Government) are selected out of 44 schools situated in Tirupati town (Andhra Pradesh) which are having more than 10 years old. The librarian/incharge of the library, 5 students from 10th class and 5 from 9th class are considered as the sample for the present study. Through interview, data is collected from librarians with the help of a structured questionnaire. Another structured questionnaire was distributed to students and 90 duly filled in questionnaires were received. The received data is organised and analysed.

4 Scope

The scope of the present work extends to study 9 school libraries in Tirupati in terms of their collection of reading materials, organisation, utilisation and satisfaction. For this 9th and 10th class students are taken as sample with a view that they can better express their ideas than the lower class students. The librarians form another group of sample.

5 Limitations

In the present study only 9 schools in Tirupati are included and the librarians and 9th and 10th class students are considered as the sample but if the teaching community, the administrations, the parents and other class students are also considered the outcome will definitely be a fruitful research. This type of study can be extended to school libraries at State, regional or national level.

Besides the collection aspect, which is the one considered for the present study, if other aspects like personnel, physical facilities and other library services are also included that will lead to a good research. The present study could not cover those aspects due to constraints like time, money & and manpower.

The data received from the respondents is analysed and following conclusions are drawn.

6 Analysis of Data According to Students Questionnaire

- Majority of the respondents (90%) felt that library is necessary for school education.
- Majority of the respondents (58.8%) gave first preference to reading books than other activities like games and sports, music, playing video games and viewing TV.
- Usage of library is more in private schools students (44.4 %) than in Govt. (22.22%) and aided schools (33.34 %), perhaps the reasons being sufficient collection of books and physical facilities when compared to Government and Aided School libraries.
- 92.2 % respondents preferred open access system where as remaining students preferred closed access system.
- Most of the respondents (56.6 %) mentioned that they are able to locate books easily in libraries, where as (44.4 %) have answered that it is difficult to locate books.
- Majority of libraries are not lending books to their students.

The data in Figure 1 reveals that majority of the respondents (34) have given first preference to educational books, almost equal number of respondents have given second (23), third (23), fourth (25) and fifth (23) priorities to psychological, ethical, physical, and social books respectively. Most of the respondents (42) have given least preference to recreational books. From this it can be concluded that the respondents

ORDER OF PREFERENCE ACCORDING TO USAGE

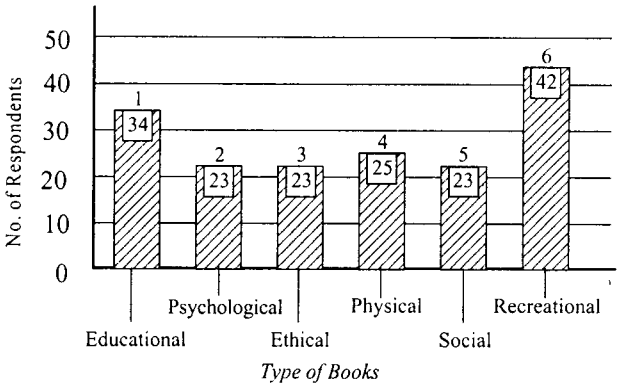


FIG. 1

are giving equal importance to improve their knowledge in a multidirectional way by preferring ethical, physical and social books next to educational books which help in acquiring and updating their academic knowledge.

- (37.7%) of respondents have received orientation from teacher whereas (26.8%) of students have received orientation from librarian. The remaining percentage of respondents have not received any orientation.
- Orientation is the best method accepted by all respondents in utilisation of reading materials and next preference is encouragement from the teacher followed by book exhibitions and display.

TABLE 1: STUDENTS SATISFACTION WITH REGARD TO COLLECTION

Type of Books	Satisfied		Total	Not Satisfied		Total	Grand Total
	9th	10th		9th	10th		
Ethical	37 (48.68)	39 (51.31)	76 (84.44)	8 (57.14)	6 (42.85)	14 (15.55)	90
Social	25 (55.55)	20 (44.45)	45 (50.00)	25 (55.55)	20 (44.45)	45 (50.00)	90
Physical	39 (54.92)	32 (45.07)	71 (78.88)	7 (36.84)	12 (63.15)	19 (21.12)	90
Educational	40 (52.63)	36 (47.37)	76 (84.44)	6 (42.85)	8 (57.15)	14 (15.56)	90
Psychological	43 (53.43)	36 (45.57)	79 (87.77)	2 (18.18)	9 (81.82)	11 (12.13)	90
Recreational	23 (48.93)	24 (51.07)	47 (52.22)	21 (48.83)	22 (51.17)	43 (47.78)	90

Note: Percentages are shown in parentheses.

It can be observed from Table 1 that most of the respondents are satisfied with regard to the collection of psychological (87.77%) educational (84.44%) and physial (78.88%) respectively. The percentage of respondents who mentioned that they are less satisfied with regard to the recreational (52.22%) and social (50.00%) collection is almost equal.

7 Analysis of Data According to Librarian/ Incharge Librarian Interview

- All the respondents have informed that Library is located in middle of the school, Majority (90%) of the respondents have mentioned that school library is very useful to the self improvement of the children.
- The Book selection committee of each school consists of the Head master, teacher and librarian.
- Majority of libraries (90%) maintain Accession register.
- School libraries are not following any classification schemes. But they are arranging books according to subject and in alphabetical order. School libraries are not preparing any catalogue.
- Lending of books in school libraries is confined to teachers only.
- All the respondents mentioned that the arrival of new books are brought to the notice of all teachers and students.
- All librarians are using lecture method to provide library orientation.
- All the librarians strongly agreed that orientation is the best measure for increasing the utilisation of library materials.
- Most of the libraries are not having library hours as a part of their educational curriculum.

Table 2: School Wise Distribution of Collection of Books

Name of the School		Type of Books						
		Ethical	Social	Physics	Educational	Psychological	Recreational	Others
Govt.	S.P.J.N. Municipal School	5000	200	200	5100	200	200	200
	S.V.U. Campus School	200	500	300	2000	200	200	1000
	S.P.G.H. School	2500	-	1000	3000	500	3500	500
Aided	S.V.H. School	5000	-	-	2000	-	3000	-
	S.V.U.H. School	2000	300	300	300	300	100	100

Contd.

Contd.

Name of the School		Type of Books						
		Ethical	Social	Physics	Educ-ational	Psycho-logical	Recrea-tional	Others
Pvt.	Little Angles High School	200	1000	1000	5000	800	200	200
	Seven Hills High School	300	250	250	1500	400	200	100
	KJECS	97	15	25	155	30	16	100
	Total	15397	2115	3175	20555	2830	7466	3500

It can be observed from Table 2 that educational books occupy the first place in terms of quantity followed by ethical, recreational, physical, psychological and social books. From this it can be concluded that all the school libraries are giving prime importance to build up educational reading material collection.

TABLE 3: USAGE OF READING MATERIALS

Type of Books	Books usage			Total
	Mostly	Rarely	Never	
Ethical	7	2	—	9
Social	6	3	—	9
Physical	8	1	—	9
Educational	9	—	—	9
Psychological	6	1	2	9
Recreational	5	3	1	9
Others	3	3	3	9

It can be observed from Table 3 that most of the respondents mentioned that the users are frequently using educational books (9) followed by Physical (8), Ethical (7), Psychological (6), Recreational (5) and Others (3). Almost equal number of respondents mentioned that the users rarely use social (3), recreational (3) and ethical (2) books.

8 COMPARATIVE ANALYSIS

From the analysis of Fig. 1 it can be observed that the student respondents gave first preference to educational books and the data in Table-2 shows that the collection of educational books is also built up accordingly.

The data in Fig. 1 reveals that the use of library collection of physical, psychological, ethical and social, in order of preference is almost equal and the satisfaction of the respondents with regard to the same as per the data in Table-1 is also in line with it except for social books.

Even though the collection of recreational books is comparatively more than physical, psychological and social collection, it is marked as least preferred one by most of the respondents (Fig.1) perhaps the collection doesn't consist the interested books required by the users.

9 Suggestions

It is concluded from Table-2 that all the school libraries are giving prime importance to educational reading material. No one can predict on what subjects or topics books will stimulate the nuclear element in the personality of the different students. Hence the filling up of the entire spectrum of knowledge by worth while & attractive books is necessary.

- The open access system, in which extraordinary freedom is allowed to user, is preferred by most of the respondents and the same is to be introduced in school libraries.
- It is obvious that classification and cataloguing of books enrich the capacity of locating books easily which is absent in school libraries. Hence measures must be taken in this regard.
- The limitation of finance will often lead to restrictions in book selection in a school library. Care must be taken in allocation of some amount out of its annual book fund, to add books rich in their capacity to meet the curiosity of the students, besides text books.
- As it is clear from the analysis that both categories of respondents agreed that orientation is necessary. Hence it must be provided continuously both by the librarians and teachers in a well planned way.
- Individuals learn from school library, their responsibility towards their fellow beings and books in terms of books, maintaining queue etc, which also contribute to their self improvement. Hence measures are to be taken in introducing library hours and lending books to students in school libraries.

Library, the right place which provides opportunity the department of individuals and groups for after home appointment of qualified personnel and in terms of allocation of sufficient finance. Library itself is

having short sight towards creating awareness among the users about the potential resources and efficient services. If both, the libraries and authorities at all levels, play their respective roles in sanctioning of amount compulsory introduction of library hour in the regular educational curriculum, providing orientation with regard to reading habit and better utilisation of school libraries etc. true self disciplined citizens of the next millennium will be moulded and in turn they will contribute for the national development.

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Coping up with the Challenges of Information Technology to the Library Profession

JITENDRA SHARMA

Abstract

Introduction of information technology has devised new methods of storage and disseminating the information to the users locally or globally through electronic media within no time with least consumption of space. Users need not to spend their precious time in going through large number of documents and endless number of pages for getting the required information. Everything is available at the click of a mouse on the computer terminal. This is advantageous from user point of view, however it has caused a serious threat to the library profession and professionals who are still using the traditional ways of disseminating the information. It is apprehended that in 21st century traditional library professionals will no more be required for information dissemination work if they are not being able to cope with the advancement in information technology. However the library professionals can not alone be blamed for not adopting the new ways of information dissemination. In developing countries like India libraries are not developed and funded enough to keep pace with this fast media of information dissemination. This paper discusses how library professionals having total expertise in their field on one side can also cope up with the challenges and threats posed by the information technology before the profession and can still dominate the world of information storage, processing and dissemination.

1 Introduction

Libraries by the very nature have been always the most important source of storage, processing and dissemination of information without any commercial motive and can be rightly termed as a people oriented information delivery system. However, in earlier times libraries remained confined only to the elite class because of absence of printing

technology and paper. Only handwritten manuscripts were the parts of library as no means of duplication of documents was available. The invention of printing made possible printing of books and later books became the major medium for the dissemination of recorded knowledge. The real breakthrough, however, started with the invention of the micro-computers and other electronic accessories. Technological innovations have given rise to new ideas relating to collection, processing and dissemination of information with the help of what we today termed as information technology.

As a result of technological advancement, the doubling rate of information sources in any field is continuously reducing and it has become extremely difficult to have complete bibliographic control over these sources by mere manual efforts of library professionals. The tremendous development of information technology has diverted the library users to search for the other alternative, faster sources of accessing information. This caused a threat before the library professionals to be eliminated from the role of information agents in the years to come. It has become mandatory for library professionals to equip themselves periodically with the knowledge of making use of new gadgets of information handling so as to provide the quick and precise information to its users and in turn stop them to walk out of library in search of information. It requires contemporary roles of libraries to be turned as more dynamic information providers.

2 Challenges of Information Technology

Libraries are at the threshold of electronic age in which electronic media and information technology will play a crucial role in providing library and information services. Introduction of computers, telecommunications, and optical technologies in libraries have resulted in vast changes in methods of disseminating the services to the users and these services are being now made available locally or globally through electronic media. However, unlike developed countries, the developing countries like India are not able to make full use of the benefits of information technology advancement. Although during the past decade information technology has spread its root in almost all the service sectors of country and libraries are also not the exception, however, this development is still restricted to bigger libraries and institutions.

Challenge before the library profession arises due to three revolutions namely information technology revolution, information revolution & telecommunication revolution. Libraries are witnessed of all the three

revolutions. The world is shrinking as a global village due to information technology revolution. Internet, Intranet and digital libraries are replacing the traditional libraries. Each and every piece of information is available on a click of mouse with the advantage of multi user access simultaneously provided you have the sufficient infrastructure.

The library and information science profession is one of the professions that are drastically affected by challenges of the information technology. Librarians are not yet prepared for this sudden information technology revolution. Shift from collection management to information management, from ownership to access, change in nature, boundaries and structure of information all call for a change in mind set up. There is a need of librarians with visionary plans who could make services available within minimum response time, develop knowledge and conceptual ability proportionately to technology development to cater the user needs effectively. Librarians are, however, not trained to deal with these aspects during their blossom time in library schools.

Now most of the information sources like encyclopaedias, dictionaries, bibliographies, multimedia presentations, abstracting and indexing journals and their back volumes are coming on the CDs/DVDs, available much cheaper than the hard copy of the same. The storage capacity is many folds higher than the printed copy. It is so high that a single CD-ROM can store millions of pages besides sound and graphics and a DVD capacity is still higher. With more and more documents getting published electronically and Internet resources growing at 18% a month, libraries of the 21st century will have to shift towards electronic means of acquiring, processing and disseminating information. To have a proper bibliographical control of such a vast sea of information and to provide a quick and reliable information to the user libraries irrespective of their size and category have to opt for the information technology path to sustain themselves in the race. Library professionals would otherwise lag behind or even be thrown out if they would fail to change themselves to the role of information providers or information brokers. It is apprehended that a large number of library professionals will lose their jobs as their traditional services will not be required and will be replaced by persons equipped with modern information technology knowledge.

Fear of being discarded and replaced by the new IT equipped manpower is felt mainly by the professionals working in the private sector so far. However, the day people with capitalistic ideology would start dominating the Government of India even the government and public sector librarians will be facing similar situations. And seeing the patterns of restructuring of Indian economy the destiny is not very far.

Government is already going through financial crunch. All the ministries and other government departments are being asked by Ministry of Finance to a cut of ten percent in their expenditure and to stop the new intakes. Hence there are lesser chances of absorbing in government jobs by a large section of library science professionals. With the liberalization of economy the private sector are developing at faster speed and there is cut throat competition to get a job and then to survive. By not marching parallel with the advancement in technology there is an absolute danger of become obsolete before the library professionals and remember liability is termed as a burden that every one wants to get rid off. Obsolescence in knowledge advancement will push you out from the competition and survival can not be assured at all.

3 Reasons

Library professionals are facing a threat of being eliminated today because of lesser awareness of the value of information, disinterestedness in developing co-operation and coordination in resource building and sharing of information. Financial constraints, poor communication linkages, lack of the required dedication, motivation and even knowledge, and lack of standardization in methods and procedures of providing information are the causes for emerging of threat of being eliminated out before the library professionals. Above all lack of willingness to adapt themselves as per the new requirements is the main cause for all this.

The technology is progressively replacing the old methods of information collection, storage and retrieval. Library is getting shaped on the Internet and the different networks around the world. In 21st century most of the documents will begin to publish in electronic full text form and will be available online. Advances in multimedia applications will add new dimension to a librarian's job. Library professionals have to face the challenge of this changing scenario.

Information technology has spread its roots just like a spider web. It can be considered as a necessary devil. Once anybody gets into it, he is caught forever. The time one takes to decide going for procuring an IT product it becomes obsolete by then and a new product or an upgraded version replaces the earlier one. Everybody is well familiar with these facts but there is no way to run away from these things to survive in today's competitive society. The environment is so rapidly changing that librarians do not find a place for themselves due to lack of IT knowledge. The training he/she got in library schools seems to be useless and

unacceptable in current job market. The IT professionals with the hands on experience of using IT equipment and software start dominating the comparatively more qualified library professionals.

During an informal survey conducted by the author of the business schools in Delhi, it was found that ratio of users using library and computer lab for getting their desired information was 3:7 whereas the budget for both the sections were more or less the same. This is really an alarming situation for all library professionals. Darwin theory 'Survival for the fittest' is set to prove its significance once again and this time unfit species seems to be the librarians.

4 Measures to Cope up with the Challenges

Time has come to understand that information technology is going to stay forever. The existing libraries will slowly become archival in nature and services of traditional librarians will no more be required. It is the high time that library professionals need to change their attitudes now. They should develop the capacity to evaluate the precise requirements of the users besides having knowledge of how to access the world resources available online. In other words, they should be ready for coping with technology advancement and be able to integrate new information technological methods and devices into the mainstream of library and information systems and services.

Learning the applications of information technology, Internet, electronic publishing and new modes of information dissemination can open new opportunities for information management and for library professionals. Librarians will have to focus themselves and seize the new opportunities and demonstrate how these new tools can be gainfully harnessed for improving the diminishing status of Librarianship. Librarians need to respond to the emerging calls of information and information technology explosion. They need to respond to the challenges of information resource management, and to the information infrastructure development.

This is a fact that every library professional knows and agrees but how to deal with this problem. The answer to this is life long continuing education, a process by which library professionals can seek to improve themselves or their profession by enhancing their knowledge, attitude and skill to upgrade knowledge, abilities, competencies and understanding in their field or specialization so that they become more effective professionals. There is a need for continuing education for the librarians not only for job satisfaction and professional growth but also for the very

survival of the profession. The continuing education helps the professionals to keep abreast with the latest developments in the profession, adjust with the changing professional growth, help the library & information professionals in their personal and professional growth, disseminate new ideas, provide better information services to the user and to avoid obsolescence.

Hence it is high time for the library professionals to change their attitude of neglecting the call of keeping themselves update with the latest advances in information technology. Librarians must recognize the fact that learning new ways of information storage and dissemination has become a necessity for their very existence in the profession. Not only they should learn new tools and techniques of information dissemination but they should also be able to review and assess their progress and development continuously in comparison to advancement of the technology. They should be able to identify threats and challenges to the profession by information technology in the years to come and be prepared to chalk out strategies to face these challenges.

To overcome the barrier of unawareness librarians must learn the practical application of information system and services, know about Internet and its role in information access, resource sharing, networks, and networking, linkages between different library systems, electronic/ digital libraries, information marketing, online services.

The senior professionals or teachers in library science should work for bringing parity in curriculum in L & IS being offered at different library schools across the country. Apprenticeship and training in actual working environment should be made compulsory part of course curriculum. The pattern of course curriculum of different library schools should be more oriented towards use of information technology for information dissemination work like the courses offered by Documentation Research & Training Centre (DRTC), Bangalore and INSDOC, New Delhi. Only by revising and updating their curriculum according to new requirements, library schools can teach their students to meet the challenges posed by the information technology before them. The more logical step would be if faculty of these schools could take initiative and not only learn but also adopt the new tools and techniques in their teaching plans.

Working professionals should participate regularly in short term training programmes to update themselves with the latest developments of information technology in the field of library and information science. The courses conducted by NISSAT, INSDOC, IASLIC, ILA and so on can prove to be helpful for librarians in learning the new developments

of IT and their use for their libraries. Professionals should invest some part of their earning for getting advanced knowledge of information technology, storage and dissemination methods. It will be a wise investment for the professional development as well as for the future security. This is the only way by which librarians will overcome the psychological barrier of unawareness to IT and will not lag behind the other IT professionals.

5 Role of Library Associations

The big organizations and associations working in the field of library and information science can help in providing education to the library professionals. By conducting various training programmes, however they should either not charge any fee from participants or minimize it to the extent that an individual or even a student of library science can afford at his own to attend the same. These organizations or associations can generate income from the alternative sources, force the government agencies to fund these programmes.

The library associations can appeal to senior library professionals who have hands on exposure to information technology to provide their support voluntarily without asking for any monetary compensation.

Efforts should be more towards arranging formal short term courses, in service training etc. rather than arranging seminars and conferences so that person undergoing such programmes can make use of them in actual working conditions. Seminars and conferences are although very beneficial for the development of the profession and art of public speaking but most of the time people use it as a medium of availing vacation at the cost of parent organization they are working in. Objective of profit making from such training programmes which is the trend prevailing today should be ruled out.

National level institutions like National Informatics Centre (NIC), INFLIBNET should extend the resources and data available with them to the private sector as well at least for educational institutions in the sector. This will not only help them in gaining some financial resources but also beneficial for the large number of professionals working in the private sector.

Efforts should be made by library associations like ILA to force international organizations like UNESCO, FID, and IFLA to conduct more and more of training programmes in India on frequent basis with minimal participation fee so that more and more professionals can be benefited from them.

6 Conclusion

Information technology has widely spread in all spheres of knowledge management and has posed a serious threat to the library profession and professionals. Library professionals either have to equip themselves with the latest tools and techniques of information technology over the traditional ways of information dissemination or they have to be ready for their disgraceful exit from this noble profession of information storage, processing and dissemination. The situation seems to be totally darkened however there is still light on the other end. The library professionals should overcome the barrier of unawareness with the knowledge of making use of new gadgets of information handling. Librarians need to respond to the emerging calls of information and information technology explosion. A collective effort is required by the library associations, library schools and library professionals as individuals and groups to face the challenges of information technology. However it is once again to be stressed that it is mainly the willingness and responsibility of the individual professionals to cope up with the challenges of information technology by shedding off the ignorance and unawareness and adopt the life long continuous learning programme even at his own expenses.

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Digital Libraries Vs Conventional Libraries

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Abstract

Digital Libraries is an evolving area of research, development and application and multiple definitions have been offered by workers in this area. Based on common aspects among these definitions, digital Libraries may be defined as electronic information collections containing large and diverse repositories of digital objects, which can be accessed by a large number of geographically distributed users. Such repositories would exist in locations physically near or remote from the users. Digital objects include text, images, maps, sounds, videos, catalogues and indices, and scientific, business and government data sets as well as hypertextual multimedia compositions of such elements. Operationally therefore, digital libraries will be network based distributed systems with individual servers responsible for maintaining local collections of digital documents ranging from sets of electronics text to video-on-demand services. From the user's point of view, however, there should appear to be single digital library system, integrating personal information, work group and organisational information collections and public digital libraries. Any given digital library system should therefore provide a coherent, consistent view of as many of these repositories as possible and allow users to seamlessly connect and interact with information with no geographic location or time. There is also general acceptance of the fact that digital libraries would need to span both print and digital materials. For the foreseeable future print on paper publications are expected to be around and thus digital libraries are excepted to provide integrated coherent access to both types of materials.

1 Introduction

Making the right information available to the right person at the right

time is the aim of any modern library service today. The latest estimates show that the total amount of information in the world doubles every 8 years. This high rate of growth of information has made it impossible for any library professional to rely solely on manual or semi-manual methods of information handling in order to achieve this goal.

The modern library no longer consists only of books and serials but also contains information in various machine-readable forms, such as the microfche, floppy diskettes and CD-ROMS etc. The libraries themselves are reaching at their elastic limit and are, therefore, reanired to look at the zero-growth principle. Lack of proper access to the information on availability of information has led to a considerable amount of redundancy in the available information in many libraries.

A steady growith of special libraries has brought out a characteristic where in there is a considerable amount of depth in their collection but no adequate width. This is a candid prooff that 'No Library is an Island' and this necessitates an active resource sharing among the libraries. It is even more critical in the present situation due to the acute financial and space problem faced by the libraries and a continuing increase the costs of information sources.

All these problems have one thing in common i.e. a solution in the form of Information Technology and its wide applications in libraries and information centres. This has enabled library and information professionals to gain a considerable amount of Bibiographic control over the phenomemon of information explosion. There has been a steady inflow of modern equipment in the libraries today.

Thus, it is now imperative for the library and information professionals to embrace information technology and facilitate in 'getting every reader his/her book' and 'every book its reader,' and while doing so 'Save the time of the Reader' computer-based information storage and retrieval systems have now made feasible the exchange of information and further sharing of resources with minimal efforts via various upcoming networking programmes. It is now possible to interact with fellow professionals without the boundaries of geography and time zones and especially in India where they are frequently isolated from one another, because many work in one-person libraries, decentralised branches or small groups.

Large library networking programmes such as Inflibnet, Calibnet, Delnet, Bonnet, Punenet, etc. have been announced. The libraries that participate in such programmes will be better placed to derive the benefits of the application of information technology to libraries.

KEY COMPONENTS OF DIGITAL LIBRARIES

- Geographically distributed digital information collections.
- Geographically distributed users.
- Information represented by a variety of digital objects.
- Large and diverse collections.
- Seamless access.

2 TECHNOLOGIES FOR DIGITAL LIBRARIES

It requires development and integration of several highly sophisticated hardware and software technologies, and pooling together of multi-disciplinary expertise. While many of the technologies required for the development and deployment of digital libraries and their access are available today, their performance needs to be sealed up to handle very large digital collections in networked environment. It is expected that several digital library projects currently underway will result in technologies that may be used readily to develop new digital libraries.

2.1 MAJOR AREAS OF FOCUS

- Multimedia object storage, retrieval and transmission.
- Data compression.
- Digitisation (Multimedia data capturing and conversion).
- Hyper media navigation.
- Authoring tools for creating electronic documents.
- Multimedia object representation (e.g. HTML, SGML).
- Meta data bases.
- Display Technologies.
- User Interfaces.
- Search, retrieval and routing software.

3 ISSUES IN DIGITAL LIBRARIES

Work in the area of digital libraries has thrown up several issues and challenges. Key issues include the following;

Copyright: It is very easy to copy, replicate, message and distribute digital information. Enforcing copyright in digital environment a major issue.

Technological Obsolescence: Hardware the major risk to digital object is not physical deterioration, but technological obsolescence of the devices to read them. (Solutions Reasonable refreshing schedule and use of widely marketed devices rather than special purpose devices).

Software: A more serious problem is software obsolescence. (solution libraries should rely on standards like MARC and SGML, which are expected to exist in the forcible future.

Image V/s ASCII: Some materials in digital libraries are available as images, and others as ASCII. In some cases these distinctions are inherent eg. A photograph collection is always going to be images and an OPAC is nearly always ASCII in other case e.g. printed books and journals, both formats are possible.

Interworking: Another key issue is that of interworking of different digital libraries. Given the distribution of library resources around the world, no one expects that there would be a single digital resource. This means that we need methods for finding either individual items or collections in different places, and assembling virtual collections that users can search or browse.

Pricing in the digital environment: Pricing of information in the digital world is going to be very complex. Ownership is expected to give way to licensing pay per use etc.

Preservation of electronic information: Archiving and preservation of electronic information may be one of the most challenging of all tasks we have to solve over the coming two decades. Instead of having shops that sell rare books, we may have shops that sell rare post script interpreters. Libraries may have a role to play here considering their traditional responsibility to keep things for a long time and to be able to make them available for use.

4 Advantages of Digital Libraries

Some of the key advantages digital libraries provide are as follows:

Ability to Search: The ability to search provides an enormous advantage to electronic materials when an a ASCII version is available. On-line searching has for some years been replacing printed abstracts journals. Since most current material is now produced via computers, it can generally be provided in ASCII from and be searched.

Ubiquity: Another key advantage is ubiquity a single electronic copy can be accessed from a great many locations, may many simultaneous users.

Support Wider Range of Material: Digital storage also permits libraries to expand the range of material they can provide to their users. Digital material can also permit access to video tapes and new kinds of multi-media materials that are created only on computers and have no equivalent in any traditional format.

Preservation: Another major adventage to preservation. Digital information can be copied without error. As a result, preservation in a digital world does not depend on having a permanent object and keeping it under guard, but on the ability to make a multiple copies, assuming that at lease on will survive.

Access Current Information: For researchers, digital libraries provide access to up to date current literature and thereby help them to be aware of current trends.

5 Information Literacy

'Knowledge is of two kinds. We know a subject ourselves: or we know where we can find information on it.' SAMUEL JOHSON.

Everyone uses information in their daily lives. But still the capacity to retrieve the required information from the right source is lacking. Eradication of Information illiteracy at the present information explosion age is quite essential.

6 Electronic Culture

Electronic Technology is fast inproving from 1960s and new wave is swaying over the modern libraries with a number of gadgets in all the sections of library management. Our users should not be lost in the information supermarket. Librarians should control the new technological possibilities of the electronic culture. The use of Computer Technology in particular has entered into the form of documents, acquisition. cataloguing serial control, users services and library mangement.

6.1 Conventional Library Management

Computer are used for circulation control, inter library loan, accounts, Inventory Control etc.

6.2 Impact of Automation on Library Management

Lancaster's concept of paperless information system created a controversy and arouse discussions at the international level. His idea was to minimise loss of time and minimum use of paper. As he predicted even small libraries in the third world have gained access to computers. Today the office secretaries use wordprocesors, FAX, dicto phones etc. Which have introduced automation. How will the automation affect the functions of the library collection, the library staff and the library management ?

6.3 Form of Documents–Impact

Though computer readable documents will be introduced 'Librarians will not be replaced by computers' but Librarians should be using computers'.

Traditional user does not know much about computers. He likes the dust and the smell of old books.

6.4 Acquisition–Impact

Book Selection: If the teachers of the university go through the list of books on topics of their interest using the CD-ROM OF BOOKS IN PRINT etc. They can just mention the required items by going through the screen. The selected items can be printed as a book indent and the professors, signature can be obtained for official sanction. It can be sent for sanction to the sanctioning Authorities, after which the same records can be used for ordering when books are received the same records can be used for MARC. Thus from book selection, indent preparation, ordering. They can be used for MARC also seving lot of duplication of manual work which can be used for personal user service.

6.5 Cataloguing–Impact

In classification, at present the existing classification schemes are not fit to be used as they are for MARC. From a MARK Record, Retrieving a document by the name of a given author is easy. In the title, the string search is handled for retrieval. But it the title is fanciful title, it will not reflect the subject content of a book. So a search term Dictionary of the saurus is constructed. It should be more comprehensive. The library of congress search term dictionary occupies more than 40 MB. The decimal classification was modified in the name of DORS and is not still successful. So retrieving from a computer in the order of the existing classification schemes, is still to be tackled.

6.6 Printed Catalogues–Impact

One can refer a card catalogue cabinet only when the library is kept open. A professor sitting at his table in a midnight, writing a paper, curiously may wish to know the availablity of a book in this library. He cannot do anything. But if a printed catalogue is available on his private bookrack, he will be using it at anytime. The automation has now made it possible to prepare printed book form of catalogue which can be supplemented or revised annually.

6.7 Users Service–Impact

A user approaches a MARC and finds out a number, goes to the stack room and searches for it. It is not available. The book would have been issued just few seconds back. It would have been sent to the binding section as it was damaged, it would have been transferred to a departmental library and so on. Here there is no use of MARC. If should serve as sheft list also. These curcumstamces have a major impact on the management that all the databases in the library should be INTEGRATED.

6.8 Library Management–Impact

All the above points are to be considered by the library management for arriving at a solution.

6.9 Access Vs Ownership

When a library decides to serve as an archive. It can collect and preserve printed books. If the cost of retrieving a news paper on line is costlier than getting a paper copy, it is advisible to get a paper copy. We can go in for computer-readable format if:

1 The computer access is less expensive than purchasing the books.
2 The computer access is timely and simple.
3 The document is available through online only.

6.10 Library Building–Impact

Libraries will not be throwing out the existing collection of print material in the next 10 years. If automation is introduced, expansion of space for the public may be cut short because they can acces the contents of the library from their personal computers at their house.

What about space for staff ? This will be rather a difficult problem to be solved by reviewing the position in each library.

6.11 Human Factor–Impact

(a) Library automation is not one-time event but a continuing process. The organisational functions will affect the staffing functions. The staffing function will affect the planning function.
(b) The traditional responsibility and authority cannot be maintained.
(c) Automation may be either a positive force or a negative force on the employees.

6.11 Positive Effects

1 Cane relieve from the repetitive work.

2 Supervisory staff get more time on decision making.
3 Output can be used in many ways.

6.12 Negative Effects

1 Skill of catalogus are lost.
2 Eliminates certain posts.
3 Interpersonal communication is lost.
4 Training: Library staff should have participatory spirit and provided training.
5 Changes will affect the library staff. They will resist these changes. Staff re-organisation in branch libraries may be a relief measure. Bringing out various library publications usful for researchers and the public will enhance the library services

7 Conclusion

It is difficult to forcast the future of a library after 2 years. The library of Texas University has taken a project on this problem. We cannot imagine how our patrons will behave after two years.

Changes will continue. The Automation age has given the librarians a chance to improve their skills. If they donot learn computer application, the field will be dominated by computer specialists.

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From Papyrus to E-mail: Progress or Threat

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Abstract

From the days of papyrus to the present, libraries are undergoing tremendous developments. Libraries are getting a face-lift to their conventional meaning with the invasion of IT in all spheres of library systems. The connotations of Librarians and Libraries have also changed to Cybrarians, Resource Managers, Web Masters and Information Centres respectively.

The collections are undergoing transformations in the form of electronic products. The penetration of IT in all information handling activities has increased the demand of new services and also new information dissemination mechanisms. Thus IT has made an impact on the publishing trade, the vendors, library staff and last but not the least the end users. As a result the library profession faces new challenges and new responsibilities. No doubt the traditional role of Libraries and Librarians has become difficult due to this progress but it is also not a threat to the profession with a number of ethical issues coming into focus.

1 Introduction

In ancient times as human civilization started progressing stone, metal plates, papyrus rolls were the main sources of writing material. Papyrus, as the standard writing material was used as early as 900 BC by the Greeks who passed it on to the Romans. The Greeks set up libraries of papyrus books in all the cities that were founded from Sicily to the Black Sea. Alexander the great is credited to the establishment of the famous library of papyrus books at Alexandria. The other writing materials that later evolved were clay tablets, parchment and in India birch - barks and palm leaves followed by paper. The paper finally became the essential

writing material of the present civilization and has played a major role in the collection development in libraries. Today's libraries, however, are having steadily growing variety of materials other than paper. These fall under the generic term non-book materials.

Libraries today have in their collections an ever growing variety of materials in non book format, films, filmstrips, microforms, optical discs, sound recordings, magnetic media and so on. These are considered technological alternatives to print on paper. Yet, we cannot visualize a stage whether they can totally replace paper in the future with the rapid changes in the information scenario.

We are now in an era in which information plays a role much more vital than even before. Information is growing every day both in extent and depth. The emergent information technologies today challenge our libraries to respond to this technological change. The libraries can no longer remain unaffected and continue to restrict their scope of activities catering around only the traditional paper based media.

For many years the quality of our libraries have been measured by the size of their collections. Before the computers and networks arrived on the scene, this served as a reason for access to scholarly information. What is now evident is that library service is measured by the ability to access speedily relevant material. The actual physical location or format of that material is generally not important to the end user, be it an academic, public or special library.

2 Purpose

The purpose of this paper is to study the impact of IT not only on the library professionals, but also on the publishers cum vendors and ultimately the end users thus forming a triangular perspective.

3 Impact of IT

3.1 Library Staff

The library staff have felt the impact of IT in a major way, such that they are on the edge always.

a. To be aware and be familiar in the usage of the latest trends occurring around them. and
b. To maintain the library's traditional duties.

One doesn't know which should get the priority the electronic methods or the traditional methods.

In the age of information explosion, the old methods of information

collection, storage and retrieval are being replaced progressively. The role of library professionals is compelled to change as an information gatherer and information provider from the maximum possible resources available globally. The Librarian's skill to contribute towards Universal Bibliographic Control (UBC) and the Universal Availability of Publication (UAP) will be helpful to create standard databases and networks. This will help to get the standardised information to the end user even in the online status. Expert systems designed for 'easy to use systems' can make librarians' life much better. This will enable librarians to use their time for more creative job related activities, instead of doing time consuming repetitive tasks.

Library staff have been continuously upgrading their skills and knowledge with changes in technology. Non traditional library staff such as network administrators, software specialists will have to be added to the staff complement replacing outdated positions.

It may not be necessary to have classification, cataloguing codes, subject headings lists etc., which were the basic fundamentals in any library. The current scenario is if one knows the availability of the information somehow i.e. OPAC, On-line and the accessibility one need not go physically to the library. Thus the issue now is 'Access v/s Acquisition' if one is able to access information they need not necessarily be acquired. Most of the documents will begin to arrive in full text form or may be available on line then there is no need to house the documents in the library and the staff with proper training and orientation can assist the users in handling and disseminating the new information resources.

Printed books and reference sources may become archival collection. Librarians' expertise in all these areas may not be required at all. As increasing number of reference works are converted into electronic formats; it is hard to predict how long reference works that do not have electronic accessories will survive. Similarly so with the card catalogues, abstracting and indexing journals, alongwith the full text journals, compiling bibliographies and select lists these may become things of the past and may remain in theory only and even if libraries are closed on holidays/weekends the Net is there, and the web makes rare sources available anywhere.

3.2 End Users

Due to information explosion the universe of knowledge is expanding its dimensions by including interdisciplinary subjects. This helps to develop the specialised databases on the Internet. The maintenance of librarian—

user relationship will be helpful in knowing the individual user interest/ need in a specific area. The users are IT savvy and know their needs and wants. They know to separate the physical facility that houses the collection from access to the collection.

But sometimes there are so many IT products that users do not discriminate between computer terminals and think that an optical disk workstation is the same as the online catalog Terminal.

The demand in expecting more than bibliographic (OPAC) queries is growing. This demand takes several forms—union catalogues, full texts, abstracts, journal TOC, electronic delivery, etc., and all these are different formats of the electronic environment.

3.3 Publishers/Vendors

Electronics products like CD's are available in plenty in the market, but like music CD's the books/journals CD's do not get sold easily but only if there are software programs or against a specific requirement they get sold. One cannot procure multiple copies of CD's, Floppies like multiple copies of books. The shelf life of such products is still debated. Nobody knows for sure whether the contents of the CD are intact or not. Thus one can land up with a number of unsold unwanted collection on their hands.

The usage of libraries depends on their clients or users. In large libraries where the infrastructure is fully developed, use of such products is easy, but in smaller libraries with some antique computers and with the ever-changing IT scenario, users are deprived of the latest developments of IT products.

4 IIT Bombay – A Changing Scenario

Central library of IITB is one of the elite libraries in the country. Years ago the non-book material were the microfilms. As time passed, computerization gradually came in. The first application was in the conversion of the database from the printed catalog cards. The main reason for this was to have a minimal database to match the circulation functions of issue/returns, claims plus search by author and title. As this became functional in use, the bar codes were introduced going one step further in the circulation transactions. As a parallel system this database also served as an OPAC for the users.

While this was being implemented the acquisition program got under way with programs for the automatic generation of catalogue cards.

The services side were enhanced with the introduction of the CD-

NET, SDI and CAS services took a new turn with the CCOD Alerts and the latest additions of books/reports/journals received being sent by e-mail avoiding the use of printers and stationery. The library home page is another added feature. With the Internet connectivity, searching on the web and electronic journals, international institutes' database and publishers database have made it a reality. Since March 1999 the IITB home page is updated with the extended abstracts of theses and dissertations of IITB Ph.D. and M.Tech. students. While this is the present scenario, the resources seek attention to make their existence and subsequent use. The marketing of the resources and information is done by conducting programs under the continuing education program, sending the 'Know Your Library' and 'Library Rules' to the corporate organizations—thus attracting a number of corporate members.

5 Electronic Products – Problems

IT has grown exponentially in terms of memory, bandwidth, resolution, speed, search engines and browsers and this scene will go on changing.

As the transition from papyrus evolved, the life of IT products is also under threat, the present CDs, floppy diskettes, multimedia may give way to something else. As it is the technology is changing very fast. Libraries may have outdated machine readables, which may not work with the ever-changing systems.

While these electronic products are easier to use, some need supplementary programs without which they are not functional. A lot of dependency on other factors such as power, speed, connectivity, user friendly systems become prerequisites for such systems.

The IT products can become a threat for survival by themselves e.g. one doesn't know whether data in CD-ROMs after 10–15 years remains as it is or gets corrupted. In the event of the printed copies of the same being thrown away if the CD gets corrupted, there is no access for this data.

Versions of software keep on being updated and many a time programs cannot run on the newer versions.

Management, storage and retrieval of floppy diskettes, CD-ROMS, audio/video cassettes in large numbers are problematic. Neither do they have any archival value nor are they easily retrievable when required for e.g. picking up a particular issue of CCOD amidst a stack of 4 or 5 year old floppy diskettes. It may not be also required, as the full text of the article may already be available.

Contents license such as the ownership of the material, restrictions

on use and users, restrictions in order to honour agreements negotiated with vendors, which includes scanning, are all to be thought of.

As information becomes more easier and universal via the information super highway the electronic environment makes it easier to alter the content. Thus the users would like to know whether the material and versions is unadulterated and copyright becomes questionable.

Further problems for Online and Internet are:

- It lacks standards and validation;
- In some electronic journals there are many procedural steps before one can access articles;
- Minimal cataloguing i.e. Cataloguing printed books. done on the Web may not done by professionals but by publishers/producers;
- Less support for serious information searchers; and
- While IT is easy to use, fast, quick access, but many a times one needs supplementary programs such as Adobe acrobat, Netscape Navigator, Java, Internet Explorer etc. it isn't self sufficient like printed books.

6 Ethical Issues

- Copying CD-ROM contents on to hard disk not only in the 1st place but also in many places;
- Accessing CD-NET across a campus, but non-bonafide users using at remote locations within the campus;
- Users accessing for their friends etc. under their names;
- Workstations have a number of in-built programs but users go beyond the specified programs or communicate with other PCs, access remote sites with proxy servers;
- Computer specialists taking over librarians jobs; and
- Making copies of full text of articles and adding to their collection;

7 Expertise and Financial Management

At one time librarians could do their own financial management, presently they have to depend on the computer experts for the infrastructure requirements unless librarians are fully qualified and knowledgeable about their requirements. Now a days the budget has to be earmarked with great precaution to infuse the IT products alongwith the printed material. Greater justification is necessary while deciding to go in for abstracting and indexing journals their relevance and continuity in renewing.

8 Conclusion

Thus with the IT products in vogue in libraries, librarians have accepted and adapted this technology along with the role as a proactive advisor to different user groups. But the basic mission like the Hippocrates oath has remained unchanged—i.e. To provide the right information to the right reader at the right time. While we have coped with the manuscript, print, microforms all these years, CD-ROM's, Online, and the Internet are just some more formats in which we are getting expertise and the underlying current is the information is what that matters most.

One wonders if today's multimedia formats had been available to the dramatists, would they have written plays to be performed on stage?

What would be the consequence of a tremendous spurt of information available in electronic format? We may find ourselves drowning in an ocean of information.

Yet, with all this plethora of electronic products libraries will still survive the onslaught of digital publishing and will continue to play a critical role in facilitating access to a wide range of recorded information/ knowledge resources.

The hype about the IT at the international level is so much that at present the printed formats (books, journals etc.) are being side-tracked. One wonders whether this hype will remain on priority or will it die down? However, in the Indian context the print media is still supreme, popular and demanding.

Some have predicted that technology will cause the demise of the libraries. We need not have any fear on this aspect as we have accepted the challenge already and are progressing well ahead. Libraries are here to stay, but by no means are they going to remain the same. Technology is a tool, which will evaluate libraries to deliver service in a more efficient manner.

This new technology will produce a dramatic improvement in productivity in the libraries. In 1964 Jesse Shera stated, 'we can build machines to do library work . . . the machines are ready for us. . . . But we are still very far from being ready for machines'. In a nutshell are we librarians ready to talk advantage of the new library technology?

The answer is obvious we are.

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Information Technology a Boon or Bane for the Libraries

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ABSTRACT

Libraries were in existence even during the period of ancient civilizations Babylonia, Mesopotamia, Assyria, Egypt, India etc. Format for writing went on changing with the passage of time because of the efforts of human beings to invent or discover new things for there help. Whenever a new format of writing appeared on the scene there was a resistance to accept the same. Paper though a product of BC period, took about one thousand years to be popular all over the world. Inspite of initial resistance the paper made a permanent place in the libraries.

The last few decades of twentieth century saw the emergence of new technologies like computer, CD-ROM, e-book, e-mail, DVD, internet etc. Therefore, some scholars started talking about 'Paperless Society' and end of the traditional libraries. 'Paper libraries' will continue with the help of new information technology. Computerisation of libraries will make the library functioning accurate, fast and more efficient. Internet too will help library users to get information from all the world over. New information technology has come and will stay therefore, the libraries and librarians should never think of it as a challenge or threat but a boon.

1 INTRODUCTION

Libraries were in existence even during the time of ancient civilisations of Babylonia, Mesopotamia, Egypt, Assyria, India etc. before Christian era. These libraries, though generally the creation of kings and nobles, also proved useful for the scholars as well as students of elite class. The material used for writing books mainly depended on its availability in abundance in that region.

With the passage of time the format of the library changed. In the initial stage clay tablets, papyrus, stones, rocks, pillars, leaves, skins of the animals were used for writing purpose. Metals and cloth were also used for writing purposes. In India leaves of trees and cloth continued to be popular even after the advent of paper. With the changes of form of writing material condition of the libraries also changed.

Change is the law of nature. Human brain goes on inventing/discovering some thing new which may prove more useful than the ones which are in existence. Because of all these developments the shape of the libraries went on changing from time to time.

Regardless of the fact whether paper originated in India or China, one cannot deny that its popularity was so slow that it reached the Europe after a gap of about one thousand years. Paper, in the initial stage, was not liked by the scholars because of its short life and brittle nature. Use of paper greatly changed the outlook of the libraries as it covered very less space and was easily portable. Illustration and illumination got great prominence as it was very easy to make the same on the paper.

Undoubtedly every new format of writing must have been received with some resistance. It takes a very long time for the new thing to be accepted by the orthodox or traditional society.

2 Printing Era

However, paper has been universally accepted now as the best form for writing, publishing etc. Before printing machine was invented, efforts were made by scholars to prepare wooden blocks for preparing a large number of copies of one book. Even the arrival of the printing press was not liked by the Indians. Jahangir the Mughal Emperor, could not understand the significance of printing press which was offered to him by the ruler of England.

It was Sikh ruler Maharaja Ranjit Singh who understood its significance and installed the printing presses for low priced publication of holy Adi Granth. However, these were burnt down by the fanatics who considered printing of Adi Granth a sacrilege.

3 Advent of Computers

Before the advent of computers in India there was a great opposition as most of the unions of employees feared retrenchment of their staff because of computers. Now it is a known fact that computer technology has been accepted in almost every field of life and in almost every profession.

India is now one of the few countries which are producing large number of computer literates in the world. From PC to supercomputer are now being manufactured in India.

Library is also one field which has accepted computer technology for the help of staff as well as the users. With its help almost every function of the library has become easy. CD-ROM technology which covers encyclopaedias, classic works and journals etc. is very useful for the libraries. In near future DVD's may prove more useful for the libraries. Within seconds the user can know the availability of any book. Even with minor information the user can find the document with the help of a computer. E-mail, E-book, networking, internet etc. are proving and will also prove very beneficial to the libraries in the future.

4 Internet and Libraries

The real threat which is generally voiced by librarians is from the internet. When one thinks that every library book and journal will be available on the internet this apprehension arises.

At present, the existing internet is being felt as choked and scientists are thinking of Internet II for Science and Technology. India and a large number of countries are still in developing stage. Even the countries of middle economy are using the books in paper form. Only five or six countries can claim to be rich in information technology and are experiencing a new 'Information Society'. Internet in India is at present for the help of traditional libraries. With its help general information about sources, libraries, institutions, countries, electronic journals, various subjects, etc. can be obtained. So far in India about four lakh institutions and individuals have internet connections.

India is a country of very low economy, severe poverty, almost fifty per cent illiteracy, non-electrification of thousands of villages, severe power cut in rural and urban areas during summer season and also at any time can be several reasons in still making the country incapable to compete the advanced countries.

Population of India is nearing one billion and the number of Internet connections is almost negligible. Our colleges and governments schools are yet without this facility. Some of the universities have got connections and some are in the process of getting it. UGC through INFLIBNET is substantially helping the higher institutions in getting the Internet infrastructure as well as the staff.

To consider Internet as a replacement of library is not a correct thinking. Paper form has a long life to stay yet. Printing on paper cannot be eliminated.

Countries of low economy and of middle economy are already facing financial crunch. The universities and research institutions are facing a great difficulty in continuing with the subscribed research journals. Year after year, a significant number of journals are being cancelled. The journals with print which are available on the internet are ten percent more costly than in printed form. Thus the universities which are unable to pay the price of printed journals will not venture to pay extra money for the same on internet.

Undoubtedly, the libraries in some developed countries are moving fast to digital and virtual library. But in India only a few research or special libraries are passing through the phase of polymedia library. To think of 'Paperless society' and 'virtual library' in the immediate near future is a cry in the wilderness.

Librarians should be given training in information technology it will be feasible only if the schools of library and information science include this subject in their syllabii and also give practical training to the students. A number of institutions are offering short courses for the working librarians.

Libraries as well as the librarians are slowly adjusting with the changes being made by information technology in India. Therefore, information technology should not be considered as a challenge to the existence of the libraries but as a boon making the library work more efficient, fast and accurate from where no user will go unsatisfied.

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Networking of SAU and ICAR Institute's Libraries Collection: Problems and Prospects

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ABSTRACT

Indian Council of Agricultural Research (ICAR) is an autonomous body of the Department of Agricultural Research and Education (DARE), is responsible for the organization and management of research and education in the field of agriculture in India. ICAR Research Institutes (45) National Research Centres (30), Project Directorates (10), State Agricultural Universities (29), National Bureau (4) and All India Coordinated Research Projects (79) are involved in Agricultural Research and Education in the country

The Paper presents data pertaining to the-Name of the Agricultural University, year of establishment, no. of colleges, enrollment of student, library holding (books, back volumes, journals subscribed, computerisation (Y/N), annual budget in. 29 State Agricultural University (SAU) Libraries. It also presents data pertaining to the-name of ICAR Institute, year of establishment, library holding (books, back volumes Indian and Foreign journal subscribed), computerisation (Y/N) and annual budget in 56 libraries of ICAR Institutes.

The paper highlights role of Agricultural Research Information System (ARIS). Discusses present status of SAU and ICAR Institute's Libraries; the need the networking of SAU and ICAR Institutes Libraries; and the requirement for establishing of a Central Agency under ICAR to guide SAU and ICAR Institute's Libraries for adapting new information technology, staff training, development of local databases, retrospective conversion, promoting networking activities, etc.

Problems and possible solutions of computerisation, networking of SAU and ICAR Institute's Libraries and selection of hardware, software, training of staff and retrospective conversion. Finally the conclusion has been drawn with the help of available data.

1 Introduction

Agriculture has been a part of the human life for several thousands of years. It supports, directly and indirectly, about 70 percent of the population of India for their subsistance. It is one of the most vital sectors in the economy of our country. The Indian 'National Agricultural Research System (NARS)' provides necessary scientific research support for the agricultural development. The research work accomplished and achievements in food production in India has been remarkable. Sharing of resources is inevitable for Research support as none of the libraries and information centers are self sufficient in the resources. In the present age of information explosion and limited library budget, it is to difficult to satisfy the need of scientific community in the field of their interest. Networking of libraries and information centers, is, thus, an urgent need of the present era of resource sharing.

2 Scope & Methodology

The Scope of the present study highlights covers collection related aspects of SAU and ICAR Institutes libraries for networking. Most of the data is collected through annual reports and Perspective Plans-Vision-2020 of the particular Institutes. Apart from this, the University Hand Book and other documents are referred. The data so collected through documentary sources, may have some changes within last two-three years.

3 National Agricultural Research System (NARS)

The Imperial Council of Agricultural Research (ICAR) was formally established on 16 July 1929, to promote, guide and co-ordinate agricultural research throughout India. After 1947, the ICAR came to be known as Indian Council of Agricultural Research. The department of Agricultural Research and Education (DARE) was established in Ministry of Agriculture in December, 1973 ICAR is an autonomous apex body of the Department of Agricultural Research and Education (DARE), is responsible for the organisation and management of Research and Education in the fields of Agriculture (Crop Sciences, Horticulture, Soil Science, Agronomy & Agroforestry, Agricultural Engineering), Animal Sciences and Fisheries in India. ICAR Research In Institutes (45), National Bureau (4), Project Directorates (10), National Research Centers (30), All India Co-ordinated Research Projects (79) and State Agricultural

University (28) are involved in Agriculture Research and Education in the country. Apart from these, for effective transfer of research findings among the farmers, the ICAR maintains 261 Krishi Vigyan Kendras spread over the country.

4 Agricultural Research Information System (ARIS)

In order to strengthen the information management culture using modern Information Technology within the Indian National Agricultural Research System (NARS), the ICAR has initiated a project called ARIS. The major objectives are :

i. To put Information close to the managers and scientists;
ii. to build the capacity to organise, store, retrieve and use the relevant information into the agricultural research infra-structure;
iii. to share information over NARS;
iv. to improve the capacity to plan, execute, monitor and evaluate the research programs;
v. Information System Development project of ARIS would support establishment of network of library information system and provide training in library information system as ARIS has hour information modules of Agricultural Research information system on Personnel, Financial, Library and Management.

4.1 Agricultural Research Library Information System (ARLIS)

The module is based on Computerisation and Networking of SAU and ICAR Institutes libraries. Under National Agricultural Technology (NATP), the ARLIS would improve online access by Indian Agricultural Scientist to the :

i. international databases and scientific literature;
ii. new databases on Indian agricultural and socio-economic research and development to be created under ARLIS;
iii. external databases accessible through the World Wide Web (WWW)

The efforts are being made to create more and more CD ROM libraries at centralised places accessible to all concerned.

Among these modules ARLIS is one of the crucial modules of ARIS. It needs systematic planning and implementation in terms of adapting Software, Hardware and training of staff.

5 State Agricultural University Libraries

The State Agricultural Universities are autonomous institutions established by the concerned State Governments by Acts passed by the respective State Legislatures. In 1960, the first agricultural University in India was established at Pantnagar 'Uttar Pradesh'. Presently there are 28 State Agricultural Universities and one Central Agricultural University in the county. Apart from these there are four deemed Universities of Indian Council of Agricultural Research (ICAR) offering post-graduate education in various disciplines of agricultural animal sciences. All the Agriculture Universities maintain Central University library for providing information services to students, researches, teachers and agricultural scientist. The present status of SAU Libraries are given in table-1. Constituent colleges and research institutes of SAUs have their own libraries but it has not been discussed.

Table 1: Collections of State Agricultrual University Libraries

S. N.	Name of the Univ.	Year of Est.	Name of Campus/ College	Enrollment	Books	Periodical Back Volumes	Journals Subscribed	Computerisation	Annual library Budget Rs. in Lakhs Approx
1	APAU, Hyderabad	1964	2/13	3324	183000	15000	560	Y	12.54
2	AAU, Jorhat	1969	5/6	1761	79611				20.50
3	BCKV, Nadia	1974	2/4	628	90048				6.50
4	BAU,Ranchi	1980	1/3	800	55385				4.5
5	CAU, Imphal	1993	1/7	129	7744				
6	CSAUAT, Kanpur	1975	2/3	1449	74969				7.18
7	CCShau, Hisar	1970	2/7	2387	157629	75560	337		76.60
8	YSPUHF, Solan	1986	1/2	355	43000			Y	
9	GBPUAT PantNg	1960	2/6	2470	287650		1200		28.93
10	GAU Sardar Krishi Nagar	1972	4/10		113650	24400			13.78
11	HPKV, Plampur	1978	1/4	567	31474	58243			27.60
12	IGKV, Raipur	1987	3/3	461	25000		163		
13	JNKV, Jabalpur	1964	8/10	2065	51000	11500			
14	KAU, Trichur	1971	2/7	1867	100000		1000		10.00
15	KKV, Dapoli	1972	3/5	1120	38393	5823			7.10
16	MPKV, Rahuri	1969	5/7	3047	58015	20515	400		11.66
17	MAU, Parbhani	1972	3/8	1189	45170		1617		14.45
18	NDUAT,Faizzabad	1975	1/2	370	35326		190		6.88
19	OUAT Bhubaneswar	1962	3/8	2910	153000		216		6.00
20	PAU,Ludhina	1962	2/7	2852	275440				

Contd

Contd.

S. N.	Name of the Univ.	Year of Est.	Name of Campus/ College	Enroll-ment	Books	Periodical Back Volumes	Journals Subscri-bed	Compu-erisation	Annual ibrary Budget Rs in Lakhs Approx
21	PRKV, AKola	1969	3/6	4102	123240				11.25
22	RAU, Bikaner	1987	3/8	1230	100000				25.08
23	RAU, Samastipur	1970	4/8	1057	4209		393		12.50
24	SKUAt, Srinagar	1982	2/3						
25	TAU, Coimbatore	1971	6/9	3548	142960		570	Y	28.00
26	TVTASU, Madras	1989	3/3	1386	32043		448	Y	34.18
27	UAS, Bangalore	1964	4/7	2790	150070		832	Y	42.00
28	UAS,Dharwad	1986	5.8	1410	75000		550	Y	31.00
29	WBUAFS, Calcutta	1995		700	15,000	100000	65	Y	8.0
	Total			45974	2548026	221041	8581		456.23

5.1 Analysis

The present study provides information of 29 SAUs libraries collection. The information of library collection mostly pertains to central library of the University. In addition, Constituent colleges and research institutes maintain individual libraries.

The data incidicates that 29 SAU's Libraries are having 2548026-books, 221041 periodical back volumes and 8581-journals subscribed. The collection of these libraries increase annually according to their budget. The total amount approximately Rs 456.23 lakhs is spent by these libraries annually. The study shows 10 libraries have more than I lakh books and 7 libraries subscribe more than 500 journals. The total enrollment of student is about 45974 as per the computerisation concerned, most of the libraries are at inception stage. Seven libraries (APAU, YSPUHF, TAU, TVTASU, UAS (Bangalore), UAS (Dharwad), WBUAFS) are computerised. Under ARIS Project, ICAR has been providing hardware to these library utilising NATP funds. The result is that most of these libraries have been started providing services through CD-ROM databases (i.e. CABCD, AGRINDEX, AGRICOLA)

6 ICAR Institutes Libraries

The present status of these libraries and Information & Documentation Centers (IDC) in terms of adapting new information technology is not satisfactory. Most of the libraries are using CDS/ISIS package as in software. Bigger Institutes like IARI, IVRI,CIFE, CIAE and CPRI have change their platform from CDS/ISIS to Libsys package.

TABLE 2: COLLECTION OF ICAR INSTITUTES LIBRARIES

S. No.	Institute	Year of Est.	Books	Back Volume	Journals		Annual library Budget Rs in Lakhs Approx.	Compu-erization
					Indian	Foreign		
1	IARI, New Delhi.	1905	600000	350000	335	571	110.0	Y
2.	IVRI ,IZatnagar	1889	46583	155000	333	145	20.0	Y
3.	*NDRI,Karnal*	1955	80774	-	275	150	20.0	Y
4.	CIFE ,Mumbar	1961	21200	11000	25	26	16.0	Y
5.	CARI, Port Blair	1978	4900	-	115	57	15.0	Y
6.	CIAE, Bhopal	1978	9174	2518				
7.	CICR, Nagpur	1976	2000	2900	90	60	10.0	Y
8.	CIPHET, Ludhiana	1976	1130	-	25	8	3.5	
9.	CIRCOT, Mumbay	1924	5061	6648	60	30	8.5	
10.	CISH, Lucknow		2152	-	50	45	5.0	Y
11.	CITH., Srinagar	1994	90	-	7	4	1.0	Y
12.	CPCRI., Kasaragod	1970	10371	9956	97	49	12.5	Y
13.	CPRI, Shimla	1949	30579	16010	327	141	15.5	Y
14.	CSWCRTI,Dehradun	1974	6843	3447	48	56	7.0	
15	CTRI, Rajamundry	1947	11912	10837	52	39	11.0	Y
16.	CTCRI, Trivuvanthpuram	1963	12626	-	60	35	8.0	Y
17.	ICARRCG, Goa	1989	865	620	34	21	5.0	
18.	IASRI, New Delhi	1959	23003	5942	80	50	12.5	Y
19.	IGFRI, Jhansi	1962	8214	-90	58	12.0		
20.	IIHR., Bangalore	1968	7401	80774	112	95	14.0	
21.	IISR., Calicut	1957	-	-	40	15	4.5	
22	NIAFT, Calcutta	1988	5601	8205	67	37	8.0	Y
23.	SBI., Coimbatore	1912	5687	4260	60	47	7.0	
24.	VPKAS, Almora	1974	2170	3000	52	28	5.5	
25.	IISS, Bhopal	1988	1532	788	42	28	6.0	Y
26.	IIRI, Ranchi	1925	23233	-	70	32	10.0	Y
27.	CARI, Izatnagar	1979	3500	-	40	25	6.5	
28.	CICFR, Barrackpore	1947	7632	3220	46	20	4.0	
29.	CIBA, Chennai	1987	1000	600	17	12	2.5	
30.	CIFT, Kochi	1957	8162	4966	55	25	5.5	
31.	CIRB, Hisar	1985	405	-	13	11	2.0	
32.	CIRG, Mathura	1979	2500	2000	140	60	12	Y
33.	CSWRI, Avikanagar	1962	7550	-	85	52	12.5	
34.	NIANP, Bangalore				25	12	2.5	
35.	NAARM, Hyderabad	1976	20000	-	200	100	18.0	Y
36.	NBSSLUP, Nagpur	1976	8632	-	32	25	6.0	
37.	NBFGR, Lucknow	1983	-	-	41	27	6.0	
38.	DCSR, Modipuram	1989	1019		30	17	5.0	
39.	DOR, Hyderabad	1977	-	-	50	30	6.5	Y
40.	PDBC, Bangalore	1993	1351	655	14	9	2.5	
41.	PDVR Varanasi	1971	-	-	32	12	3.0	
42.	DWR, Patna	1997	387	107	21	14	2.5	Y

43. PDC Meerut	1987	760	-	15	4	2.0	Y
44. PDP, Hyderabad	1988	230	-	7	11	2.0	
45. NRCAF, Jhansi	1988	1480	-	48	15	5.0	Y
46. NRCC, Nagpur	1985	400	-	28	9	2.5	
47. NRCG, Junagadh	1979	2305	-	30	12	4.0	
48. NCIPM, New Delhi	1988	966	-	39	22	5.0	Y
49. NRCM, Solan	1983	732	2000	30	26	5.0	Y
50. NRCOP, Pedavegi	1995	142	-	5	8	1.5	
51. NRCS, Indore	1987	832	700	48	15	5.0	
52. NRCWT, Bhubaneshwar	1988	900	-	16	8	3.0	
53. NRCWS, Jabalpur	1989	984		55	10	5.0	Y
54. NRCC, Bikaner	1984	550	-	20	10	3	
55. NRCNWF, Holdwani	1987	1091	920	12	6	2.5	
56. NRCY, Dirang	1989	600	-	30	15	2.5	
Total		997184	687373	3848	2488	508	

6.1 Analysis

As we know that all the Institutes are Agricultural Research oriented and they are spending huge amount i.e. approximately Rs 508 lakhs for libraries for subscription of journals, books and other reading material. Some of the journals are common for most of the libraries. As we know that even spending huge amount on library, no one can satisfy the need of all the scientists of their organisation. The best solution for providing maximum services to the users is resource sharing of libraries through Networking. The data indicates that 56 ICAR Institutes are having 997184-Books, 687373-Back Volumes, 3848-Indian Journals and 2488-Foreign Journals.

As we know that approximately all the ICAR Institutes (Including ICAR head quarter) have its own library. IARI library has been recognised as national library for Agriculture in India. It has huge collection of books, journals, back volumes of journals and other documents. Libraries of IVRI, NDRI, CIFE, CRCRI, CPCRI, CPRI, ILRI, NAARM, IASRI have also good collection of documents. The computerisation of these libraries has been done. Other Institutes libraries have not sufficient collection for its specialised user. Among 56, about 27 ICAR Institutes have started automation of their libraries.It is found that in general, NRC libraries are very poor in collection.

7 Networking of SAUs and ICAR Institutes Libraries

The need for the development of databases and information network linking the ICAR institutes and Agricultural Universities to support

research and education was recognised by the ICAR Review Committee (ICAR, 1988). The review team has recommended the development of a computerised satellite-based information network (ICARNET) with on-line terminal connectivity to ICAR institutes and Agricultural Universities. After a decade the present situation of ICAR Institutes and SAU Libraries is that most of the libraries are not computerised. For participating in networking, it is essential that a library should be computerised with the development of in-house database and procuring CD-ROM databases.

In 1994, National Informatics Centers (NIC), New Delhi submitted a proposal to ICAR for establishing NICNET bases Agricultural Research Information System (ARIS NET) for ICAR. Unfortunately it could not be implemented. It has been observed that the efforts are not satisfactory in automation and networking of ICAR Institutes SAU Library.

Presently almost all the ICAR Institutes and SAUs have the E-mail facility through NICNET. The efforts are being made to modernise the libraries and establishment of ARLIS under Information System Development Programmes of ARIS.

8 National Agricultural Documentation Centre (NADOC)

As we know that the Indian National Agriculture System is one of the largest systems in the world. There is no comprehensive documentation centre at National Level. 'The Indo-American Library Survey and Study Team (ICAR, 1969) recommended for the establishment of a National Agricultural Documentation Center located at the IARI Library which would also be a clearing house for Indian Agricultural Literature'

Most of the Institutes have their own documentation centres. They are providing services to ful-fill the local users need. There is an urgent need to establish NADOC under ICAR, which can provide guidelines to related institutes in following manner.

- Adopting new Information Technology (IT) i.e. Hardware, Software, Operating systems.
- Providing training for staff in terms of new trends and new Information Technology.
- Providing help in retrospective conversion and development of local database
- Promoting networking activity.
- Establishing ICAR NET for libraries.

- Providing services from International databases like AGRIS, CABI etc.

As we know the institutes of national importance in India are working as documentation centre and providing information services in their respective areas i.e. INSDOC on Scientific subjects, DESIDOC on defense, NASDOC on Social Science and on Textiles. Since we know that Agriculture is one of the important and largest sectors in India, there is urgent need for establishing NADOC on Agriculture. NADOC can play a vital role in Agriculture like other Institutes of National Importance for specific sectors.

9 Problems & Prospects

The libraries of ICAR Institutes of SAU's are facing many problems in terms of automation and networking. Some of the problems and possible solutions/prospects are discussed below:

9.1 Problems

(a) *Planning and Implementation:* There is time lag between planning and implementation of adapting of new information technology.

(b) *Soft ware Selection:* It is found that software selection is one of the crucial problems in libraries. These libraries are still facing the problem of selecting software. Most of the agricultural libraries are using CDS/ISIS because (i) the package is available at nominal cost and

(ii) ICAR set-up NAARM, provides training on CDS/ISIS for automation of agricultural libraries. The CDS/ISIS users encountered following problems:

i. It is not user friendly;
ii. Non availability of acquisition serial control and circulation modules;
iii. It needs programming for generating catalogues and bibliographies;
iv. Non availability of multi-user environment like UNIX operating system, and
v. Unsuitable for networking etc.

Now these libraries are changing their software platform and adapting other packages like Libsys and TECHLIBplus. The Libsys is available both on multi-user and signal user environment. It is different modules for almost all the functions related with library. TECHLIBplus is multi-

user, full text retrieval and REBMS package for all the functions of library.

(c) *Selection of hardware.* The technology is experiencing a fast change at present. The latest hardware should be provided to the libraries keeping in view the present and future needs. The hardware should be powerful from initial stage. The purchase procedure is cumbersome and lengthy.

(d) *Lack of Networking.* Presently none these libraries are connected to each other for networking. Most of these libraries are waiting for Internet connection.

(e) *Lack of Information Scientist.* In ICAR system, scientific staff play an important role for planning and implementation of new technology in every field, both the local and national level. Since there is no provision of Library and Information Science discipline in Agricultural Scientists Recruitment Board (ASRB), no positions are filled up by appointments of scientific staff in this discipline. Presently only library technical staff and librarians are handling these library.

(f) *Training.* Though training for library staff of ICAR-SAU is conducted by NAARM from time to time on CDS/ISIS and related topics but looking to the matter of networking and fully automation of libraries it may be reconsidered.

10 Prospects/Suggestions

(a) For reducing planning and implementation time ICAR should form guidelines for its sister institutes and SAU libraries adapting new information technology.

(b) Selection of software should be done by ICAR at Central level. It is desirable that is common software be selected for better networking. Many libraries using CDS/ISIS but networking point of view it is not suitable. Hence libraries should adapt other RDBMS package like Libsys and TECHLIBplus etc.

(c) Latest hardware was higher RAM and HD capacity should be provided to the libraries It should be updated from time to time. State of art technology should be adapted.

(d) Networking of these libraries should be done on priority basis for resource sharing. Internet connection should be provided to each library as earlier as possible.

(e) Library and Information Science should be included as subject in ASRB. Therefore, Information Scientist should be appointed for library and information centres.

(f) Though NAARM provides training for library staff on CDS/ISIS, but training programmes for other library packages should be organised.

11 Conclusion

The efforts being made to develop Agricultural Research Library Information System (ARILS) under NATP. SUAs and ICAR Institutes libraries are having sufficient budget of approximate Rs 964.23 lakhs per year for purchase of books, journals and other documents. Collection of these libraries is almost 3545210 books and 908414 back volumes of journals in addition to subscribed journals numbering almost 14917 (Indian and foreign) every year. The present data is not complete and comprehensive as the information on some libraries is not available. The collection and budget of SAUs and ICAR Institutes libraries thus, are more than the data presented. Looking to the matter of collection and budget of these libraries, they can provide excellent resource sharing among themselves. Procurement of Journals should be encouraged in CD-ROM or the resources sharing.

It is found that Automation work of most of these libraries is not satisfactory for participating in networking. We found that seven SAUs and 27 ICAR Institutes libraries have been computerised, but the reality is that most of these are maintaining only bibliographic databases. Hence in real sense they are not completely computerised. Retrospective conversion is also pending in many libraries. Networking of these libraries will improve research and planning, reduce duplication in research efforts, encourage dissemination of research findings and sharing resources. A common software is to be selected looking into all future implication which can work on UNIX or LINUX Internet connectivity should be provided to all these libraries. Some of the libraries have been computerised like IARI, IVRI, NDRI, CIFE, CARI, CIAE, CICR, IASRI, CPCRI, CTCRI, NAARM etc.

Though many of these libraries have been computerised but the facility created is not being fully exploited/put to use. It requires more concerted efforts in this direction. Looking to the matter of networking and future planning the adoption of Integrated and RDBMS software like TECHLIBplus is suggested.

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APPENDIX I

Agricultural Universities

1 APAU: Andhra Pradesh Agricultural University.
2 AAU: Assam Agricultural University.
3 BCKV: Bidhan Chandra Krishi Vishwavidyalaya.
4 BAU: Birsa Agricultural University.
5 CAU: Central Agricultural University.
6 CSAUT: Chandra Sekhar Azad University of Agriculture and Technology.
7 CCSHAU: Chaudhary Charan Singh Haryana Agricultural University.
8 YSPUHF: Dr Yashwant Singh Parmar University of Horticulture and Forestry.
9 GBPUAT: Govind Ballabh Pant Univeristy of Agricultural and Technology.
10 GAU: Gujrat Agricultural University.
11 HPKV: Himachal Pradesh Krishi Vishwavidyalaya.
12 IGKV: Indira Gandhi Krishi Vishwavidyalaya.
13 JNKV: Jawarlal Nehru Krishi Vishwavidyalaya.
14 KAU: Kerla Agricultural University.
15 KKV: Konkan Krishi Vidyapeeth.
16 MPKV: Mahatma Phale Krishi Vidyapeeth.
17 MAU: Marathwada Agricultural University.
18 NDUAT: Narendra Dev University of Agricultural and Technology.
19 OUAT: Orissa University of Agricultural and Technology.
20 PAU: Panjab Agricultural Univeristy.
21 PRKV: Panjab Rao Krishi Vidyapeeth.
22 RAU: Rajasthan Agricultural University.
23 RAU: Rajendran Agricultural Univerisity.
24 SKUAT: Sher-E-Kashmir University of Agricultural and Technology.
25 TAU: Tamilnadu Agricultural University.
26 TVTASU: Timilnadu Veterinary & Tamil Animal Science University.
27 UAS: Banglore: University of Agricultural Sciences.
28 UAS: Dharwad: University of Agricultural Science.
29 WBUAFS: West Bengal University of Agricultural and Fisheries Sciences.

ICAR Institutes

1 IARI: Indian Agricultural Research Institute.
2 IVRI: Indian Veterinary Research Institute.
3 NDRI: Natinal Dairy Research Institutre.
4 CIFE: Central Institute of Fisheries Education.
5 CARI: Central Agricultural Research Institute.
6 CIAE: Central Institute of Agricultural Engineering.
7 CICR: Central Institute for Cotton Research.
8 CIPHET: Central Institute of Post Harvest Engineering & Technology.
9 CIRCOT: Central Institute for Research on Cotton.
10 CISH: Central Institute for Sub-Tropical Horticulture.
11 CITH: Central Institure for Temperate Horticulture.
12 CPCRI: Central Plantation Crops Research Institute.
13 CPRI: Central Patato Research Institure.
14 CSWRTI: Central Soil & Water Conservation Research and Training Institute.
15 CTRI: Central Tobacco Research Institute.
16 CTCRI: Central Tuber Corp Research Institute.
17 ICARRCG: ICAR Research Complex for Goa.
18 IASRI: Indian Agricultural Statistics Research Institute.
19 IGFRI: Indian Grassland and Fodder Research Institute.
20 IIHR: Indian Institute of Horticulture Research.
21 IISR: Indian Institute of Spices Research.
22 NIJAFT: National Institure for Research on Jute & Allied Fibre Technology.
23 SBI: Sugarcane Breeding Institute.
24 VPKAS: Vivekananda Parvatiya Krishi Anusandhan Shala.
25 IISS: Indian Institure of Soil Science.
26 IIRI: Indian Lac Research Institute.
27 CARI: Central Avian Research Institure.
28 CICFRI: Central Inland Capture Fisheries Research Institure.
29 CIBA: Central Institute of Brackish Water Aquiculture.
30 CIFT: Central Institute of Fisheries Education
31 CIRB: Central Institute for Research on Buffaloes.
32 Central Institute of Research on Goats.
33 CSWRI: Central Sheep and Wool Research Institute.
34 NIANP: National Institute of Animal Nutrition & Physiology.
35 NAARM: National Academy of Agricultural Research Management.

36 NBSSLUP: National Bureau of Soil Survey and Land use Planning.
37 NBFGR: National Bureau of Fish Genetic Resources.
38 DCSR: Directorate of Cropping System Research.
39 DOR: Directorate of Oil seed Research.
40 PDBC: Project Directorate of Biological Control.
41 PDVR: Project Directorate of Vegetable Research.
42 DWR: Directorate of Water Research.
43 PDC: Project Directorate on Cattle;
44 PDP: Project Directorate on Poultry.
45 NRCAF: National Research Centre for Argo-forestry.
46 NRCC: National Research Centre for Citrus.
47 National Research Centre for Groundnut.
48 NCIPM: National Centre for Integrated Pest Management.
49 NRCM: National Research Centre for Mithun.
50 NRCOG: National Research Centre for Mithun.
51 NRCS: National Research Centre for Soyabean.
52 NRCWT: National Research Centre for Water Technology.
53 NRCWS: National Research Centre for Weed Science.
54 NRCC: National Research Centre on Camel.
55 NRCNWF: National Research Centre on Cold Water Fisheries.
56 NRCY: National Research Centre of Yak.

29

Resource Sharing, Network and Networking

OM PRAKASH TYAGI

ABSTRACT

In the fact of technology change, the role of information providers, such as libraries are being re-evaluated and re-shaped. The age when such technologies challenge the way in which we live, the transactions that we perform, the knowledge creation process, and the way in which knowledge is evaluated for the public domen is just beginning to dawn.

In this context libraries/information centre will have an important contribution to society. Libraries/information centre will employ the latest technology to provide access to a mixed collection of print and electronic information resources (books in different formats, like PDF, HTML and PS) for the benefit of the user population that they serve. Their objective is to provide appropriate access to information coupled with the preservation of cultural heritage, in a world in which information is stored and retrived in variety of different formats. Local-area networks (LANs), wide area networks (WANs) and, powerful and having more security LAN through Intranet are important means of communication within and between organizations.

1 RESOURCE SHARING

Resource sharing is based on the concept that the collective strength and effectiveness of group of libraries is greater than that of its member taken individually and then added up. The major objectives of resource sharing are as follows:

1 Sharing of resources to supplement a library's own collection,
2 Effective economy,
3 Sharing of efforts and expertise,
4 Bringing in standardization.

The scope of library resource sharing has gradually expended from lending books to include (a) supply of bibliographic data on book, (b) cooperative acquisition, (c) centralized staking of less used material, (d) exchange of publications, (e) centralized cataloguing and (f) training of personnel. Resource sharing may at for levels- local, regional, national and international.

Successful resource sharing among libraries and its effectiveness depend to large extent on the following factors:

1 Faith in the advantage of resource sharing on the part of libraries and mutual trust.
2 A formal understanding among authorities of libraries intending to resource sharing.
3 A body to coordinate the various function of the resource sharing system.
4 Framing of suitable rules and procedures.
5 Standardization of forms, formats, and procedures.
6 Creating a suitable organization structure needed for functioning of the resource sharing.
7 Availability of suitable reprographic facilities in all participating libraries.
8 Establishment of effective communication and overcoming problems of logistics.

1.1 Library and Network

The application of computers and telecommunication capabilities to transmit vast amount of information and data over long distances of high speed has provided a break through in the field of resource sharing and other forms of library cooperation. One outcome of such application is the coming into existence of many library and information networks, also known as cooperatives. The following are the principal motives behind networking:

1 Maximizing the utilization of existing information resources/ collection by sharing.
2 Providing speedy access to information resources located at different places through communication channels for mutual benefit.
3 Collection control and specialization.

The escalating costs of information source materials, increasing cost of processing documents and their information contents, decreasing budgets in terms of real worth and wide use of computers have also

contributed to the development of networks. Network evolution shows two trends:

1 A banding together of various type of information resources (e.g. libraries, information systems, referral center) into a type of communication cooperative.
2 A network of computerized information activities, presumably inter connected to permit machine-machine interface. It is generally assumed that man will interface with the computers through remote, real time access terminals.

1.2 Network Objectives

A library/information network may have any or all of the following objectives:

1 Sharing resources,
2 Sharing efforts and expertise,
3 Sharing cost, and
4 Standardizing input-output and processing a resource to be shared.

To fulfill network objectives, it is essential, to define its information-seeking functions and design suitable services, shared cataloguing (On Line Access Catalogue-OPAC), On line reference, shared circulation (On Line Circulation-OLC: Bar-code Circulation System) and on line transmission of data/information are some of the services rendered by networks.

2 Network

A network consists of two or more computers that are linked in order to share resources (such as printers and CD-ROMs); exchange files, or allows electronic communications. The computers on a network may be linked through cables, telephone lines, radio waves, satellites, or infrared light beams. A typical definition of a data network today would read as: "A data network is an interconnected system of computers, peripherals and software over which data, files and messages are sent and received."

The two basic types of networks include:

1 Local Area Network (LAN)
2 Wide Area Network (WAN)
3 Intranet

2.1 Information Communication and Networks

The combination of computer technology and telecommunication link is a necessary prerequisite for on advanced information society. Originally,

telecommunications involved the transmission of information, which computers ware dedicates to the processing of information. Now data communication systems linked to computers have made it possible to process information and transmit data to any location instantaneously in addition, the combination of computers and telecommunication has improved technology of both contributing areas, and offered new means of communication and data storage such as E-mail, electronic journals and videotext. The use of telecommunication in conjunction with computers offers an important opportunity to affect the way in which information is handled, stored, processed, and communicated. All telecommunication systems have some essential components:

1 A transmitter to send information;
2 A receiver to receive it;
3 A transmission medium through which the message travels;
4 Signal and codes which represent the message format and message;
5 Network control to ensure that the message gets to its destination.

2.2 Data Transmission and Communication

Data transmission is the movement of information using some form of representation appropriate to the transmission medium. This might include electrical signals or electromagnetic waves. Data communication include data transmission, but is wider in that it is also concerned with:

1 Physical transmission circuit and networks
2 The hardware and software which support data communication
3 Procedures for detecting and recovering from errors
4 Standards for interfacing user equipment to the network or medium
5 Rules and protocols to control the exchange of information

3 Networking

Computer networks are concerned with linking together various pieces of computer equipments and systems. The potential effectiveness of the telecommunication networks. One important aim in a network is to provide end-to-end compatibility so that any terminal or system can be linked to any other in order to consider networks further it is useful to examine network architecture. A network architecture consist of:

1 The protocols and standards for data encoding and transmission (Protocols, hardware and cabling)

2 The topology of the way in which units one distributed through the network. (Topology)
3 The control and flow of information through the network. (Network operating systems)

3.1 Protocol

A protocol is a set of rules that governs the communications between computers on a network. These rules include guidelines that regulate the following characteristics of a network: access method, allowed physical topologies, types of cabling, and speed of data transfer. The most common protocols are:

Ethernet
Local Talk
Token Ring
FDDI
ATM

3.2 Hardware

Networking hardware includes all computers, peripherals; interface cards and other equipments needed to perform data processing and communications within the network. Listed bellow-networking hardware.

1 File Servers
2 Workstations
3 Network Interface Cards
4 Concentrators/Hubs
5 Repeaters
6 Bridges
7 Routers

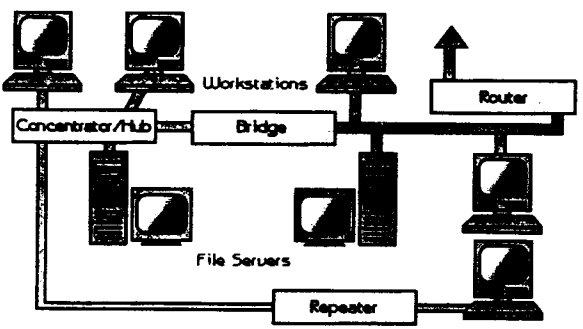


Fig. 1. Networking Hardware.

3.4 File Servers

A file server stands at the heart of most networks. It is a very fast computer with a large amount of RAM and storage space, along with a fast network interface card. The network operating system software resides on this computer, along with any software applications and data files that need to be shared.

The file server controls the communication of information between the nodes on a network. For example, it may be asked to send a word processor program to one workstation, receive a database file from another workstation, and store an e-mail message during the same time period. This requires a computer that can store a lot of information and share it very quickly. File servers should have at least the following characteristics:

1 Faster microprocessor (Pentium, PowerPC) as required for the application
2 A fast hard drive for sufficient storage
3 A RAID (Redundant Array of Inexpensive Disks) to preserve data after a disk casualty
4 A tape back-up unit (i.e. (DAT, JAZ, CTD) (Zip or CD-R/W drive))
5 Numerous expansion slots
6 Fast network interface card
7 Sufficient amount of RAM or fast processing RAM

3.5 Cabling (Transmission Media)

Cable is the medium through which information usually moves from one network device to another. There are several types of cable, which are commonly used with LANs. In some cases, a network will utilize only one type of cable; other networks will use a variety of cable types. The type of cable chosen for a network is related to the network's topology, protocol, and size. Understanding the characteristics of different types of cable and how they relate to other aspects of a network is necessary for the development of a successful network. The networks that are used for data transmission may comprise one or more of the following physical transmission media (cables):

1 Twisted Pair Cable
2 Coaxial Cable
3 Fiber Optic Cable
4 Wireless LANs

3.6 Topology

The physical topology of a network refers to the configuration of cables, computers, and other peripherals. Physical topology should not be confused with logical topology, which is the method used to pass information between workstations. Main types of physical topologies are:

1 Linear Bus
2 Star
3 Star-Wired Ring
4 Tree

3.7 Network Operating System

Unlike operating systems, such as DOS and Windows95, those are designed for single users to control one computer, network operating systems (NOS) coordinate the activities of multiple computers across a network. The network operating system acts as a director to keep the network running smoothly. The two major types of network operating systems are:

1 Peer-to-Peer
2 Client/Server

Peer-to-Peer: Peer-to-peer network operating systems allow users to share resources and files located on their computers and to access shared resources found on other computers. However, they do not have a file server or a centralized management source (See fig. 2). In a peer-to-peer network, all computers are considered equal; they all have the same abilities to use the resources available on the network. Peer-to-peer networks are designed primarily for small to medium local area networks. AppleShare and Windows for Workgroups are examples of programs that can function as peer-to-peer network operating systems.

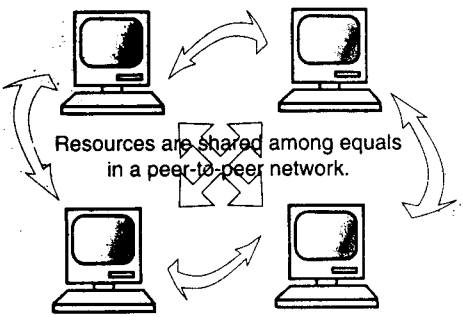


Fig. 2. Peer-to-Peer Network.

Advantages of a peer-to-peer network:

1. Less initial expense: No need for a dedicated server.
2. Setup: An operating system (such as Windows 95) already in place may only need to be reconfigured for peer-to-peer operations.

Disadvantages of a peer-to-peer network:

1. Decentralized: No central repository for files and applications.
2. Security: Does not provide the security available on a client/server network.

Client/Server: Client/server network operating systems allow the network to centralize functions and applications in one or more dedicated file servers (See fig. 3). The file servers become the hearts of the system, providing access to resources and providing security. Individual workstations (clients) have access to the resources available on the file servers. The network operating system provides the mechanism to integrate all the components of the network and allow multiple users to simultaneously share the same resources irrespective of physical location. Novell NetWare and Windows NT Server are examples of client/server network operating systems.

Advantages of a client/server network:

1 Centralized: Resources and data security are controlled through the server.

2 Scalability: Any or all elements can be replaced individually as needs increase.

3 Flexibility: New technology can be easily integrated into system.

4 Interoperability: All components (client/network/server) work together.

5 Accessibility: Server can be accessed remotely and across multiple platforms.

Disadvantages of a client/server network:

1 Expense: Requires initial investment in dedicated server.

2 Maintenance: Large networks will require a staff to ensure efficient operation.

3 Dependence: When server goes down, operations will cease across the network.

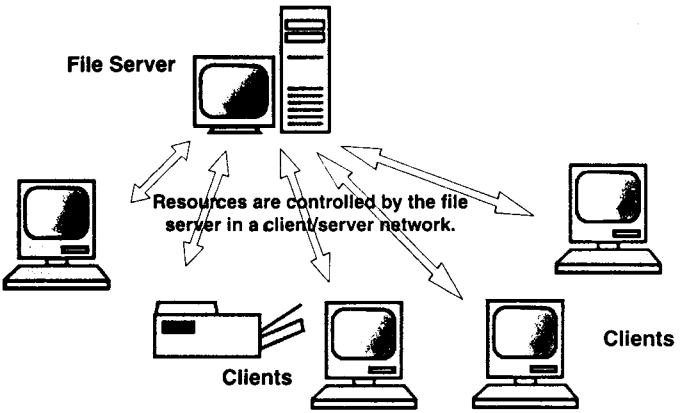


Fig. 3. Client/server Network.

4 Network Selection Criteria

Having decided to participate in a network in intending library/information centre is faced with the question of selecting the most suitable network. The following factors help in making the choice:

1 Available network options.
2 Criteria to be used in deciding the network.
3 Method of evaluating competing networks.
4 Selection of functions of the network to be used.
5 Reliability of the system.
6 Quality control standards decided by the network.
7 Cost.

A network may fail if the basic objectives are not properly formulated. Network failure reasons:

1 Emphasis on only a single function (e.g. inter library loan in library network) which is difficult to justify on the basis of a cost-effective criterion.
2 Lack of attention to the use of appropriate technology.
3 Lack of attention to need for a formal system design, derived from stated goods and objectives.
4 No specification in developing functions.
5 Not translating network by laws into specific operating procedures.
6 Unrealistic budgeting and lack of expertise in developing long term funding.

5 Advantages of Installing A Library/ Information Centre Network

5.1 Speed

Networks provide a very rapid method for sharing and transferring files. Without a network, copying them to floppy disks, then carrying or sending the disks from one computer to another share files. This method of transferring files (referred to as sneaker-net) is very time-consuming.

5.2 Cost

Networkable versions of many popular software programs are available at considerable savings when compared to buying individually licensed copies. Besides monetary savings, sharing a program on a network allows for easier upgrading of the program. The changes have to be done only once, on the file server, instead of on all the individual workstations.

5.3 Security

Files and programs on a network can be designated as 'copy inhibit,' so that you do not have to worry about illegal copying of programs. Also, passwords can be established for specific directories to restrict access to authorized users.

5.4 Centralized Software Management

One of the greatest benefits of installing a network at a library/information centre is the fact that all of the software can be loaded on one computer (the file server). This eliminates that need to spend time and energy installing updates and tracking files on independent computers throughout the building.

5.5 Resource Sharing

Sharing resources is another area in which a network exceeds stand-alone computers. Most library/information centre cannot afford enough laser printers, fax machines, modems, scanners, and CD-ROM players for each computer. However, if these or similar peripherals are added to a network, they can be shared by many users.

5.6 Electronic Mail

The presence of a network provides the hardware necessary to install an e-mail system. E-mail aids in personal and professional communication for all library/information centre personnel, and it facilitates the dissemi-

nation of general information to the entire library/information staff. Electronic mail on a LAN can enable users to communicate with librarian/faculty and peers at their own campus. If the LAN is connected to the Internet, users can communicate with others throughout the world.

5.7 Flexible Access

Library/information centre networks allow users to access their files from computers throughout the library/information centre. Users can begin an assignment in their reading room or classroom, save part of it on a public access area of the network, then go to the media center after library/information centre to finish their work. Users can also work cooperatively through the network.

5.8 Workgroup Computing

Workgroup software (such as Microsoft BackOffice) allows many users to work on a document or project concurrently. For example, educators located at various library/information centre within a county could simultaneously contribute their ideas about new curriculum standards to the same document and spreadsheets.

6 Disadvantages of Installing A Network

6.1 Expensive to Install

Although a network will generally save money over time, the initial costs of installation can be prohibitive. Cables, network cards, and software are expensive, and the installation may require the services of a technician.

6.2 Requires Administrative Time

Proper maintenance of a network requires considerable time and expertise. Many library/information centre have installed a network, only to find that they did not budget for the necessary administrative support.

6.3 File Server May Fail

Although a file server is no more susceptible to failure than any other computer, when the files server 'goes down,' the entire network may come to a halt. When this happens, the entire library/information centre may lose access to necessary programs and files.

6.4 Entire Network May Stop

Depend on topology and network operating system.

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Accessing Engineering Resources on the Internet

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ABSTRACT

Internet, its growth, its resources in particular reference to engineering sciences are described. Internet access to engineering resources through search engine, gateways, virtual libraries are presented. Useful sites on different engineering disciplines, engineering institutions/associations/societies, academic departments, engineering companies, publishers' home pages, E-journals, databases, full text publications, standards & patents, general reference works, engineering news groups are collected, arranged and presented. Some of the available Indian engineering resources on Internet are also highlighted.

1 INTERNET AND ITS GROWTH

The Internet is invented and maintained by the scientific and government entities to provide a reliable communications backbone and allow the rapid transfer of large files. Emphasis in the 'early days' was on computer and software configuration, browser selection, searching techniques, and where to find best of breed educational and commercial sites for specific disciplines. Until 1993, this function was accomplished with UNIX-type commands and terminal emulation software, if one were lucky enough to know where to go for actionable information. In 1993 this situation has changed with the commercial availability of 'Mosaic,' the emerging application group known as 'Web Browsers.' (Netscape and Lynx are the main). The World Wide Web (WWW) is fast becoming one of the most useful, and potentially popular, protocol tools to easily search for, provide, and procure information on specific topics and information assets. The addition of multimedia and hypertext capabili-

ties to plain text make traditional text searching, posting, and retrieval as slow as it is dull. However, 1999, promises to put a different, and very commercial, slant on the direction of Internet growth and the allocation of resources for Internet development. According to a Matrix Information and Directory Services (MIDS) survey in January 1997, the Internet had some 57 million users. The same survey predicted that by the year 2001 there would be more than 700 million Internet users. Hotbot, a popular Internet index/search engine, claims to index over 50 million documents (pages on the World Wide Web, and Usenet newsgroup messages) in 1999.

2 Internet Access to Engineering Resources

There is not only a vast amount of information available on the Internet, but also a wide choice of means by which to access it. Given the diverse range of topics, which may interest to the engineers. This article provides pointers to the types of resources available in the field of engineering sciences and the ways in which they can be traced. The following gives a more comprehensive list of resource types, together with examples which engineers should find useful.

2.1 Internet Search Engines

Internet search engines, which are useful to get an overview of, what is available on, and linked to, the Internet. Some of these are mentioned below:

- Alta Vista (http://altavista.digital.com/) makes use of the sponsor's powerful Alpha processor and a bevy of workstations including 'the awesome AlphaServer 8400' to search Internet Web pages as well as newsgroups (using the 'newsgroup' keyword). The site boasts 22 million Web pages and over 13,000 newsgroups in its database.
- EEVL's Engineering E-journal Search Engine: EESE (http://www.eevl.ac.uk/eese/) provides a searchable index to one hundred free, full text engineering e-journals (and also links to the same e-journals).
- EINet Galaxy (http://galaxy.einet.net/galaxy.html) a huge database of links and references to engineering materials, directories, periodicals, organizations, universities, and government entities around the world.
- Internet Resources Newsletter (http://www.hw.ac.uk/libWWW/irn/irn.html) a monthly electronic publication aimed at research-

ers. Includes Web sites, newslists, and FTP resources in engineering, biology, math, computer science, physics, and manufacturing issues.

- Lycos (http://www.lycos.com) this engine lets you enter a keyword and begin a search. It also provides links to, among other things, the service's 'Frequently Asked Questions' [FAQs] which address site-specific and general Internet questions, differences between search and server types, and how to do a search.
- Open Text (http://www.opentext.com/omw/f-omw.html) actually indexes Web sites word-by-word. This means you are able to find obscure or concept-related subjects based on the engine's indexing methodology.
- Yahoo (http://yahoo.com/search.html) is an extremely popular index to web sites and the quickest and easiest search tool to access, particularly for the beginner. It allows matches by search term, title and/or URL, Boolean key options, and strings.

3.2 Top Level Gateways to Engineering Information

The best way to scan useful resources in a particular subject area is to use a top-level gateway. For engineering there are several which give broad subject catalogues of Internet-based resources, i.e. Virtual Libraries (http://vlib.org/)

Virtual Engineering Libraries: The concept of the virtual library is one of the original manifestations of the World Wide Web's potential to supply organized information to engineering and scientific professionals. While there are numerous resources claiming virtual library status, The WWW virtual libraries in different subject areas of engineering will provide links to many of the best resources in this class of sites. Some examples are as follows:

1 Canadian Engineering Network (http://www.transenco.com/)
2 Civil Engineering Virtual Library (http://www.ce.gatech.edu/WWW-CE/home.html.) Go there to find servers from Africa to the UK containing civil engineering resources, conference information, educational resources, and links to other engineering libraries.
3 Edinburgh Engineering Virtual Library (http://www.eevl.ac.uk/) can make a fair claim to be the UK gateway to engineering information on the Internet.
4 EE Virtual Library (http://arioch.gsfc.nasa.gov/wwwvl/ee.html) includes a list of archive additions (by date) from March 1997 to the present. This section includes corporations, academic resources,

journals, and directories for electrical engineering products and services.

5 Ei Village (http://www.ei.org/eihomepage/village/intro.html)

6 Engineering Electronic Library, Sweden (http://www.ub2.lu.se/eel/eelhome.html)

7 Engineering UK (http://www.engineering-uk.co.uk/).

8 Internet Connections in Engineering (http://www.englib.cornell.edu/ice/ice-index.html),

9 Manufacturing Engineering Virtual Library (http://www.uwstout.edu/mevl/) where you can link to regulations and standards, degree programs, journals and publishers, patent information, and companies in the field. There is also a technical question section.

10 Materials Engineering VL (http://m_struct.mie.clarkson.edu/VLmae.html)

11 Mathematics WWW Virtual Library (http://euclid.math.fsu.edu/Science/math.html.)

12 Old Virtual Library link (of which the Engineering Page is a sublink) (http://www.w3.org/hypertext/DataSources/bySubject/Overview.html)

13 WWW Virtual Library (http://conbio.rice.edu/vl/database) is to browse alphabetically the Database of the some of the best for specific engineering disciplines are as follows:

14 WWW Virtual Library for Optical Science & Engineering can be found at the SPIE (http://www.spie.org/wwwvl_optics.html.) Visit here to link to the Photonics Marketplace database, or to delve into such areas as astronomy, electronic imaging, lasers, semiconductors, x-ray technology, or virtual reality.

15 WWW Virtual Library: Computing (http://src.doc.ic.ac.uk/bySubject/Computing/Overview.html.) for modeling, programming, simulation, and computer design resources and on-line directories and computer science bibliographies and indices.

16 WWW Virtual Library: Engineering (http://arioch.gsfc.nasa.gov/wwwvl/engineering.html),

17 WWW Virtual Library: Industrial Engineering (http://www.isye.gatech.edu/www-ie.) Besides the typical offerings of academic programs and publications, there are also links to professional societies, software aids, and commercial concerns. Major areas of specialization at this site include engineering economics and decision analysis, human factors, manufacturing systems, optimization, and statistics.

18 WWW Virtual Library: Mechanical Engineering (http://

CDR.stanford.edu/html/WWW-ME/home.html. for information on jobs, ME-oriented publications, component catalogs, and freeware for FEA and simulation projects. There are also a few links to broader engineering directories.

19 WWW Virtual Library: Nuclear Engineering (http://neutrino.nuc.berkeley.edu/ NEadm.html.) will find society and government agency links to various labs and programs, data center resources (including viewers, decay data, and photon interaction coefficients), waste management resources, and numerous links to radiation protection, shielding, and standards.

20 WWW Virtual Library-Software Engineering (http://rbse.jsc.nasa.gov/virt-lib/soft-eng.html). A list of vendor links, computer publications, and university resources round out this excellent collection. Software specialists will be well rewarded by a trip to this link.

2.3 Useful Sites by Discipline

Following are the most useful sites by discipline are mentioned below:

Acoustics and Vibrations (http://www.ecgcorp.com/velav/)

Aerospace (http://macwww.db.erau.edu/www_virtual_lib/aerospace.html)

Architectural Engineering (http://energy.arce.ukans.edu/wwwvl/wwwarce.html)

Control Engineering (http://www.cds.caltech.edu/extras/Virtual_Library/Control_VL.html)

Geotechnical Engineering (http://geotech.civen.okstate.edu/wwwVL/index.html)

Naval Architecture & Ocean Engineering (http://wwwvl.naoe.ish.dtu.dk/)

Petroleum and Geosystems Engineering (http://www.pe.utexas.edu/Dept/Reading/w3evl.html)

Sonar & Ultrasonic Imaging (http://www.dai.ed.ac.uk/students/ashley/Sonar/sonar.html)

Ceramics (http://www.ikts.fhg.de/ceramics.html)

Welding and Joining (http://www.bath.ac.uk/Centres/AWJU/home.html)

2.4 Engineering Institutions / Professional Societies / Associations

Below mentioned are some useful institutions/professional societies/associations of interest to engineers:

American Institute of Chemical Engineers (http://www.aiche.org/)

American Society for Testing and Materials (http://www.astm.org/)

American Society of Mechanical Engineers (http://www.asme.org/index.html)

American Welding Society (http://www.amweld.org/)

Chartered Institution of Building Services Engineers (http://www.cibse.org/)

Construction Industry Research and Information Association (http://www.ciria.org.uk/)

Electronic Design Education Consortium (http://edec.brookes.ac.uk/index.htm)

Engineering Council (http://www.engc.org.uk/),

Institute of Electrical and Electronics Engineers (http://www.ieee.org/)

Institute of Materials (http://www.instmat.co.uk/).

Institution of Chemical Engineers (http://www.icheme.org/)

Institution of Civil Engineers (http://www.ice.org.uk/)

Institution of Electrical Engineers (http://www.iee.org.uk/)

Institution of Mechanical Engineers (http://www.imeche.org.uk/),

International Council on Metals and the Environment (http://www.icme.com/)

Minerals, Metals & Materials Society (http://www.tms.org/)

Motor Industry Research Association (http://www.mira.co.uk/)

National Association of Corrosion Engineers (http://www.nace.org/)

Society of Automotive Engineers (http://www.sae.org)

Society of Manufacturing Engineers (http://www.sme.org/)

Society of Photo-Optical Instrumentation Engineers (http://www.spie.org/)

2.5 Engineering Departments in Universities

There is considerable uniformity in the content of engineering departmental Web sites from universities. Understandably, nearly all showcase their departments and are aimed primarily at prospective students. Most consist of a profile of the department, giving details of research, teaching and courses on offer, a staff directory, lists of departmental publications, a contact address, and often local information. While occasional gems can be found, especially in the areas of research interests and special projects. Most individual academic departments will also include details of their research. These academic sites often provide more than just a list of courses, offering links to sites of relevant interest. Some examples are as follows:

Aeronautical, Mechanical, and Manufacturing Engineering, University of Salford (http://www.salford.ac.uk/aero/)

Aerospace Engineering, University of Glasgow (http://www.aero.gla.ac.uk/)

Automatic Control and Systems Engineering, University of Sheffield (http://www2.shef.ac.uk/uni/ academic/A-C/acse/)

Building Engineering and Surveying, Heriot-Watt University (http://www.hw.ac.uk/ bdg WWW/home.html)

Chemical Engineering, University of Cambridge (http://www.cheng.cam.ac.uk/)

Chemical Engineering, University of Edinburgh (http://www.chemeng.ed.ac.uk/)

Chemical Engineering, University of Leeds (http://www.leeds.ac.uk/chemeng/)

Civil and Environmental Engineering, Edinburgh University (http://www.civ.ed ac.uk/)

Civil and Structural Engineering, University of Sheffield (http://www.shef.ac.uk/uni/academic/A-C/cse/)

Civil Engineering, Imperial College of Science, Technology & Medicine, University of London (http://www.cv.ic.ac.uk/)

Civil Engineering, University of Strathclyde (http://www.strath.ac.uk/Departments/Civeng/)

College of Aeronautics, Cranfield University (http://www.cranfield.ac.uk/coa/)

Computing and Electrical Engineering, Heriot-Watt University (http://www.cee.hw.ac.uk/)

Cybernetics, University of Reading (http://www.cyber.rdg.ac.uk/)

Electrical and Electronic Engineering, Imperial College of Science, Technology & Medicine (University of London) (http://www.ee.ic.ac.uk/)

Electrical Engineering at Edinburgh University (http://www.ee.ed.ac.uk/)

Electronic and Electrical Engineering, University of Strathclyde (http://hermes.eee.strath.ac.uk/)

Electronic Systems Engineering, University of Westminster (http://www.westminster.ac.uk/ CMSA/)

Electronics and Computer Science, University of Southampton. (http://www.ecs.soton.ac.uk/)

Engineering and Advanced Technology, Sunderland University (http://www.sunderland.ac.uk/ seat.html)

Mechanical Engineering, Glasgow University (http://www.mech.gla.ac.uk/)

Mechanical Engineering, University of Leeds (http://leva.leeds.ac.uk/)

Mechanical Manufacturing & Systems Engineering, Napier University (http://www.napier.ac.uk/depts / mmsehome.html)

Mechanical Materials & Manufacturing Engineering, University of Newcastle upon Tyne (http://www.ncl.ac.uk/~nmecheng/)

Metallurgy and Materials, University of Birmingham (http://www.bham.ac.uk/metallurgy/)

Sound and Vibration Research Institute, University of Southampton (http://www.isvr.soton.ac.uk/)

2.6 Engineering Companies Web Sites

As with other sectors, thousands of engineering companies now have their own web sites. Thousands of companies are now producing their

own Web sites. Directories of companies can be found, often on general resource. Many of the individual company sites only provide company information and product details, but others go much further. Given the name of such companies it is easy to locate their web sites using the large search engines. However the best way to find lists of similar companies with substantial web sites, or companies within various engineering sectors with large sites, is to use a gateway such as EEVL (Edinburgh Engineering Virtual Library) (http://www.eevl.ac.uk/) which lists, amongst other things, over 800 quality commercial engineering sites.

2.7 Publishers' Home Pages

The publishers' home pages are usually the best source of information about their publications. Some useful set of links is available through Internet are as follows:

(a) Association of Learned and Professional Society Publishers http://www.alpsp.org.uk/members.html), the sources of such information are no different for engineering than they are for other disciplines.
(b) Ingenta Journals (http://www.ingenta.com/) which can be searched or browsed without restriction, is also useful as it provides access to bibliographic information from more than 550 journals from the following publishers: Academic Press, Arnold, BMJ Publishing Group, Blackwell Publishers, Blackwell Science, Gordon and Breach, John Wiley & Sons, Ltd., Portland Press, Professional Engineering Publishing, Royal Geographical Society, Scandinavian University Press, White Horse Press, and Harwood Academic.

2.8 Electronic Journals in Engineering

A great deal of information about subscription-based engineering scholarly e-journals, including tables of contents and sometimes abstracts of articles, and also information about print-only engineering journals, can often be found on the Internet. The following electronic journals mentioned below will be of interest to many practicing and research engineers who need to keep up to date R&D work in engineering.

Advanced Design and Manufacturing (http://www.cimwareukandusa.com/ADAMmain.html.)

American Machinist On-line (http://www.penton.com/am/)

Automotive Learning On-line (http://www.innerbody.com/innerauto/)

Builder Online (http://www.builderonline.com/)

CAD/CAM World (http://www.cam.org/~flamy/cadcam.html)

Canadian Journal of Civil Engineering (http://www.nrc.ca/cisti/journals/cjceep.html)

Chemical Processing (http://www.chemicalprocessing.com/)

Chemical Week Magazine (http://www.chemweek.com/index.html)

Computational Fluid Dynamic Resources Online (http://www.cfd-online.com/)

Control Engineering (http://www.manufacturing.net)

Design Engineering Online (http://www.designengineering.co.uk/)

Design News (http://www.manufacturing.net)

Dotelectronics (http://www.dotelectronics.co.uk/)

Electrical Review (http://www.reedbusiness.com/products/electrical_review.html)

Electrochemical and Solid-State Letters (http://www.electrochem.org/letters.html)

Electronic Journal of Information Technology in Construction (http://itcon.fagg.uni-lj.si/~itcon/)

Electronic Journal on Networks (http://rerir.univ-pau.fr/)

Energy in Buildings & Industry (http://www.insidecom.co.uk/eibi/),

Enterprise Manufacturing (http://www.gdspublishing.ltd.uk/enterman.html).

Environmental Science and Engineering Magazine (http://www.esemag.com/)

Foundry Online (http://www.implog.com/foundry/)

Hot Echo: the Journal of the Scottish Software Community (http://www.hotecho.org/)

Hot List: Internet Thermal Engineering Resources (http://stecwww.fpms.ac.be/htmls/HotList/)

Industrial Maintenance & Plant Operation, and Plant Engineering (http://www.manufacturing.net)

Industrial Technology (http://www.industrialtechnology.co.uk/)

Industry Week (http://www.industryweek.com/)

Interlink (http://www.iee.org.uk/Internat/Intlink/)

Journal of Artificial Intelligence Research (http://www.cs.washington.edu/research/jair/home.html)

Journal of Corrosion Science and Engineering (http://www.cp.umist.ac.uk/jcse/)

Journal of Geotechnical Engineering (http://geotech.civen.okstate.edu/ejge/index.html)

Journal of Information Technology (http://itcon.org/)

Journal of Materials Science (http://www.wkap.nl/journalhome.htm/0022-2461)

Journal of Technology Education (http://borg.lib.vt.edu/ejournals/JTE/jte.html).

Knowledge Based Engineering (http://info.risc.uni-linz.ac.at:/people/blurock/courses/expert/expert.html)

Machine Design On-Line (http://www.penton.com/md/)

Mechanical Engineering Magazine Online (http://www.memagazine.org/)

Metalworking Digest Online (http://www.metalwdigest.com/)

New Civil Engineer (http://www.emapconstruct.co.uk/nce/nce.html)

Optical Diagnostics in Engineering (http://www.ode-web.demon.co.uk/

PetroMin (http://petromin.safan.com/)

Plant Services Magazine (http://www.plantservices.com/)

Satellite Journal Weekly (http://www.satjournal.com/home.html)

SCAD: Electronic newsletters (http://scad.utdallas.edu/eletter/eletter.html)

Solid Waste Online (http://www.solidwaste.com/)

Telecommunications Electronic Reviews (http://www.lita.org/ter/)

Terra-Nova: the European Journal of Geosciences (http://www.gly.bris.ac.uk/WWW/TerraNova/ terranova.html)

Engineer Online (http://www.theengineer.co.uk/)

UK Construction and Civil Engineering On-Line Magazine (http://www.contact-net.com/cce/)

Wiley Numerical Engineering Journals (http://cajun.cs.nott.ac.uk/engineering/numeng.html)

World of Materials (http://www-dmse.mit.edu/wom/)

Commercial or institutional publishers publish majority of the above e-journals, and because of the considerable costs involved in the publishing process, neither is likely to offer entirely free electronic access to such titles. Exceptions to this rule do occur, however, especially where a publisher is trying to generate interest by offering free access for a trial period.

2.9 Databases

Bibliographic databases are costly to produce and as a result are normally available through traditional online hosts at commercial rates. However, for a variety of reasons, some of the following useful engineering databases are freely available on the Internet.

ASCE's Civil Engineering Database (http://www.ascepub.infor.com:8601/chrhome2.html)

BIDS Compendex (http://www.bids.ac.uk/)

Copper Data Center's databases (http://cdc.copper.org/

Dictionary of Units (http://www.ex.ac.uk/cimt/dictunit/dictunit.html)

Engineering and Laboratory Notes (http://w3.osa.org/Pub_svc/engine/)

Geotechnical & Geo-environmental Software Directory (http://www.ggsd.com/)

INSPEC Information Services from the IEE (http://www.iee.org.uk/publish/inspec/)

MatWeb: The Free Online Materials Property Database (http://www.matweb.com/)

Mechanical Engineering Software Database (http://www.mecheng.asme.org/)

Recent Advances in Manufacturing database (http://www.eevl.ac.uk/ram/)

SPIE Publications Abstracts database giving details of 90,000 publications, (http://www.spie.org/web/abstracts/abstracts_home.html)

Water Resources Scientific Information Center (http://www.uwin.siu.edu/databases/ wrsic/index.html) allows access to its water resources database containing over a quarter of a million abstracts and citations

2.10 Full Text Publications

Some full text publications and articles can also be found on Internet. Examples of such items are as follow:

An introduction to plastics [by Steve DeFosse] (http://www.lexmark.com/ptc/book.html)

Calculators On-Line Centre. Part IV - Engineering A-Z

(http://www-sci.lib.uci.edu/HSG/RefCalculators4.html)

Composite Materials Handbook (http://mil-17.udel.edu/)

Control of Stepping Motors: a Tutorial [by Douglas Jones] (http://www.cs.uiowa.edu/~jones/step/)

Engineer On A Disk [by Hugh Jack] (http://claymore.engineer.gvsu.edu/~jackh/eod_new/)

Fluid Mechanics textbook [by James Fay] (http://curricula.mit.edu/~2006/)

Introduction to Machine Tools (http://me.mit.edu/2.70/machine/outline.html)

Introduction to Microengineering [by Danny Banks] (http://www.ee.surrey.ac.uk/Personal/D.Banks/umintro.html)

Mechanical Engineering Design [by David Price] (http://www.soton.ac.uk/~cds/)

MIL Composites Materials Handbook (http://mil-17.udel.edu/)

Multi-Media Handbook for Engineering Design: Rolling Element Bearings (http://www.dig.bris.ac.uk/ hbook/bmenu.htm)

NIST Chemistry WebBook (http://webbook.nist.gov/chemistry/)

On-line aerodynamics: a digital textbook [by Ilan Kroo] (http://aero.stanford.edu/OnLineAero2/ OnLineAero.html)

Overview of rapid prototyping technologies in manufacturing [by Dr A. Dolenc] (http://www.cs.hut.fi/~ado/rp/rp.html)

Polymer Chemistry Hypertext (http://www.umr.edu/~wlf/)

Pro/Engineer v15.0 Introductory Tutorial (http://cadstudio.mae.cornell.edu/ProE.tutorial.html)

Production Planning and Control Course Notes [by Professor Placid M. Ferreira] (http://www.cen.uiuc.edu/courses/ie261/ie262/index.html)

Telecommunications Glossary of Terms and Abbreviations (http://www.uk.infowin.org /ACTS/ANALYSYS/PROJECTS/SONAH/PUBLIC/ glossary.html)

ThermoChemical Calculator (http://adam.caltech.edu/tcc/)

Titanium Data and Reference Manual (http://www.titanium.com/tech_sheets/index.html)

2.11 Standards and Patents

International and national standards and patents bodies include:

British Standards Institution (http://www.bsi.org.uk/)

European Patent Office (http://www.european-patent-office.org/index.htm)

International Organisation for Standardisation (ISO)

Technical Standards Services Ltd (http://www.techstandards.co.uk/)

United Kingdom Patent Office (http://www.patent.gov.uk)

US Patent and Trademark Office (http://www.uspto.gov/)

World Intellectual Property Organisation

2.12 General Reference Works

Following are some examples about general reference works in engineering:

1 Cyber Circuit (http://members.aol.com/cybercir/index.html) useful free downloadable program which has a variety of electronic circuits, formulas, graphs and charts.

2 IEC 417 Symbols page (http://w3.hike.te.chiba-u.ac.jp/iec417/ver2.0/html/index.html) you can search by entering symbol and parameter requests.

3 Libraries of Purdue University (http://thorplus.lib.purdue.edu/reference/index.html) come The Virtual Reference Desk. Here you can link to federal (and Indiana state) repositories; IT resources; English, international, and technical dictionaries and thesauri; phone books and area codes from around the world; maps; science data; news archives; and dissertations.

4 Martindale's 'The Reference Desk' (http://www-sci.lib.uci.edu/~martindale/Ref.html) is a trove of reference works, from over 4,600 online calculators, to dictionaries and science tables and databases.

5 My Virtual Reference Desk (http://www.refdesk.com) for quick access to the basics including current news, calendars of events, and

links to reference and search aids which provides access to over 11,000 other sites. Online encyclopedias, search engine info, and weather links are also provided.

6 NIST Physical Reference Data Page (http://physics.nist.gov/PhysRefData/contents.html) for physical constants, units, and measurement uncertainty resources. Included are fundamental constants databases, the S.I. system, spectroscopic and x-ray data for your calibration exercises, and least-square fits and uncertainty calculations.

7 The 1997 World Factbook (http://www.odci.gov/cia/publications/pubs.html) is a very detailed reference resource for countries, oceans, economies, governments, or populations of the world.

8 The Periodic Table site at the University of Sheffield (http://www.shef.ac.uk/ uni/academic/A-C/chem/web-elements/web-elements-home.html). Click on an element in the table to access 'essential information' (symbols, atomic number and weight, group number, and CAS registry ID).

9 Weights and Measures Tables (http://alabanza.com/ kabacoff/ InterLinks/misc/ weights.html) this is static site which lists scientific notation, metric conversions, their interrelationships, and US equivalents.

10 Windweaver Search Pages (http://www.windweaver.com/searchpage.htm) maintained by Tracy Marks has links to about 250 of the Net's search directories and search engines. Included are quick search shortcuts to companies on the Web, personalized news, online books and manuals, computer resource centers, newspapers, and magazines. The site is updated frequently and also has a 'search helper'.

3 Accessing Engineering Information Using E-mail

How to access the goodies of the Internet using only E-mail? This seems especially to be a concern of those working in large corporations and universities, which provide only E-mail clients and those of you whom have only limited access to the electronic world at work. E-mail, a product of the early 1980s, is the most basic level of Internet connectivity and is by far the cheapest connection option.

3.1 Mailing Lists

Mailing lists are special interest, automated, deliveries and exchanges of postings dealing with specific topics. These are different from newsgroups,

but some carry similar, and frequently more targeted and specialized, information. One of the best known of the automated varieties is LISTSERV (a list service) and its relatives major domo (an automated command and distribution server), MLM (a UNIX-based mailing list manager), and the like. All operate in slightly different ways, but instructions usually accompany your sign-up acknowledgment.

3.2 USENET or News Groups

These groups are not the same as the subscription mailing lists discussed above. Typically, you access the USENET, or 'news groups' using a network news client, which some bare-bones E-mail services, do not provide. If you're not sure—ask. These groups let you access thousands of special interest groups at no charge (other than connect fees), and include a wide variety of topics. Some of interest to the engineering community include:

sci.aeronautics
sci.engr
sci.engr.chem
sci.engr.control
sci.engr.heat-vent-ac
sci.engr.lighting
sci.engr.marine.hydrodynamics
sci.engr.metallurgy
sci.engr.semiconductors
sci.geo.petroleum
sci.optics
sci.aeronautics.simulation
sci.engr.biomed
sci.engr.civil
sci.engr.geomechanics
sci.engr.joining.welding
sci.engr.manufacturing
sci.engr.mech
sci.engr.safety
sci.engr.surveying
sci.materials

4 Indian Engineering Information on Internet

Below mentioned are some Indian engineering resources available on Internet.

"Rediff on the Net": Information and Entertainment on the net, Mumbai(http://www. rediff.coom/)

Bhabha Atomic Research Centre, Mumbai (BARC) (http://www.barc.ernet.in/)

Bharathidasan University, Tiruchirapalli (http://www.bdu.ernet.in/)

Birla Institute of Technology and Science, Pilani (BITS) (http://www.bits_pilani.ac.in)

Center for Development of Advanced Computing, Pune (CDAC) (http://www.cdac.org.in/)

Central Power Research Institute, Bangalore (http://www.cpri.res.in/)

Centre for Artificial Intelligence and Robotics, Bangalore (CAIR) (http://www.cairs.res.in/)

CMC Ltd, Hyderabad (http://www.cmc.stph.net/)

CSIR Centre for Mathematical Modelling and Computer Simulation, Bangalore (C-MMACS) (http://www.cmmacs.ernet.in/)

Delhi University, Delhi. (http://www.du.ac.in/)

Department of Electronics, New Delhi (DOE) (http://www.doe.ernet.in/)

Education and Research Network, Bangalore (ERNET) (http://www.ece.iisc.ernet.in/)

Engineering Export Promotion Council Network, (EEPC Net), New Delhi(http://www. eepc.gov.in/)

India on Internet, (Promoted by Vedika International) Calcutta (http://www.allindia.com/)

Indialine: the Internet in India, Mumbai (http://www.indialine.com/)

Indian Index–guide to the best Indian Web sites (http://www.indianindex.com/)

Indian Institute of Science, Bangalore (IISc) (http://www.iisc.ernet.in/)

Indian Institute of Technology, Mumbai (IITB) (http://www.iitb.ernet.in/)

Indian Institute of Technology, Chennai (IITM) (http://www.iitm.ernet.in/)

Indian Institute of Technology, Delhi (IITD) (http://www.iitd.ernet.in/)

Indian Institute of Technology, Kanpur (IITK) (http://www.iitk.ernet.in/)

Indian Institute of Technology, Kharagpur (IIT-KGP) (http://www.iitkgp.ernet.in/)

Indiawatch, Mumbai (http://www.indiawatch.org.in/)

IndiaWorld, news and information about India on the Internet, Mumbai(http://www. indiaworld.co.in/)

Indira Gandhi Centre for Atomic Research, Kalpakkam (IGCAR) (http://www.igcar.ernet.in/

Indira Gandhi Institute of Development Research, Mumbai (IGIDR)(http://www.igidr.ernet.in/)

Industrial Development Bank of India Mumbai (IDBI) (http://www.idbi.coo.in/)

Jawaharlal Nehru University New Delhi (JNU) (http://www.jnu.ac.in/)

Khkoj—the great Indian search engine ((http://www.khoj.com/)

Mumbai University, Mumbai (http://www.mu.ac.in/)

National Association of Software and Service Companies, Mumbai(http://www.nasscom.org.in/)

National Centre for Software Technology, Mumbai (NCST) (http://www.ncst.ernet.in/)

National Informatics Center, New Delhi (NIC) (http://www.nic.in/)

National Institute of Oceanography, Goa (http://www.samudra.mah.nic.in/)

Osmania University, Hyderabad (http://www.osmania.ac.in/)

Panjab University, Chandigarh (http://www.puchd.vsnl.net.in/)

Physical Research Laboratory, Ahmedabad (PRL) (http://www.prl.ernet.in/)

Raman Research Institute, Bangalore (RRI) (http://www.rri.res.in/)

Regional Engineering College, Calicut (REC) (http://www.reccal.ernet.in/)

Sardar Vallabhbhai Regional College of Engineering and Technology, Surat(http://www.svrec. ernet.in/)

Software Technology Parks of India (http://www.stph.net/)

Steel Authority of India Ltd, New Delhi. (http://www.sail.co.in/)

Tata Energy Research Institute, New Delhi (TERI) (http://www.teri.res.in/)

Tata Institute of Fundamental Research, Mumbai (TIFR) (http://www.tifr.res.in/)

University of Hyderabad Hyderabad (http://www.uohyd.ernet.in/)

University of Pune, Pune (http://www.unipune.ernet.in/)

Videsh Sanchar Nigam Limited, Mumbai (VSNL) (http://www.vsnl.net.in/)

5 Concluding Remarks

Criticism is occasionally levied at the quality of resources found on the Internet. This listing is necessarily just a taste of the ingredients of the Net, which could succor the engineer. Trying to find precisely what you require can take time. Starting with focused information gateways like EEVL and other resource lists mentioned in this article make the task much easier. We hope that the above resources available on Internet may be of some use to engineers although it is still early days in the life of the Internet and new sites in all disciplines being announced every day. All of the above might not add up to a free lunch, but should certainly enough to whet the appetite!.

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HYPERLINK http://www.eevl/=.ac.uk/eese/ http://www.eevl/=.ac.uk/eese/

HYPERLINK http://vlib.org/ http://vlib.org/

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HYPERLINK http://www.micromo.com/06links.asp http://www.micromo.com/06links.asp

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Artificial Intelligence: Concept and Application in Library and Information Science

ADARSH N GOKUL AND K S AMBILI

Abstract

Artificial Intelligence has brought out paradigm shift in the creation of electronic library, knowledge representation and understanding of texts by computers, automated classification and reading of books, designing and authoring techniques of electronic books, organisation, storage and retrieval of information. The paper defines Artificial Intelligence and traces its origin. The paper describes the major areas of AI such as Expert System, Natural Language, Pattern recognisation system and Robotics concerned with Library and Information Science and tools and design AI system. Gives an account of various efficient expert systems for technical services, information processing and management. Stresses the need to include AI in the course curriculum of LIS education considering the high potentiality of its techniques in various areas of Library & Information science especially in information retrieval. The introduction of competent models and AI techniques can bring out drastic changes in library services and thereby new horizon in the career and status of Librarianship.

1 Introduction

Artificial Intelligence (AI) has brought out a paradigm shift in knowledge representation in Information science, understanding of texts by computers, automated reading of printed pages as well as designing and authoring techniques of electronic books, automatic acquisition of new information and organising information by incorporating software products such as machine translating, non-alphabetic language processing and text managers. Object-oriented Information management systems

are developed using object oriented tools encompassing AI techniques. AI technology with statistical software tools can also assist in the design of research as well as in the analysis and data and has a direct impact on the development of nation.

2 Definition

Handbook of Artificial Intelligence defines "Artificial Intelligence (AI) is a part of computer science concerned with designing intelligent computer systems, its, systems that exhibit the characteristics we associate with intelligence in human behavior-understanding language, learning, reasoning, solving problems and so on." Rich, defines AI as "the study of how to make computer do things at which, at the moment, people are better." Paterson gives a comprehensive definition as "AI is a branch of computer science concerned with the study and creation of computer systems that exhibit some form of intelligence, systems that can learn new concepts and tastes, systems that reason and draw useful conclusions about the world around us, systems that can understand a natural language or perceive or comprehend a visual scene and systems that perform other types of feats that require human types of intelligence."

3 Origin

Origin of Artificial Intelligence can be traced back to the work of George Boole (1815-1864) on boolean algebra in which he introduced the logical definitions of "AND" "OR" "NOT" etc. Alen Turing (1912-1954) is considered as the father of AI. Turing in his paper "Computer machinery and intelligence" envisaged the possibility of computers to program of exhibit intelligent behavior. "Turing Test" is one of his important contributions. The term Artificial Intelligence was coined by John Mc Cathy at "Dartmouth Conference."

4 Major areas of Artificial Intelligence concerned with Library &Information Science

- Expert systems or "Knowledge based computer systems"
- Natural Language
- Visualization/Pattern recognition system
- Robotics

4.1 Expert Systems

Expert systems, as outgrowth of Artificial Intelligence research plays the role of intelligent interface of gateway for providing access to data base

and to obtain relevant information. Expert systems otherwise known as "knowledge-based systems" or "knowledge-based computer systems" are computer programmes that incorporate knowledge from relevant expert and attempt to model mans mental process. According to Encyclopedia of Library and Information Science "Expert systems are computer programmes composed to knowledge base that contains the information supplied by the expert, and an inference engine that applies the appropriate information from knowledge base to a specific problem." Expert systems are intended as aids to decision making where human expertise may be expensive, scarce or needed in several places at the same time.

4.2 Expert System Architecture

The major components of Expert system are:

- Knowledge base
- Inference engine
- user interface

4.3 Knowledge base

Knowledge base is a powerful corpus of explicit and organised knowledge, incorporated in a variety of way in the system by the specialist. This contains facts collected using various interviews and observation techniques and rural about particular problem. Most commonly used format is IF and THEN. IF specifies the condition and THEN specifics the conclusion. Other methods are frames; semantic net; object attribute-value triplet and predicate calculus which can be used in association with each other.

4.4 Inference Engine

Inference engine enables the system to implement the knowledge in an appropriate manner and arrive at solutions for a given problem using search techniques. Search is done by the process of shifting through alternative solution to reach the goal. The Inference Engine or rule interpreter is a control structure operator which determines the priority of rules to be implemented on the knowledge base. There are two main control structures namely Forward Chaining and Backward Chaining. Forward Chaining enables the user to arrive at a conclusion when the conditions in the rule are found to be true. Backward Chaining enables the user to reach the goal from the conclusion side.

4.4 User Interface

This allows the user to input the required information in "natural" language for arriving at a solution and the system in turn will provide appropriate advice with regard to the particular problem. The system can ask the user for more information and user can ask why the program is asking for particular information or not following a particular lines of reasoning in reaching conclusion. This explanation facility is an important factor of user interface.

5 Natural Language Processing (NLP)

Artificial Intelligence scientists have succeeded to a great extent in building Natural Language interfaces using limited vocabulary and syntax. NLP techniques have been used in substituting the library professional intermediary in translating the user query into system query and to identify the descriptors representing the text. For online searching IR-NLI combines the expertise the professional intermediary with the capability for understanding natural language and carrying out a dialog with the user.

6 Optical Character Recognition

Optical character recognition (OCR) which falls under pattern recognition reduces the efforts of bibliographic data entry. OCR software like OMNIPAGE, TOPSCAN which can be run on personal computers is of immense importance to library professionals to know to software and hardware requirements in building an OCR work station to capture the bibliographic data for further processing. Philip's Megadoc system, an OCR requipment helps libraries to store large quantities of data in optical discs, that can be retrieved using visual display units. SUPERTECH is an online database covering, that have wide application in AI and robotics.

7 Tools to Design Artificial Intelligence system

PROLOG and LISP are especially designed for creating artificial Intelligence system. Expert-system shells offered by many commercial vendors could be used to build expert systems in many subjects as it contain effective inference engine which facilitates the development of an appropriate knowledge base without bothering about the programming. Expert-system can also be designed using programming languages such as PASCAL and FORTRAN which are more appealing to scientific, mathematical and statistical problems.

8 Areas of Application

Some of the Expert systems that have been built in different subject areas are DENDRAL in Biochemistry PC-KANDID and MYCIN in medicine, PROSPECTOR in Geology, TAXANVISER in law, XCON in computer system.

PROJEVAL (Project evaluator) is an expert system developed in London School of Economics for agricultural project evaluation. It is ment for training the government official in developing country to carry out project identification, to evaluate and improve the capabilities.

PC-KANDID (Knowledge based assistant for neuromuscular disorder diagnosing) developed under ESPRIT project 599 assists the physician in his examination task and suggests all possible diagnose which can explain test results.

The MYCIN is a knowledge based expert system for the diagnosis and treatment of infectious blood diseases. MYCIN give birth to a tool called EMYCIN and an associated system called TEIRESIAS, MYCIN used the low level symbolic language LISP.

9 Library and Information Science

AI Techniques have relevance in knowledge representation, understanding text by computers, information retrieval, electronic mail, electronic publishing, automatic reading of printed pages as well as designing and authoring techniques of electronic books. Artificial Intelligence and Terminology are found to have great use in classification, indexing languages, thesauri and abstracts. The major achievement in library classification are automatic classification, expert system shells offered by commercial expert systems vendors, classification or classificational knowledge processing, micro based expert system for classifying books etc. Chowdhury and Lynch have explained the processing of chemical patent abstracts using natural language processing techniques.

Two AI concepts such as augmentation and delegation have relevance in the area of authority control in automated cataloging. Expert system have been developed for creation of MARC record and to apply some of the rules of AACR-2 FOR OPTIMUM accessibility to information for users. Some of the expert system developed in cataloging are an expert system for simple choice of access point for entries (ESCAPE) developed by Lionoping University, CATALYST, an expert assistant for cataloging etc.

PLEXUS developed by Vickery as a referral tool to use in public

libraries, POINTER, a menu driven system for government documents, EARS (Electronic Access to reference Service) REFSIM, a bi-model knowledge-based reference training and consultation system, SNAP (Simplified Needs Assessment Profile), ESSESA for chemical knowledge representation, Japan's 'Medical education and consolation system' by means of Artificial Intelligence (MECS-AI) which mend to establish the place of publication for Pre-1800 European books are some of the expert systems available for reference purposes/reference Librarians.

An intelligent and trained human being who has the knowledge of subject area of the document retrieval request and the mechanism of searching is essential for the success of a high quality document retrieval system. This task is usually performed by an information scientist. Because of recent developments in expert systems, the scope for a novel intermediary system has been identified and a system called CAN SEARCH has been designed. S.T. Waters presents ASWERMAN, an expert system shell to guide the user in areas of ready reference and database searching. OL'SAM (Online Database Research Assistance Machine) is designed to perform tasks such as access protocol management command and response translation, logical multiplexing strategy and response storage, user assistance and search logging. REASON and IRIS are also intelligent user assistants EURISKO and SAFER, both being help systems intelligent reasoning, problem solving efficiency and understanding user's queries in natural language. INSTRUCT is an expert system to support end user with best match searching of textual data base. INFOMASTER is an expert system that can automate database selection.

Current focus of research is an automatic indexing of full texts, construction of lexicon of significant terms and development of scientometric analysis using mapping intersections of centers of interest. Medindex system is an expert system developed for medical indexing. Expert systems for full text retrieval such as RUBRIC, natural language front-end expert system such as MDX medical expert system show the tremendous progress in the application of AI in information retrieval.

10 Conclusion

It is high time for us to recognize the highly promising potentiality of various techniques in different Artificial Intelligence areas applicable to library & information science especially in information processing and retrieval. Britain and U.S. have included expert systems in their graduate

and postgraduate curricula and recommend for inservice training. We should also include it in out LIS curricula with the intensity of programmes at higher courses considering the innumerable need of information. The introduction of competent models and A I techniques can bring out drastic changes in library services and there by new horizon in the career and status of librarianship.

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CD-ROM: A Medium of Electronic Publishing

RABINARAYAN MISHRA

ABSTRACT

The article reflects about the use of CD-ROM as a means of electronic publishing including its characteristics. CD-ROM, a non-book material is now acting as a reference tool. It reflects the names of the countries producing the database numbers with percentage. The development of Information Technology in regards to CD-ROM, DVD etc. including email have been described.

1 INTRODUCTION

The information revolution comprises the immense technological advances made during the past centuries in human capabilities to encode, record, reproduce, and disseminate information. New technologies for preserving and transmitting visual information have greatly increased information processing capacity. The electronic computer together with its peripheral equipment provide an electromechanical capability for modifying and reprocessing stored information to produce vast new stores of information.[1] Spiraling cost of the conventional printed documents in the modern technological era compelled the libraries and information centers to go for the procurement of electronic media like, CD-ROM (Compact Disc-Read-Only-Memory), floppy diskettes, magnetic tapes, etc. The network administrators are facing the demand to accommodate Internet publishing with existing bandwidth so as to make sure that the right information is reached at right time to right person. The digital document in any form is known as electronic document. On creation of an electronic document, the author incorporates active references to other on-line documents, which is known as hyperlinks.

2 CD-ROM

The CD-ROM, one of the quickest growing storage and distribution technology uses the laser power and optical techniques. The CD-ROM can store substantially more information in a given amount of space than any other external storage technology. CD-ROM, an optical disc made of polycarbonate having 12 cms. in diameter with only 1.2 mm thickness can accommodate an enormous 550 MB (characters) of information which is equivalent to 2,75,000 to 3,00,000 A4 type written pages of text or 450 MB high-density floppies.[2] Thus, a single disc can store the entire Encyclopedia Britannica. The CD-ROM, which is one of the aspects of optical disc family storage technology, is now being used profusely for dissemination of desired information from the respective CD meant for the purpose.

The usage of CDs now in India has gained much popularity due to easy availability of CD-ROM titles and also due to depreciates cost of CD players. This technology also extends an off-line alternative for search. Now, several leading companies in the entire world have started to launch their products through electronic book form. Two US based companies such as, M/s Nuvo Media and M/s Soft Book Press have developed Rocket e-Book and Soft Book respectively which are small, portable computer designed solely for reading and annoting the electronic text of books. These texts would be downloaded from the Internet and the prices are expected to be below of paper books.[3]

China happens to be the first Third World country to introduce CD-ROM in 1987 according to 1990 edition of 'CD-ROM-in-Print' and it started disseminating services in the field of Scientific and Technical Information Institute of Oceanography.[4] Now, CD-ROM is available in various forms such as audio, bibliographic, full text, graphics, images, manuals, multimedia, statistics, video, books-in-print, references etc. The reference database includes such as, 20th edition of *Dewey Decimal Classification*, which is the first major classification scheme in the world available in interactive electronic publishing format. The easy availability of data in form of CD-ROM like, British National Bibliography are of immense help to the librarians for strengthening their healthy collection development and cataloguing purpose.[5] Now, the complete set of 20 volumes of *Oxford English Dictionary* is also available in a single CD at less then a third of the price of the printed edition. The other attractive publications of other scientific CD also include *Physics Internal* which contains 35,000 pages of physics related information and *Physics of*

Motion.[6] A detailed account of the databases in CD-ROM published by different countries have been enumerated below in Table 1.[7]

TABLE 1: CD-ROM DATABASES BY PUBLISHING COUNTRIES

S. No	Country	Databases Number	Share %
1	United States of America	4766	49.103
2	United Kingdom	1534	15.084
3	Germany	1170	12.054
4	Canada	649	6.686
5	France	333	3.430
6	Italy	2993	3.018
7	Japan	224	2.307
8	The Netherlands	172	1.772
9	Spain	113	1.164
10	Australia	95	0.978
11	Belguim	87	0.896
12	Maxico	82	0.844
13	Austria	47	0.484
14	Switzerland	47	0.484
15	Russia	37	0.381
16	Israel	30	0.309
17	Sweden	27	0.278
	Total	9706	99.992 or 100.000

The study reveals that, the maximum database being published by USA (4766 nos.) out of a total 9706 numbers of database shares 49.103 percent followed by UK (1534 nos.) with 15.804 percent in the second position and Germany occupies the third position by sharing 12.054 percent for 1170 databases. However, Austria and Switzerland produce the equal number of databases i.e., 47 nos. each by forming 0.484 percent each country. Sweden shares the lowest 0.288 per cent in the rank for databases.

Due to the advancement of technology, the CDs and DVDs are getting used profusely in the writing business. The price has been falling for CD-R (CD Recordable) drives that can write data to a special type of compact disc. One can not write to portions of a writeable CD that already have data written to them. However, data can be added without any change in the pre-recorded data. Drives for rewriteable CD-ROMs (CD-RW), which overcome the immutability of CD-R and rewriteable

DVD are quickly dropping in price. The DVD can hold the equivalent of 13 CDs with few exceptions among computer software. The CD-ROMs and DVD discs—both of which are read-only, optical media have their rewriteable equivalents. The rewriteable means that, not only one can put files on a disc but also can be erased and change as it is done with a hard drive. DVD has DVD-RAM. Although CD-RW and DVD-RAM differ in regards to storage of data but both use a process called Phone Change Technology (PCT) to write, change and erase data.[8]

The stupendous growth of electronics technology has led the scientists to establish any new shapes in the electronic publishing. The EMM technology is one of such forms. EMMS i.e., Electronic Mail and Message Systems denotes a group of technologies, which permit the electronic transmission of messages between compatible devices.[9] This is the most advanced form of technology in communication, which provide the most effective means of exchange messages electronically over computer communication networks. This is the technology where the concept of paper as a medium of message is exploded. The electronically operated message requires a mail box for storing, retrieving, forwarding which is known as e-mail. The e-mail is extensively used across WAN in both national and international fields.

The three basic features associated with this technology are: (a) message composition; (b) message despatch; (c) message receiving (Panda, 1994, p. 194). The other features include with EMMS are to ensure text manipulation facilities so as to allow composing, editing, and stroring messages; ensuring a variety of message formats such as formal letters note-pads, financial statements; its ability to route messages in real time or asynchronously; its ability to route messages to a sigle address, a range of specified address or to all users and a mail box address directory; its quick response time, and bulletin board facilities. The above features have really proved to be the best technology for librarians and information managers to adhere to this for effective communication.

In the digital age, the scientists have been able to bring a positive shape to the electronic publishing. According to a journal *Technology Management Flash*, Japan, a consortium comprising some 140 publishers and book sellers in May, 2000 will begin offering books and comics in digital form on a trial basis. Books, converted into digital data at E-Book, Japan's distribution centre, will be transmitted via communication satellites to dedicated terminals at book stores and convenience stores, the books will then be sold to the consumers on discs. When the service is commercialised in 2000, paperback-size terminals that accept Mini

Discs are expected to be used for viewing. The industry group , however, decided to use personal computer as the visual medium for the tests.

3 Conclusion

More than five centuries after the death of Johan Gutenberg, the father of the movable-type printing press in Europe, the digital technology could able to establish a positive alternative to the traditional book. In the digital age, a paperless library has already come into existence with the avaiolability of CD-ROM database, CD-ROM has an indidpensable role to play in the dissemination of electronic information and it has already found a special place in the rapidly growing digital libraries. In CD-ROM, text and graphics are available in digital form in the modern publishing process. Further, there is usually a clause in the book contracts requiring submission of a word processed text files.

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Electronic Publishing: The Foundation of the Information Society

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Abstract

Throughout the world, information and communication technologies are generating a new revolution that is carrying mankind forward into the information society. It is a revolution centered on the electronic processing, storage, retrieval and communication of information. The paper explains the concept of electronic publishing, discusses the impact of optical storage technology as well as information superhighway on publishing, emphasises the models of electronic publishing for the journal, the book, and the database. Role of library and information science professional and the copyright in the electronic environment are also discussed.

1 Introduction

Information society is an expression which commonly refers to a society in which the quality of life, as well as prospects for social change and economic development, depend increasingly upon information and its exploitation. Electronic publishing is an important media of the new information society.

With the advent of information technology, a great change is taking place in the library and information world. Information is available in electronic/digital form which has great capacity for storage as well as transmission of text, audio, graphic and videos. The first electronic publication came out in 1985 and since than there has been a tremendous growth in the number of electronic/digital publications covering all fields of human knowledge. Electronic publishing technology is broadly classified into two general categories:

(i) Optical storage technology, such as CD-ROM, floppy disc, etc. and

(ii) Tele-communication technology, such as internet or the web publishing.

2 What is Electronic Publishing?

Like many applications of information technology, electronic publishing is hard to define. However broadly speaking, electronic publishing refers to the use of information technology in the production of publications and also in the electronic distribution of text via computer terminals.

3 Impact of Optical Storage Technology on Publishing

Optical storage technology based publishing has grown rapidly in recent year, Miller[1] describes many formats of optical publishing, such as videodisc, compact audio discs, compact discs with read only memory (CD-ROM), optical digital discs, tapes and cards. They are classified as optical because they are optically sensitive materials to store information. They may use lasers for recording and reading. They are exceptional media with enormous storage capacity for example, a simple 4.72" CD-ROM disc stores 550 megabytes of data.

Optical publishing products have found application to education, law, business, medicine, science and technology, etc., for research, training and decision making situation. Libraries have also widely applied the new products to their operations. In the meantime, many reference sources, indexes, and databases previously available in print or online now have been published in CD-ROM format. Titles of these CD-ROM, cover almost every subject field.

4 Impact of Information Superhighway on Publishing

The information superhighway or the internet or the web publishing is becoming increasingly popular. Now many organizations like—social, educational, commercial and even political and religious—having a web site or a web page.

The ease with which the internet—knowledgeable user can publish information on the network leads to a completely different model of publishing, in the print publishing world, self—publishing had been confined to vanity presses, but the net provides a new potential for dramatic increase in self-publishing. The majority of electronic publish-

ing is non-commercial. Indeed, The freely available nature of most internet resources is exactly what makes those resources so attractive. This free publishing is not just limited to publishing by individuals. Universities, associations, and businesses also publish documents on the net. Commercial publishers have seen the advantages that the internet offers in terms of an effective distribution channel and the freedom from the confines of the printed page. Mackler[2] was one of the first commercial publishers to experiment with limited publishing on the net. Other publishers have also brought up their catalogues, order form and selections form for their publications.

5 Models of Electronic Publishing

In the section the authors discuss the various models that can be used for publishing on electronic media. The models are according to type of document. (eg. the book, the journal, and the database).

5.1 The Electronic Journal

For more than three centuries, the Journal has played a crucial role in the creation, transmission and storage of knowledge, as the primary medium of communication among scholars [3]. Despite its successes, however, the factors involving rising Journal prices and increased scholarly publication have led publishers to seek out alternatives to the printed Journal. The e-Journal has emerged as a solution of these problems.

Shackel[4] described the concept of the e-journal as 'using a computer to aid the normal procedures whereby an article is written, referred, accepted, and published. . . . The editor, referees, and alternately the readers, as well as the author, can have access to the textual their computers'. Publishing e-Journals is an area which is seeking experimentation in model of presentation, delivery, functionality, navigability and pricing by publishers, learned societies, editors, authors and library consortia.

5.2 Different forms of Electronic Journals

- Journals that are otherwise published in print form, available in digital form; and
- Electronic-only journals, which do not necessarily need a publisher, and which can be managed by an editor and a scholarly community.

Both of these forms of journals are discussed in the section. The BLEND[5] project identified the factors that are necessary for successful

e-journals. Some of these remain unresolved, and although many exclusively e-journals have been launched, only a very few have been successful. The BLENĐ Project successfully archived articles in four types of journal, a referred journal: a poster journal, a software reviews Journal, and a bibliographic journal. Project Quartet[6] designed and built a hypertext electronic journal. ELVYN[7] delivered a new startup journal via the internet for immediate user access via campus networks. A number of journals have more recently been created on the WWW, either with funding from various sources to support their creation, or as non- profit-making ventures.

Much of the current interest in e-journals has been fuelled by the commercial need for journal publishers to be at the cutting edge of developments, this has led to a number of experiments with the digitization of print journals in recent years.

The transition to e-journals poses challenges in a number of areas of journal production. These are:

- Publishers need to develop new skills in multimedia materials, and in facilitating interaction between scholars;
- Publishers will need to acquire a much more in depth knowledge of copyright and licensing opportunities, especially in relation to the international arena;
- The process of peer review needs to be re-evaluated in order to accommodate methodologies for reviewing and authenticating multimedia material;
- Academic staff, and authors in particular, need to relinquish the traditions of research publishing associated with print journals, which are intimately involved with tenure, promotion and grant, of research moneys; and
- Institutions need to be convinced that e-journals are cost-effective and can be networked for multiple-user access at a price that is acceptable to them. In particular, at the present time, e-journals are often in a trial phase and libraries have maintained the print subscription for archival purposes.

The challenges posed by e-journals for all of the stockholders involved in the validation and dissemination of knowledge are significant in terms of their future roles, but they are also central to the way in which the information society will manage and understand its knowledge base.

In addition, the transition from print to electronic journals for libraries poses a number of critical questions. These are summarized by Barnes.[8]

- Will the electronic version of the journal cost more or less than the paper version ?
- What will be the licensing terms and who will negotiate them ?
- How quickly should I transition to electronic journals ?
- Should I discontinue my print subscription ?
- Which electronic journals services will provide me with a critical mass of journals relevant to my users ?
- Will I have to link to several different e-journal services ?
- Will I be able to select the journals I want in my collection or will they be bundled by the publisher or vendor ?
- How will the electronic journal be integrated with my local catalogue and other reference services, such as bibliographic database, table of contents services and document delivery ?

5.3 The Electronic Book

An electronic book is just a metaphor for handling and structuring large volumes of computer based information. Number of important factors have influenced the need for and development of electronic books. Some of the more important of these factors include:[9]

- The advent of desktop publishing;
- The growing acceptance of 'paperless' publishing;
- The ease with which electronic information can be created, updated, copied, shared, distributed; and searched;
- The more widespread availability of both local area and global computer based communication networks, and
- The incipient on set of the electronic information explosion.

Electronic books can contain a variety of different types of information, such as text, pictures, and sound. It can be classified into ten basic types.[10]

Table 1: Characteristic Features of different types of Books

S N	*Type*	*Characteristic Feature*
1	Text book	Contain linear text/search engine
2	Picture-books	Embed various sorts of static pictures in small
3	Talking books	Use audio narrations and sound effects
4	Moving picture books	Embed animation and/or video

Contd.

Contd.

S N	*Type*	*Characteristic Feature*
5	Multimedia	Combine text, pictures and sound
6	Polymedia books	Use electronic and nonelectronic media
7	Hypermedia books	Involve nonlinear information structures
8	Intelligent electronic books	Can adapt to a given user's behaviour
9	Telemedia books	Embed telecommunications facilities
10	Cyberbooks	Involve the use of virtual reality techniques.

The optical disk (such as CD-ROM) is an important publication medium for electronic books, a number of reference sources do come out on CD-ROM. Computer communication networks represent another important publishing medium for electronic books.

5.4 The Electronic Database

An electronic database is a collection of related items of information stored in computer, readable form. Such databases may be:

- A collection of data about the operations of an organization, which thereby allows the control of those operations; and
- A collection of publicly available data held on a host computer of server that is accessible via a telecommunications network or on CD-ROM.

The database has indeed become a omnipotent tool in the hands of library and information science professionals, and yet, we hardly use the term 'publishing' when it comes to databases. It is now well accepted that electronic databases hold the key to improving information accessibility the ease and quickness with which our scholars, technologists, business, trade and industrial establishments can access relevant information.

Publishing database on electronic media mean being able to collect together related items of information in a chosen area and deliver it in computer readable form, typically on a storage media such as tape, diskette, CD-ROM or through a telecom network. An electronic database publisher/producer has to consider a few primary factors before embarking on any database production project. Questions that need to be answered include:

- What is the motivation for database production ? Is the database being produced for in-house use? External use? Is it going to be made available for profit (commercial venture), not-for profit or free?
- Who are going to be its target users/customers? What are its target usages? For research? Business? Market intelligence? Document delivery?
- What is the content of the database ?

There are mainly two alternative ways of producing/publishing databases:

1 Centralized input and centralized processing (CICP). Here, a central agency will take the complete responsibility for all the operations related to database production.

2 Decentralized input and centralized processing (DICP). Here, a few identified agencies will capture the data from their collection to produce machine readable records. There will be under standing on the information sources to be covered, information handling processes, etc. The decentralized data preparation can be facilitated through use of common software and hardware. This decentralized input will be received by a central agency which will under take the responsibility for database publication production.

One of the central purposes of a database is that the data in the database should be used for a variety of different applications. For this to be achieved it is important for a database to have the following features:

- It must be substantially non-redundant, i.e. have minimal (of preferably no) duplication of identical data. Duplication of data leads to difficulty in ensuring data consistency, especially during updating, and wastes storage space;
- It must be programme independent (a concept known as data independence) so that the data can be moved or restructured without the need to make alterations to the programmes;
- It must be usable by all of the programmes;
- It must include all of the necessary data interrelationships, to support the variety of different uses to which the data might be put; and
- It must have a common approach to the retrieval, insertion and amendment of data.

6 Library and Information Science Professionals and the Electronic Publishing

According to Lancaster[11] the librarian of the year AD 2001 may be a free-lance information specialist 'or' consulting librarians. In the electronic era, there is a vast amount of information which need to be accumulated, processed, organised, and presented in a way that is amenable to easy and user friendly retrieval. For effective dissemination of information, which is the ultimate aim of a library and information science professional. They should be trained to explore new way to use computing and networking technologies to enhance the library's services effectively and efficiently, so, there is need to change the curricula of library and information science according to the demand of the new information society.

7 Copyright and Electronic Publishing

Copyright provides the creators of literary or artistic works rights of ownership and legal protection against unlawful reproduction of their works. Protection and ownership of intellectual property in the age of electronic information are especially confusing in the light of traditional copyright laws. Discussions are taking place at various plateforms to review the existing copyright laws in the light of electronic information. Since the images are electronically forwarded around the internet, it becomes very difficult to control and define what can be or cannot be done.

Many developed countries such as the European Commission, US, Japan, Canada, Australia, etc. have tough regulations' to overcome the challenges posed by the electronic technologies. At a conference on fair use (CONFU)[12] in January 1996 working party comprising both publishers and librarians began the process of developing practicable guidelines for fair use of electronic information. The first discussion concerned scanning and storage, reproduction and distribution of materials in an electronic preservation system. The working group failed to agree on any guidelines but the dialogue is still alive and is expected to result in some guidance to both libraries and academics on what is permissible without prior permission.

In the electronic environment, the librarians should have the same kind of fair dealing arrangement as in the case of printed books. They should be able to read or browse electronic information without having to pay for it; preserve in digital format copyright material held in their collections; and fulfil inter-library document requests electronically.[13]

8 Conclusion

Electronic publishing has now become a reality. Libraries and information centres are taking advantage of the e-publishing technologies for effectively meeting user's requirements.

The new information society has increased the need for more advanced information requirements, which the paper media may or may not be able to meet. The future may yield more exciting and sophisticated means of publishing. For a successful tomorrow we have to think about future to day. Now the library and information science professionals must tune themselves to the latest technologies for the better management of the new electronic environment.

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Emerging Approaches to Information Access Internet and its role in Information Access

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ABSTRACT

The Internet is commonly used throughout the world, so it is easy and relatively quick to access information on a global scale. There are most specialized directories which contains Internet and web resources of direct virtual libraries. They are therefore the best places to find sites that collect Internet resources on a particular topic. For example, If you wanted all the Web sites that focus on the Middle East and North Africa, a virtual library would be a good start. A Web page can also contain links to another, and so on. Since the information can be anywhere in the world, the term World Wide Web is most appropriate. This paper mainly concentrate on Virtual Library and Directories.

1 WORLD WIDE WEB (WWW)

WWW you can find information about many types of products, information about health and environmental issues, government documents, and tips and advice on recreational activities such as camping, cooking gardening, and travel. You can tour museums, plan a trip, make reservations, visit gardens throughout the world, and so on. Just a little bit of exploring will show us the wide range and types of information available.

1.1 INTERNET PUBLIC LIBRARY

The Internet Public Library (IPL) was created to give the Internet library services, including the accumulation, evaluation, selection, and classifi-

cation of materials. IPL is staffed and managed by professional librarians; the project is hosted by the University of Michigan's Schools of Information. This virtual site is analogous to a real library in terms of its structure or architecture, its collection, and the services it provides.

The IPL home page, called the IPL Lobby, has hyperlinks to the Web site's primary sections, or divisions. These links are both embedded in images and visible as text. Lots of different resources and several types of activities and services are available through the IPL. Many of the guides can be searched, and most divisions have hyperlinks on their pages that encourage and help a patron - someone browsing the Web page - to ask questions of the IPL staff or the reference librarian. This is indeed a very useful and rich resource. The reference collection alone matches in quality (if not quantity) of resources available through other, commercial subject guides.

The major topics are the usual ones you'd expect to see in a library, such as Reference, Art * Humanities, Education, Health & Medical Sciences, and Social Sciences. The listing for an individual entry includes a review and descriptive annotation, the title as a hyperlink to the resources, the author's name, and subjects under which it is classified.

2 Virtual Libraries

Virtual libraries are directories that contain collections of Internet or Web resources that have been reviewed and evaluated before they're included. For this reason, the resources tend to be useful, accurate, and authentic. Most of them are, in fact, selective subject guides. In many cases, you'll find that professional librarians manages these virtual libraries. For each item, it list the URLs for the home page, help page, and FAQ page. We'll also state the output features and any special features.

3 The Argus Clearinghouse

The Argus Clearinghouse bills itself as "The Internet's Premier Research Library". It is a collection of reviewed and rated Web guides to information about specific topics. The guides are not about a specific site; instead, they are about a certain topic. The major Argus Clearinghouse categories range from Arts & Humanities to Social Sciences & Social Issues. The guides are arranged in a hierarchical subject arrangement, so you can browse the collection. It's also possible to search the collection using a form that permits two terms. These would be connected by AND or OR; truncation (use *after a prefix) is also an option. For assistance

with searching The Argus Clearinghouse, see the help page http://www.clearinghouse.net/searchtips.html. Guides in the collection have been reviewed and rated by professional librarians. The rating system, a range of one to five check marks in each category, is based on the following criteria:

- Level of resource description
- Level of resource evaluation
- Guide design
- Guide organizational schemes
- Guide meta-information

The listing for a specific guide includes its title, a separate hyperlink to the Web resource, a list of keywords, the name of the guide's author or producer, the date it was last checked, the overall rating, and a rating in each category. You'll want to check The Argus Clearinghouse when you're looking for guides to resources on the Web and the Internet.

- Home page:
- http://www.clearinghouse.net
- Help:
- http://www.clearinghouse.net/searchtips.html
- FAQ:
- http://www.clearinghouse.net/faq.html

Output features: Topics arranged by category, each with a list of resources, Each item represented by title, hyperlink to resource, key-words, author's name and affiliation, date The Argus Clearinghouse last checked resource, overall rating, and rating in each category.

Special features: Searches full text of information pages, including titles, name of authors, institutions, and key-words informinx: Scholarly Internet Resource Collections

Informine is a collection of reviewed Internet and Web resources. Its stated aim is to present a collection of resources useful to faculty, students, and researchers at the university level. The site has been developed by people from the library of the University of California, River-side.

Information is categorized into several subject-oriented "informines." These include Biological, Agricultural, and Medical Sciences, Government information, Internet Enabling Tools, Maps & GIS, Physical Sciences, Engineering, Computing & Math, Social Sciences & Humanities, Visual & Performing Arts, and Regional & General Interest. The home page also has links to the areas General Reference, News Resources, E-Journal Guides, and Search/Finding Tools. Each of the areas of the

collection, each informing, can be examined either by browsed through a table of contents, a list of subject categories, a list of keywords, or a list of titles. All of these are arranged in alphabetic order using Library of Congress terminology. Additionally, a user can access new items in a category and links to library, education, and featured sites. Items in the collection are reviewed with a brief review and a hyperlink accompanying each listing.

- Home Page:
- http//lib-www.ucr.edu
- help:
- http://lib-www.ucr.edu/infomine/howtouse.html
- FAQ:
- http://libwww.ucr.edu/Infomine/Intro/html

Output features: List of items in the collection, each as a hyperlink and a brief review.

4 Special features

Thousands of items in the collection of reviewed resources. Each area of the collection is called an informine. Areas can be browsed or searched. Easy-touse interface.

5 Finding Information Gems in Virtual Libraries

Virtual Libraries are directories that contain collection of resources that librarians or cybarians have carefully chosen and organized in a logical way. The resources you find in a virtual library have been selected and placed there because of their excellence and usefulness. The Web pages included are usually evaluated by someone knowledgeable in that field. Typically, virtual libraries provide an organizational hierarchy with subject categories to facilitate browsing. Here are several of the best-known virtual libraries on the Web.

- Argus Clearinghouse
- http://www.clearinghouse.net
- INFORMINE
- http://lib-www.ucr.ed
- Internet Public Library
- http://www.ipi.org
- Librarian's index to the Internet
- http://subsite.berkele.edu/internetindex
- WorldWide Web Virtual Library
- http://vlib.standford.edu/Overview.html

6 Internet Public Library

The Internet Public Library (IPL) was created to give the Internet library services, including the accumulation, evaluation, selection, and classification of materials. IPL is staffed and managed by professional librarians; the project is hosted by the University of Michigan's School of Information. This virtual site is analogous to a real library in terms of its structure or architecture, its collection, and the services it provides.

The IPL home page, called the IPL Lobby, has hyperlinks to the Web site's primary sections, or divisions. These links are both embedded in images and visible as text. Lots of different resources and several types of activities and services are available through the IPL. Many of the guides can be searched, and most divisions have hyperlinks on their pages that encourage and help a patron - someone browsing the Web page - to ask questions of the IPL staff or the reference librarian. This is indeed a very useful and rich resource. The reference collection alone matches in quality (if not quantity) the resources available through other, commercial subject guides.

The major topics are the usual ones you'd expect to see in a library, such as Reference, Arts * Humanitles, Education, Health & Medical Sciences, and Social Sciences. The listing for an individual entry includes a review and descriptive annotation, the title as a hyperlink to the resources, the author's name, and the subjects under which it is classified.

7 Finding Resources in a Virtual Library

The IPL is organized mostly like a traditional library. It has a resources section, a youth section, and many others. If you can't find what you are looking for, you can submit the question to a real librarian who will email the answer back to us. You can browse the IPL or search its contents. Browsing is the easiest way to find information, however, because the search toll doesn't search the contents of the resources, only the titles of the resources and annotations attached to them are accessable.

To browse a specific information from the IPL, following steps are to be followed:

1. Go to the home page for the Internet Public Library
2. Open the Reference Collection.
3. Browse the Reference Collection
4. Open The World Fact book.
5. Find the population of Egypt.

6. Search the Reference Collection.
7. Browse the results of the search
8. End of session.

7 Directories

Directory is a collection of Internet and Web resources arranged in categories. There are Many general purpose directories on the Web

8 Characteristics of directories

Each directory differs from others mainly in the level of quality control involved in its management. For example, some directory managers have very little control over their collections, relying on Web page submitters to provide annotations and decisions about where their resource should be placed in the directory's hierarchy. Other directory managers are much more selective not only about which resources they include, but also about where in the subject hierarchy the pages will be located.

Some directory editors write detailed annotations of the pages. These annotations can be evaluative, descriptive, or both. Annotations are Web page descriptions that either the Web page submitter or the directory editor attaches to the Web pages. Many annotated directories also rate Web resources using criteria that vary from one directory to another.

There are also directories that are made up of the most popular Web pages found by programs that count haw many pages have hyperlinks to these sites. Web pages that are popular may be very different from ones that are rated as excellent.

Of all the directories, virtual libraries rely most on human beings in selecting and controlling the resources included in their collections. Virtual libraries are organized in a way that tames the Internet's chaotic nature and thus attempts to create a more traditional "library-like" setting in which to do research.

The human element involved in creating and maintaining directories creates both advantages and disadvantages for the user. Some of the inherent strength of directories can be weaknesses, and vice versa. We'll examine some of these strength of these strengths and weaknesses here.

9 Disadvantage of using Directories

There are three major disadvantages inherent in World Wide Web directories. They are as follows:

1 Arbitrary hierarchical arrangements.
2 Infrequent updates.
3 Subjectivity of rating and annotating resources.

One of the major disadvantages of using some directories is that the hierarchical arrangements may be arbitrary. For example, let's say we are looking for information on ozone depletion. We want to start by finding a few sites. We decide to use Yahoo!, one of the best-known directories on the Web.

10 Difference between Virtual Libraries and Directories

Virtual libraries are directories with resources that information professionals, including librarians, have organized in a logical way. Virtual libraries are often referred to as annotated directories as well. It is helpful to think of these specialized directories as being similar to libraries, because people who are committed to finding the very best resources on the Internet have carefully selected and maintained the resources in a virtual library. These people usually analyze the resources and arrange them so that they are found easily.

The Major Virtual libraries

The Argus clearinghouse

- http://www.clearinghouse.net
- Infomine
- http://lib-www.ucr.edu
- Internet Public Library
- http://www.lil.org
- Librarians' Index to the Internet
- http://sunsite.berkeley.edu/Internetindex
- World Wide Web Virtual Library
- http://vlib.stanford.edu/Overview.html

There are three major types of resources that virtual libraries contain: Subject guides, reference works, and specialized databases. Subject guides are Web resources that include hyperlinks to sites on that particular subject which are available through encyclopedias, almanacs, and so forth. Specialized databases contain searchable indexes and catalog of certain types of material, such as journal article citations, financial data, and so forth. It may be helpful to do an activity in a virtual library to show how to obtain a subject guide.

Virtual libraries are directories maintained by librarians, or cybrarians,

who select materials for the directory based on their excellence and value to the Internet public library, much as librarians in a traditional library do. Virtual libraries are the best places to find subject guides. These guides are usually maintained by people who are knowledgeable about the subjects.

11 Conclusion

This paper concentrate on Internet Public Library, Virtual Library and Directories. It provide ways to access virtual libraries using Internet. It is mainly used by Librarians to find the details of books in faster way than the other tools. Virtual Libraries are the places to go if you are looking for a reference source like a directory, handbook, encyclopedia, or special databases.

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Information Access Through Internet: Challenges for Libraries in India

B S MAHESWARAPRA, N VIJAYALAXMI AND P G TADASAD

ABSTRACT

Examines the potentialities of Internet and its resources and tools in providing access to information at the global level. Examines the challenges to be addressed by libraries in India to exploit the Internet's resources and tools for providing access to information at the global level.

1 INTRODUCTION

The world has witnessed tremendous developments in the field of computers and telecommunications. The computer network technology—one of the amazing developments in recent years has facilitated interconnection of computers not only within the country but also across countries and continents leading to worldwide computer network. Today it is possible to access any computer in the world connected to the network from any place. This has considerably affected the way computers can be used in libraries. The Internet, an electronic computer network that connects millions of computers around the world, is a powerful tool that the libraries can use for communication and accessing of information globally. In this paper an attempt has been made to discuss the Internet's resources and tools and the challenges that must be addressed by Indian libraries in order to exploit its resources for providing access to information at the global level.

2 Internet: Potentialities, Resources and Tools

The information professionals in libraries can use the Internet for various purposes. It can be used as a reference tool as it provides a wealth of up-to-date resources on wide variety of subjects. It can be used as an expert system, as it gives personal access to experts in hundreds of disciplines from different countries of the World. It can be used as a communication device to communicate with professional colleagues around the World. Resources on the Internet allow libraries to provide better services to clientele by giving access to information that would be difficult to located in any other manner. Gopher, WAIS, World-Wide Web, Mosaic, E-mail, Telnet, FTP and Archie are some of the tools that have put a wide variety of Internet resources at our finger tips.

Gopher is a computerized agent working over the Internet to bring all sorts of useful facts to the user's desktop. It is a way of accessing of what one wants without having to know where it is. Wide Area Information Servers (WAIS) allow users to search indexed text. There are a large number of WAIS servers which provide access to several databases, including the catalogues of libraries. World Wide Web (WWW) simply known as Web, is a client-server based, distributed hypertext multimedia information system on Internet, provides graphical interface and supports multimedia. A good number of search tools to search the Web documents are now available. Mosaic is a system which combines Gopher, WAIS and WWW into a single device and works like a World Wide Web with hypertexed connections and includes the means to access the complicated files that contain graphics, video, and audio.

E-mail is the oldest method of communication on Internet. By using E-mail, one can send messages/files to anyone on the Internet. Telnet is another utility which allows one to log-on to another computer and use various services available on the host computer. File Transfer Protocol (FTP) is a tool useful to copy files such as computer software, games, documents, data etc., from remote computer on Internet to another computer and vice versa. Archie is another tool which enables to locate files on the anonymous FTP servers on the Internet.

3 Challenges for Libraries in India

The Internet is a very powerful and dynamic information and communication tool in the World. The challenges for Indian libraries that must be addressed in order to make best use of it as a reference, information and communication tool for accessing information within and outside the country are discussed below:

3.1 Strengthening of Local, Regional and National Backbone Network

The Internet is a conglomeration of thousands of separately administered networks. The networks connected to it typically have three tier structure. The first tier comprises of local networks that provide connectivity among computers at a given institution. These are in turn linked together through regional networks to support communication among institutions throughout a particular region. The third tier is the national backbone network that interconnects all regional networks into a national system. In India, though networking environment is fast emerging with ADINET, CALIBNET, DELNET, MALIBNET, PUNENET etc. are functioning. Further the existing networks cover premier libraries in big cities like Ahamadabad, Calcutta, Delhi, Madras, Pune etc., Hence there is a need for development and/strengthening of communication and library networks at the local, regional and national level in India for optimum utilization of Internet's resources at the global level and its capabilities for better utilization of resources by libraries within and outside the country.

3.2 Development of Technological Infrastructure

In order to have access to Internet one needs at least 486 Personal Computer with a good high speed having 4–8 MB RAM, 16 colour VGA display and a modem of 14.4 kbps with error correction and compression and dedicated phone line on the hardware side. One also needs a subscription for Internet connection from the Internet Service Providers (ISP) such as ERNET, VSNL, NICNET and private ISPs. Besides TCP/IP stacks, programs for terminal connectivity like Procomm, browsers like Netscape, Lynx, etc., are also required. Windows 95 Operating System (OS) comes as an Internet OS as it has in-built software for all Internet needs. One of the major challenges that the libraries in India are facing is the lack of financial support from the parent institutions to develop the technological infrastructure that is required to get connected to Internet especially hardware, software and humanware including connections from ISP. The IAP in India are serving the requirements of metropolitan cities and the institutions and libraries located in remote places are denied of this opportunity. Therefore, the major challenge before the institutions and their libraries in India is the development of technological infrastructure required to get connected to Internet for global information access. Otherwise, these will not be in a position to make use of Internet for providing access to worldwide information.

3.3 IT AND TELECOMMUNICATIONS POLICY

The newly formulated IT policy is intended to bring Internet related services in all district head quarters by 2000 AD and presently India's telephone density is very low (1.8%). If the libraries have to exploit the Internet, telephone density has to be increased.

3.4 INFORMATION TECHNOLOGY APPLICATIONS

The libraries in India are at cross roads. A large majority of libraries have been developed on traditional lines. No serious attempt has been made by a large majority to automate/computerize the library operations and services with few exceptions of special libraries. Add to this many of the libraries are handicapped to switch over to computerization and modernization. Further, the libraries are at different levels of IT applications. We find a situation where there are libraries not having computers at all, and libraries equipped with computers but not having personnel to use them for library and information activities. A few libraries are in modernization phase where technology is used to do, what they have been doing traditionally all these years. Still a very few are at the transition to the transformation phase where technology is used to change library processes in fundamental ways. The present cadre of library staff is unsuited to changes involving use of computers and information technology. So the greater emphasis should be on modernization of library operations, services and creation of in house databases of various types. The library staff should adopt to use the latest technology otherwise they will be in a helpless situation and handicapped to provide access to world information in the new millennium. Indeed this is a great challenge before the libraries in India during coming years.

3.5 INFORMATION LITERACY

No doubt we are entering the 21st Century, but one of the major problems, India is facing, is the information illiteracy. Information literacy is the ability of a person to locate, process and use information effectively regardless of delivery mechanisms and the type of format in which the information appears in the global information society. The efforts should be made to overcome the information illiteracy problem in the country. This will be a major challenge and an important issue to be addressed at the national level as it has serious and long range implications in the network based information environment.

3.6 COMPUTER LITERACY

The computer literacy is the development of basic tasks that individuals can complete on a computer such as word processing, creating and

manipulating data on a spread sheet, or using the other types of software. We are all aware that the computer literacy among LIS professionals is very low. Therefore, the challenge before the libraries in India is to make the professionals, computer literates and in educating the users of libraries in using computers.

3.7 Network Literacy

Every one talks about Internet in India and elsewhere, but no one ever mentions about how hard it can be to find what one is looking for. The use of Internet for library purposes requires a network literacy on the part of LIS professionals and users as well. Network literacy is the ability to identify, access, and use electronic information from the network like Internet, will be a critical skill that is very much required in the networked environment. Are our LIS professionals capable of handling networked information in India? Definitely the answer is 'No', as the network illiteracy among LIS professionals is very high. Only in recent years, the concept of networked information is picking up gradually in India. Hence, there is a need for educating and training LIS professionals for making them network literates so that they will have all the knowledge and skills required to exploit the networked information at the national and global level.

3.8 Training and Education of Library Personnel and Users

The knowledge of how to use Internet, its resources and tools by library personnel and users is central, in maximizing its effectiveness. The challenge before the libraries in India, if the networked information is to be exploited, is to educate themselves first and then educate and train the users in the Internet skills.

4 Indian Content of Internet

All those who are accessing Internet today in India and elsewhere agree that the Indian content on the Internet is very limited. The reasons are that not many databases are being created in India and made accessible through the net. Now only efforts are being made to create the databases and web pages to hook up over the net. Hence, there is a necessity for developing indigenous databases of various types in different subjects and areas of importance to users in India. These databases, if put on net will be accessible and can be used by the users in the rest of country and outside. Probably, this is another very important thrust area that the libraries in India must address themselves as a challenge to create their

own databases including library catalogues to improve the Indian content on net.

4.1 Need for Positive Attitude and Psychological Readiness

The professionals and users of libraries in India need to take it as a challenge to develop readiness both emotionally, professionally and financially to accept and make the best use of Internet facility for information access worldwide. Whether one likes it or not the Internet is going to become one of the most powerful information dissemination and access tool in the new electronic World. Therefore, there is a need for developing positive attitude among LIS professionals and users of information towards making best use of Internet for global access to information.

We know that libraries are interdependent and cannot be operated in isolation. Therefore, the libraries have to exploit the benefits offered by Internet and while doing, it must be selectively and imaginatively applied to libraries. To take best advantage of new technology, requires on the part of LIS professionals a thorough understanding of the nature of change and psychological willingness to look upon it as an opportunity.

Further, another major concern of libraries is making aware of users about what exactly Internet is. Because many have a misbelief that Internet replaces libraries. This misconception needs to be removed by library staff.

5 Conclusion

The libraries are the mediators for access to information and the Internet is an extremely valuable resource, which offers possibilities for interaction not available through any other technology. The libraries in India must take lead in exploiting the Internet resources for providing access to information at the global level. Of course, there are many challenges for the libraries in India to make best use of Internet's resources. They are: strengthening of local, regional and national backbone network; development of technological infrastructure—hardware, software, humanware; information technology applications; eradication of information, computer and network illiteracy; training and education of users; Indian content on Internet and need for positive attitude. Probably the most challenging task ahead of the Indian libraries is to develop the capabilities by overcoming all the inadequacies for exploiting information in a networked environment of what is possible at the earliest.

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Internet and University Libraries in India: Some Issues

P G TADASAD, B S MAHESWARAPPA AND N VIJAYA LAXMI

ABSTRACT

It is only few years since Indians have been able to access Internet—the global network. Due to inadequate financial resources, the University libraries in India owe a responsibility to satisfy information needs of user community through networking. Internet due to its multi-faceted nature, simultaneously fulfils important roles in library services. This article discusses impact of Internet on Indian University library services and some of the issues to be addressed viz., Computer and telecommunication facilities; Internet connectivity; Tariff structure; problems in accessing relevant information; security; power supply and emergence of Sankhya Vahini in utilizing the services of Internet by the University libraries in India.

1 INTRODUCTION

The Internet is arguably the electronic resource that is now having the most significant impact on library services and operations and on the professional activities of librarians. The Internet—network of networks is the hottest topic of discussion these days. It has revolutionized the information transfer and utilization in this decade by providing universal connectivity. It has brought about global unification, in making the universe true global village. Its potentiality is very vast and increasing both in size and complexity. The unprecedented growth of the Internet has made information more accessible than before. Therefore the entire universe is trying to enter the Internet arena. Now it has more than a

billion users globally and more than fifty thousand users in India. In this paper an effort is made to discuss the issues to be addressed in utilizing the services of Internet by the University libraries in India.

2 Internet: Resources and Services

Though Internet came to India in 1990 when the ERNET evolved from Unix-to-Unix Copy Program to IP connectivity to American Internet, it is only five years since Indians have been able to access this global network, when the Govrnment owned VSNL brought Internet access to users in the four metros five years ago. Since then it is attracting the user community in India and the number is growing. This is due to its multi-faceted nature since it simultaneously fulfils three important roles in a library setting Firstly, it is a resource that can be consulted and used like any other reference tool. Second, it is more dynamic and far-reaching than any other resource used. Today the number of Internet connections in India, are estimated to be just under 2.8 lakh. Finally it provides a medium of communication that has extended the potential of librarians for interaction beyond the physical library.

The Internet consists of a large number of linked computer networks forming a global network. There are basically four things one can do on Internet: Communication (through e-mail), Document or file transfer (through FTP), Interactive browsing (TELNET), and Bulletin boards (through USENET). In addition to these, there are tools like WWW, Gopher, Veronica, WAIS and Archie etc. Resources are available in all subjects: mailing is possible for all the participants: documents can be forwarded and delivered across the world: and directories and journals abound. Internet has integrated nearly all aspects of current library activities including: e-mail, discussion through listserves, support reference services through search of remote databases, exploiting the catalogs of other institutions, participation in ILL, book/journal ordering, establishing home pages etc.

3 Impact on Indian University Library Services

From a national perspective India's resources are concentrated in two major areas: the research institutions and 230 universities, spread thinly over a large geographical area and many of them are isolated from major cities. This factor is forcing university libraries to be as self-sufficient as possible, as distance makes cooperation extremely difficult and expensive. But the recent economic situation has had its impact on University libraries.

Until recently most university libraries in India have coped with the situation by a variety of piecemeal methods—optimizing cooperation, shifting funds, canceling highly priced titles, reorganizing staff and services. Confronted with an increasingly severe financial situation, especially over the last few years (Union budget allocation to higher education under Human Resources Development have been slashed in real terms by 29%) many university libraries in India are facing the problem of supporting the teaching and research needs of faculty and students.

But basic Internet services enable one to accomplish a number of networked information functions. Through access to these services librarians may find new ways to store, move, find and communicate information among themselves and with users. For university librarians this creates many new and different service operations. Ready reference service can be provided with greater speed in a much shorter time. Book/ Journal ordering, technical processing can be done using Internet. E-mail can be used for delivering information to users. CAS & SDI services can be provided. It can also be employed to maintaining library services. It provides access to databases, OPAC's, etc. But librarians must continue to develop their role as intermediaries in the information seeking process

Internet, is a global facility that allows communication with users worldwide and provide access to a global virtual library. Undoubtedly, the university libraries in India have to exploit the Net capabilities in providing access to information on global basis. The University libraries in India owe a responsibility to satisfy information needs of its user community. Under these circumstances, resource sharing and cooperative functioning of the libraries through Internet has become vital. The utilization of Net's facilities by them largely depends on getting Internet connections and to exploit its services and resources for providing better access to global information. This assumes significance in the context of Indian University libraries, because a large number of libraries do not have basic infra-structural facilities. Many issues have to be attended to immediately, if university libraries need to exploit resources and services of Internet.

4 Issues to be Addressed

4.1 Computer and Telecommunication Facilities

INFLIBNET center through UGC has been providing grants (initial and recurring) to the universities identified under the program. Every year 15–20 libraries are identified and initial grant to the tune of Rs 6.5 lakh is provided to enable the university libraries to purchase computers,

modem, telephone, printer, etc. Till now, 105 universities have been given grants for this purpose. It is proposed to cover rest of the Universities, in the next two financial years. Universities funded till 1997–98 have already acquired the systems (except very few) and the ones funded during 1998–99 are in the process of acquiring them. Besides the above support Rs 1 lakh each was provided during 1996–97 to more than 64 university libraries who were not covered under the above grants to help them to acquire core facilities for accessing network information. It means nearly two hundred universities either have computers or are in the process of getting them.

The newly formulated IT policy envisages that the Internet related services would be available in all district headquarters by 2000 AD. Presently India's telephone density is hardly 1.8% and the Minister for Communications has assured recently that by 2005 Jan 26, all villages will have telephone connections.

Under 9th five year plan, DOT has been given the responsibility of providing Internet nodes and authorised ISP's at all district headquarters and local charging areas by 26 Jan 2000 and to all the institutions of higher learning including universities by 2003 AD.

4.2 Internet Connectivity

In India, access to Internet for libraries, was possible through ERNET, Videsh Sachar Nigam Ltd [VSNL], Softnet and NICNET. Internet connectivity may be got through dedicated cables, via phone lines or using satellite connections. But in keeping with, the Prime Minister's commitment, the Government announced the end of monopoly of VSNL over provision of Internet services with effect from Nov 6, 1998 with MTNL, Reliance, Indian Railways, Satyam Computers dashnet etc entering the arena. The companies will be free to fix their tariff and there will be no insistence on coverage. E-mail companies have been allowed to automatically, become Intenet Service Providers. In spite of this VSNL still remains the major ISP in the country, offering approximately one lakh commercial connections. VSNL and other ISP's have nodes only in urban metro cities. Within few years (by 2003 AD) Internet nodes will be made available in all the cities that have institutions of higher learning. It means to each Internet from remote corner, one need not access the server of the ISP's at STD rates.

At present VSNL has commissioned remote Internet access nodes in forty cities; has 12000 access lines, 150000 Internet customers: ERNET has connections to 750 institutions and NICNET to 200000 Intenet customers.

4.3 Tariff Structure

As VSNL's monopoly has ended and many commercial ISPs have entered the arena, a sharp decrease is found in the tariff structure offered by these. VSNL Internet Service Provider has revised its tariff plan sharply downwards for the second time within a short interval of eight months, keeping in tune with the lower tariff rates of MTNL and has introduced a number of low cost plans

100 Hrs	500 Hrs
Rs 2150 from Rs 2550	Rs 7250
Rs 2050 (for renewal)	Rs 6800 (for renewal)

The VSNL's tariff seems to be cheap for all types of Internet users including libraries in India. The other commercial ISP's also have introduced attractive tariff structure. This is a very positive sign towards exploiting Internet.

4.4 Accessing Relevant Information

As the number of users using Internet increase, chances are more of no useful software being really free while surfing. Internet services are a combination of protocols and software programs, which would allow people to use Internet in different ways. Information in Internet is also stored in an unstructured way with innumerable databases, each having its own searching interface, the volatile nature of sites, lack of uniformity may come in the way of accessing Internet. In a university environment, this may create problem as there will be more number of Internet users, whose requirements are different from each other.

Getting access to Internet is not a big deal, but the whole difference lies in the selection of browsers, as everyday a new browser is being launched in the market, and thus making the selection tougher and difficult.

The Internet contains wealth of information, which the library and information centres in India need to exploit to the optimum. Finding information on the Internet is getting easier, but accessing information directories [white pages] is a difficult proposition. Until the filtering mechanisms are substantially improved, one has to park in front of PCs and waste too much of time, not knowing, to what extent information available on Net is relevant. One needs patience and understanding to develop the skills and ability to explore the Intenet's resources.

Any control of access to Internet will probably have repercussions that will be difficult to determine. Any attempt to muzzle will not succeed. If controlled access is not provided, in a university environ-

ment, users are thrown open to uncensored Internet and that it may create problems.

4.5 Security

Internet has put the whole world in a kind of virtual network, a system where anyone from anywhere can access anything. This has brought many questions regarding security of the information. Many software companies have come out with solutions. Intel has provided four layers - Identification, Integrity, Authentification and confidentiality, which together might persuade users that it is safe to do the business on the net.

4.6 Role of VSNL and DOT

VSNL and DOT are the agencies, which play a vital role in linking the user to Internet in India. They are slow in extending Internet access beyond the metros. The Internet servers have been thrown open to private ISP's. One year after throwing open VSNL still remains the major ISP in the country. Thus, the university libraries located in metros may not have problems in getting Internet connection. But what about the libraries located outside the metros. V-SAT is excellent and a best technology for WAN connectivity for remotely inaccessible areas in India. But it is unfortunate that V-SAT's capability is not being explored and exploited for providing Internet access in India as it is very costly affair.

4.7 Power Supply

Uninterrupted if not abundant power supply, is one of the prerequisites in using Internet. But, the situation is worse, in many parts of India, where the power cut is 25% to 100% and load shedding ranges between 4 hrs–16 hrs per day. And in such a situation one has to depend on UPS or gen sets. Of course this is not beyond the reach of many university libraries in India.

4.8 Emergence of Sankhya Vahini (National Internet Backbone)

Sankhya Vahini the high-speed network for carrying Internet traffic, in India appears to be moving closer to frution with the narrowing of differences between two major partners—the DOT and the IUNet set up by the Camegie Melon University of USA. The final aim is to connect at least ten cities and over hundred universities, institutions of higher learning and research centers. These will be provided exclusive fibre

optic links of synchronous digital hierarchy for long distance communication in India.

4.9 Advancements in Internet

In recent weeks a few companies have launched services where by the cable TV link can be used to access the Internet. This is likely to prove attractive to the many thousands particularly university libraries in this country who do not have a telephone connection.

5 Conclusion

The most recent significant development, enabling the creation of global information resources is Internet. The university libraries in India undoubtedly need to exploit the resources and services offered by Internet. But there are lot of bottlenecks as far as growth of Internet connectivity in India is concerned. Firstly, the university libraries in India need to develop infra-structural facilities in terms of hardware and software required and secure Internet connection by subscribing to an Internet service provider. Secondly, the problems involved in securing Internet connection and utilization of its facilities by users including libraries in India needs to be removed at an earliest. Sooner these bottlenecks are removed better will be the utilization of Internet. Otherwise Indian University libraries will be at loss in making best use of this facility. Thirdly, in view of certain technical difficulties in using the various tools and utilities available for accessing Internet resources and services, the professionals need to be given education and training so as to develop in them the capability and skills required to surf the Net successfully. Fourthly, it appears that, the Internet service provision in India is restricted due to the monopolistic attitude of VSNL and DOT. And this has been liberated and de-monopolised and thrown open by authorizing the non-governmental Internet Service Providers to set up their own high speed digital V-SAT links to International Internet destinations. The results are already coming. Unless these bottlenecks are removed the libraries will not be in a position to take advantage of Net in providing access to information globally. Let the Indian society benefit by the use of Net that will enable to access the world's warehouses of information.

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INTERNET: Challenge and Threat to Libraries

P C KAPILA

ABSTRACT

Defines Internet and traces its history. Discusses various tools of Internet. Gives the hardware required for Internet. Discusses the challenges faced by libraries.

1 INTRODUCTION

In the olden times the books were kept under lock and key because they were considered to be pride of Emperors. The reason behind it was that knowledge should not flow to masses to avoid awakening in them so that autocratic set-up should function smoothly. Only very few reputed persons of the court of ruler had access to books. As the time changes the concept of library also changed. With the advent of democracy the more stress was given to the use of book. In India the whole credit goes to Dr S.R. Ranganathan, the Father of Indian Librarianship. The library professionals try to make all out efforts to save the time of users. Even though with manual facilities, a lot of time is/was wasted to find out required reading material. Journals subscribed were received very late due to a mail delivery. The desired document which was not available in the library, could be had from other library, took a long time to reach the destination. In this way library's users had to wait for long time to get the required information. Thus their research/teaching work suffered due to slow pace of flow of information. With application of computer to library activities and availing the facility of internet, it takes no time to have access to information available in any corner of the world. Moreover, we can have access to required database at any time. We can also

communicate through E-mail without losing much time. Information technology has revolutionized the world. So libraries cannot survive without these facilities. No one would like to visit such libraries those do not have computer. In the present time internet is indispensable to libraries.

2 What is Internet

Internet is very popular term used in every walks of life in these days. Though, it is novel concept of accessing the information yet not completely understood by those using in their day-to-day to life. Before it is defined it will be better to have brief history of internet.

2.1 History

Internet was adopted by Military of US in 1960 known as ARPANET (Advanced Research Projects Agency Network). It was connected to different defence research projects for building reliable networks. ARPANET had protocols permitting dissimilar computer systems to interact through multiple paths using groups of data with their own destination address built in. It was developed in such a fashion that of any one of four nodes failed the remaining would continue to send message with one another. On the successful working of this, other commercial networks were developed in other countries. In 1969 there were 4 and in 1999 the strength rose to more than 60,000 networks connected to the Internet. Thus the growth rate is very high due to flood of literature in every field and specialization in various subjects particularly in science and technology.

2.2 Functions

Internet is taking the responsibility of controlling the problems like collection, organization, storing retrieval and dissemination that are faced by the revolution of information. It is set of computers connected together to share the information. This networks range from small PCs to large corporate systems. Internet is a world wide networks formed by the cooperation inter connection of computing networks possessing global remote control in storing, retrieving and offering exhaustive and efficient service of large collection of information on any topic/subject of one's choice. Internet is a data web, a network of information and ideas, a world wide conduit connecting people. It is generally mentioned as network of networks. From the following Fig. 1 and 2 it will be more clear. The internet is also a method of linking computers so they can

communicate to each other, the computers use 'protocol' to transmit and receive the data/information from one point to another. A protocol described either as a language or a rule book that allows the communication to take place. On the internet two protocols, known as TCP/IP

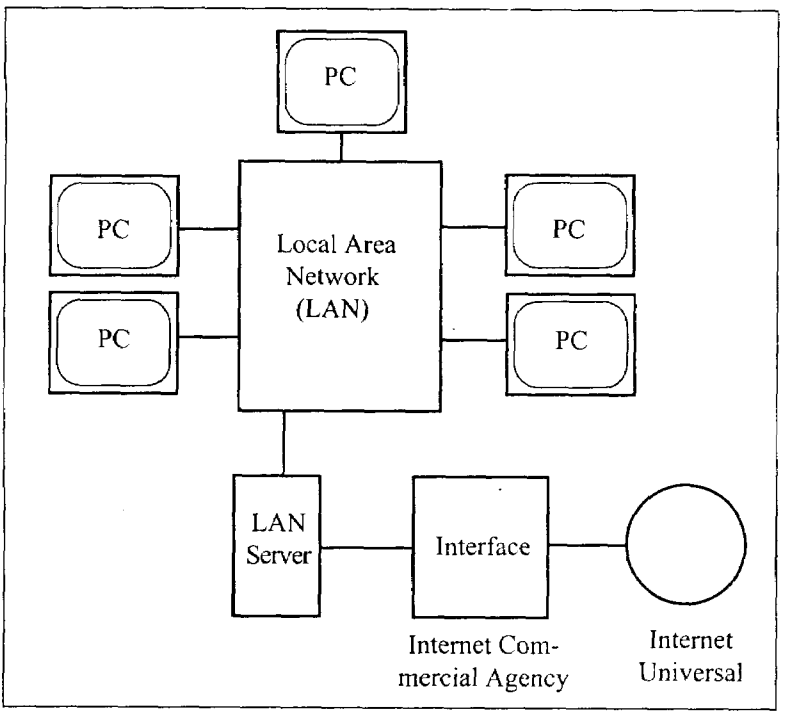


Fig. 1. Internet through Local Area Network.

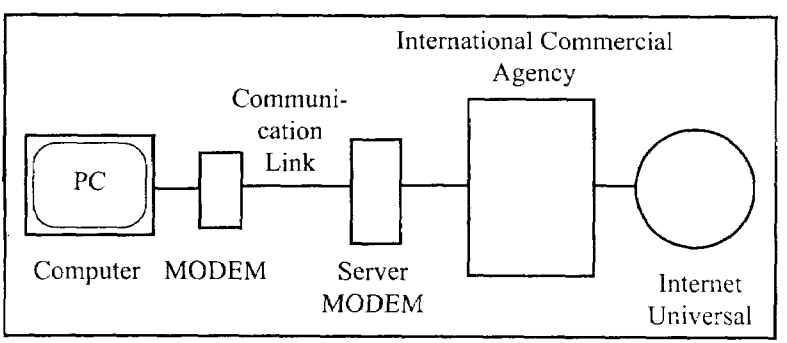


Fig. 2. Internet Operation through MODEMS

(Transmission Control Protocol and Internet Protocol), help each other. With these a PC can communicate to a VAX mainframe on another continent; a Macintosh can transmit data to supercomputer in the next block.

If we send an electric mail message, the TC P breaks up the message, into small pockets. The IP sends the packets on their way, just like the post office or a courier with paper mail. Then, at the destination, TCP puts the packets back together in the proper order and the recipient reads our e-mail message.

2.3 Internet Tools

Internet is an information system which needs tools to find and retrieve the information and has following tools:

E-mail: Electronic-Mail.

Telnet: A system for signing into remote Internet.

FTP: File Transfer Protocol: A system for downloading files from a remote site to our own computer or uploading from our computer to a remote system.

Archie: A keyword and name search system for finding files at FTP sites.

Gopher: A menubased system on the internet.

Veronica: A indexing and keyword retrieval system for finding files or files references of documents at many Gopher sites.

Jughead: An information retrieval system for Gopher using a search defined by the user.

IRC: A system for live conversation on the internet with talk among experts from all over the world connected by the Net to discuss a topic of internet.

WAIS: Wide Area Information System is another search system which finds information by searching for keywords across database.

World Wide Web (WWW): It is an internet browsing and Information retrieval system that uses a system called hyper text to link one document to many others.

Hardware: A PC 486 or higher IBM compatible will be the best choice. Higher speeds work with today's software. If possible get 33 MHz or 66 MHz CPU or high speed 90 or 100 MHz pentium. For big libraries, i.e., university/research organization/scientific windows 95,12 or 16 MB of RAM will be the best choice to enhance our work.

Modem: If university is not connected to LAN we will be in need of modem with high speed. Moreover for windows driven world wide web browser speed with 14,400 band modem is recommended.

Software: High-end communication software such as WI n comm PRO, RROCOMM or Crosstalk will probably be best and it may make our life on the internet a little easier.

Transfer Protocol: The most popular transfer protocol today is Z modern, which has been evolved from earlier X modern and Y modern is faster, has better error correcting capability and uses a 1024 byte packet.

Operating System: Windows 95, windows NT3.5 and IBM's OS/2 warp are accepted operating systems to PC because these have information of TCP/IP protocols. Windows 95 is available with in-built 32 bit windows socket TCP/IP that works with both local area network and SLIP/PP (Serial line Internet Protocol/Point to Point) dial up protocols. Windows 95 also has its own Internet e-mail system and two of the most popular internet tools, FTP and Telnet. Like windows 95, IBM's OS/2 warp includes its own version of TCP/IP software as will as internet tools such as e-mail, a newsreader Gopher, FTP, Internet and world wide web browser.

3 Challenge to Libraries

These days internet is being used in all walks of life such as business, journalism, defence, education, medical science etc. So the libraries have no exception as they impart informal education. Without library, research/teaching cannot be completed. So it is pertinent to have the facility of internet because of the present day challenge as the survival of libraries without it, is not possible. The internet is not providing only quick access to information but also available all the time whenever you need. Previously we have been putting our best efforts with manual/ semi-manual facilities at our disposal to provide the services with minimum possible time. Now with advent of information technology the dream of Dr. Ranganathan has come true which is inherited in his fourth law "Save the time of the reader". He also stressed that with minimum possible time the reader should be given his reading material with the computerization a lost of time of user/staff of library is saved. But most of the libraries do not have resources to switch over to computerization because it requires lakhs of rupees to start with and to have internet connection thereafter. It also involves recurring expenditure to be paid to the Department Of telecommunication for internet connection. Besides this the maintenance and regular power supply will be necessary to provide the required services to the users of library. The managers of libraries have to meet all these challenges for smooth functioning of computers and internet.

3.1 Financial

It is the biggest challenge–being faced by the librarians today. We see that libraries are fighting to get desired budget to provide minimum services. With financial constrain we are not in a position to subscribe all the journals and purchase latest books recommended by the faculty for teaching and research. So the libraries are facing difficulty to go for computerization in spite of their best efforts to manage the resource. This problem can only be solved if the libraries are covered under Information and Technology policy and funds should be liberally granted for installing computers. Under this policy libraries and research institutions should be identified and they should be computerised in phase manner. Otherwise we will be failed in our mission in competing with world in this age of technology.

3.2 Manpower

The most of libraries do not have trained manpower to operate the computers. This also requires funds and can be solved if planned properly. The persons should be deputed for training in phases as and when the financial position eases. Or the else new posts should be filled with suitable trained personnel because the technology is fast changing. The trained persons can only acquaint himself with changing world. The library staff can only do the routine jobs with help of in service training.

3.3 Power

Electric power is the first and foremost requirement for running the computer where there is frequent break down of power, it is very difficult to provide the library services effectively and efficiently. This not only affects the feeding of data but also providing the efficient service. Though UPS are purchased yet they cannot work for longer time. Alternately the librarians should also make arrangement either for generators or for inverters where there is power crisis to provide uninterrupted service.

4 Other Related Problems

4.1 System Capacity Problems

When Internet Service Provider has more user accounts than it can accommodate users notice that the system slows down and becomes erratic, sometime stopping altogether. System failures and outage of various kinds become more frequent and last longer. Excuses on the part

of library staff get over used and evaporate when we consider what they mean. There is no use of such internet account that costs money each month and we get busy signals half the time when we try to get on the net. Our satisfaction depends on the other providers available to us. If the more reliable provides, it might be worth a higher month fee to be assured access all the time we need as our main moto is not to affect the services of library at any cost.

4.2 Telephone

When we begin to use our new modem to do research on the internet, we use the public telephone system to connect. The telephonic conversation may disrupt a computer telephone connection. If the modem connection to ISPO keeps dying, for instance, it can be because of a recent rain or flood that can cause available noise in the telephone connection. This problem can be solved with to have advanced features such as call waiting turned for the phone line for computer is using and we need to carefully study communication software's set up codes. Before we place a computer call with modem we should turn off call waiting. It should be checked up with telephone department the exact sequence to activate and deactivate advanced calling feature.

4.3 Provider Reliability

Library has to face embarrassing situation when it is unavailable due to unsatisfactory service by provider. One of the best ways to find out about an ISP's services is to talk candidly with current subscribers to that service. Their satisfaction with technical support and responsiveness will give us true picture. Before going for ISP we must ensure about the availability service for 24 hours, otherwise library will have to face the music of users.

5 Threats of Internet from Commercial Agencies

Libraries slowly and gradually are going for computerization and internet facility. In India pace of automation is slow as compared to other western countries due to lack of availability of sufficient funds for the purpose. Due to slow pace, perhaps, it is apprehended that private agencies may pose great threat to libraries by providing internet facilities to begin with reference services at commercial level. At this stage the apprehension may seem to be unrealistic, but to greater extent it will come true as the time passes. Moreover , there can be rush in the libraries and the users of

library will have to wait for long time for the turn due to limited facilities at the disposal. There may also be break down of power, system or internet connection. This also lead to the users to turn to commercial agencies. There is no second thought that private organizations provide better services than that of Govt. organizations. The private agencies can also provide home service which is next to impossible for libraries. Though the library will provide free service to the users yet the important consideration here is time saving. Those scientists/research scholars who cannot wait for long time and have money to invest will certainly be attracted towards the private agencies in the field. Moreover, their charges will be nominal to compete with and attract business.

5.1 Threats of reducing reading habits in the Libraries

With the advent of internet we are heading towards the paperless society. Though it may be distant dream yet our paperwork has been reduced to larger extent. These days files are not maintained in the office because all the record is stored in the computer hard disc/compact discs. Similarly in the libraries after computerization all the required data will be available on computer files and required references will taken through internet. This will certainly curtail the habits of reading while sitting in the library. The user of library will go back after having the desired references on internet. If they want to have textual portion that will be had after sending necessary message or taking print out if the facility is available on on-time. So it is clear indication that libraries will lose their clientele who use to sit in the library for reading purposes.

6 Conclusion

The internet connects the libraries to different databases available in anywhere in the world and users can access to information at any time without losing much time. While sitting at home we can also avail the facility. It is need of the day that every library should go for computerization/internet speedily to provide efficient and effective services despite of the difficulties coming in the way. Otherwise survival is difficult in this age of technology. If not done, libraries may lose its users and they will search the required facilities elsewhere.

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Intranet and Libraries

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BHUPENDRA K SINGH

ABSTRACT

An Intranet, or internal networked corporate web site, is an application whose time has come. The libraries, initially hesitant to embrace this new technology, seem to have caught the Intranet bug in a big way. In some measure, library interest in Intranets has increased due to persistent technology hype, on par with that still evident for the World Wide Web (WWW). It has been forecast that Intranet usage will surpass that of the Internet by a ratio of 10 to 1 before the year 2000. For libraries trying to keep up with the rush to embrace each new successive wave of technology, an Intranet is a logical, positive step in the right direction. The movement to this medium can be accompanied by some unexpected benefits in the areas of cost and information dissemination. Intranet technology alters the context of costly information management infrastructures. These infrastructures are highly centralized and exclusive, while Intranets are inclusive applications that are enhanced by the participation, expertise and input of numerous individuals and groups. The essential components of Intranet technology provide an opportunity to significantly transform the manner in which information is stored, published and distributed within an organization.

Intranet emerged from the fundamental needs of users. In today's world, data accumulation is cheap. Libraries gather large quantities of data that can help them to understand critical problems and assist in making strategic and tactical business decisions. However analysis becomes increasingly more difficult as database increase in size. Many libraries are achieving a competitive advantage by effectively managing and utilizing the data currently on hand and that which is readily available to them across the Internet.

The article attempts to highlight the concept of Intranet, its configuration, discusses the history of Intranet and reasons for implement of Intranet in librar-

ies. A comparison of Internet and Intranet is made. Application of Intranet in libraries is also explained.

1 Introduction

Intranet as one of the growing applications of the Internet and Web technology. 1996 witnessed the Internet Revolution. 1997, according to Financial Express[1] 'Internal corporate Webs will grow outward, blurring formal boundaries with the World Wide Web, as businesses and customers begin sharing the Internet as the common network.' And as Clinton Wilder writes in *Information Week*, when people define an 'Internet year' as a period of time lasting 30 days or so, change must be taking place at a mind-boggling pace.

A corporation with a dozen or so branches in different parts of the globe, using different systems, hardware, networking, packages and with a need to coordinate its work and information effectively and quickly. Also visualise the complexities, paper works, confusion and time taken for coordinating and accessing the information. If this imagination is getting webbed and you wish to get out of this situation, there is a solution to take care of all this confusion and this is where Intranet comes in the new 'corporate Net' to take care of corporate communication complexities.

2 What is Intranet?

Unlike many other aspects of technology, there seems to be little discrepancy in the literature as to what an Intranet actually is. Most of the commentators would agree with the simple description of an Intranet as an internal network that uses Internet technology. However, several authors extend this description to include which Internet technologies an Intranet uses (in particular World Wide Web technologies) and make explicit references to corporate use.[2, 3, 4] Most authors would agree, however, with Andreessen who states that Intranet are:

> . . . internal corporate networks built upon Internet standards that provide dramatically improved communication and access to information.[5]

Most concise definition offered by Nanfito:[6] 'Intranets are internal internets utilising TCP/IP technology and the browsing software of the World Wide Web—to—bundle information management and corporate communications within one, easily accessible interface—of the web browser.'

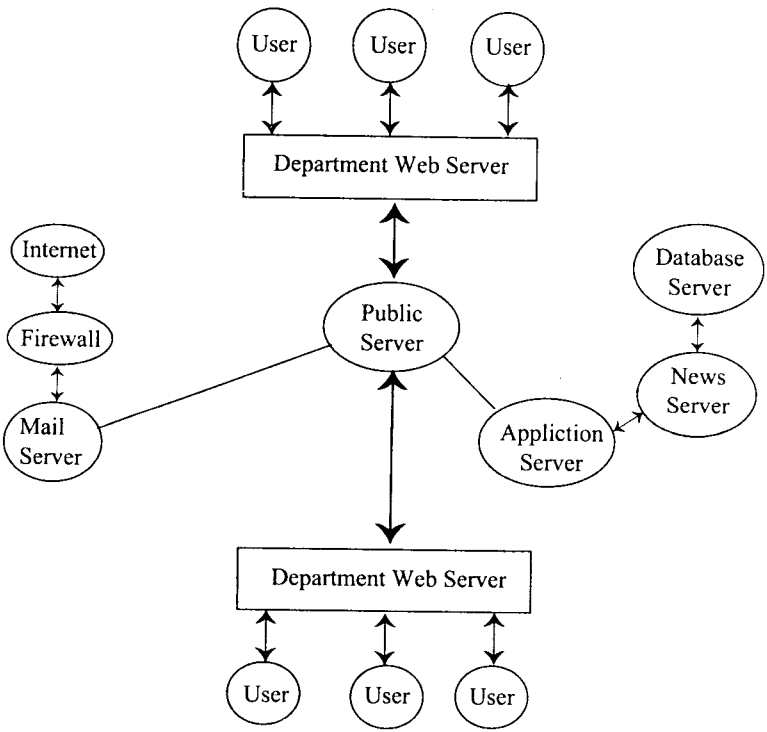
There are several definitions of Intranet. In simple terms, Intranets

are networks within the organization that use the Internet and Web technologies for collecting, storing, and disseminating useful information throughout the organization.

3 Configuration of Intranet

Following figure (No.1) illustrates a simple Intranet configuration. As this figure indicates, all users in the organization have access to all the Web servers. The degree of access for each user must be defined by the system administrator. User can constantly communicate with one another and post information on their departmental Web servers. Within these departmental Web servers, individual employees can have their own Web pages. However, as the figure shows a firewall (or several firewalls) separate these internal networks from the Internet (the World-Wide Network).

Fig. 1. Configuration of Intranet



4 History of Intranets

A search of the LEXIS/NEXIS major papers/magazine library identifies that the first articles using the term 'Intranet' began to appear in mid-1995.[7] According to *SunWorld Online*, the earliest known printed reference to the term 'Intranet' was in April of 1995.[10] However, Hills[9] attributes the original use of the term 'Intranet' to Amdahl who began using the expression in 1994 to describe internal use of Internet technologies. Many authors suggest that the mass (and rapidly increasing) interest of the World Wide Web, is in part due to corporate interest and the wide adoption by companies that have implemented web sites. A paper in *SunWorld Online* provides examples of companies experimenting with this technology internally to improve corporate communication and information dissemination.[10]

5 Internet Versus Intranet

The Internet is a public network. Any user can access the Internet assuming the user has an account with an Internet service provider (ISP). The Internet is a worldwide network, whereas the Intranets are private and are not necessarily connected to the World Wide Web (WWW). Intranets are connected to a specific company network and usually the users are the company's employees. An Intranet is separated from the Internet through a firewall (or several firewalls).

Intranets usually have higher speed than the Internet; improving the efficiency of the Intranet is always an available choice if the organization is willing to spend additional resources. Intranets are usually more secure than the Internet.

Apart from the above-mentioned dissimilarities, the two have a lot in common. They both use TCP/IP and they both use browsers such as Netscape Navigator or Microsoft Internet Explorer. They both use documents in HTML format and they both are capable of carrying documents in multimedia format. Also, they both use the Java programming language for developing applications. Following Table (No.1)[11] summarizes the similarities and dissimilarities of these two technologies.

Table 1: The Internet versus Intranet

Key feature	Internet	Intranet
User	Anybody	Employees only
Geographical scope	Unlimited	Limited
Speed	Lower than Intranet	Higher than Internet

Contd.

Contd.

Key feature	Internet	Intranet
Security	Lower than Intranet	Higher than Internet
Technology used	TCP/IP	TCP/IP
Document format	HTML and Java scripts	HTML and Java scripts
Multimedia capability	Could be lower than Intranet	Could be higher than Internet

6 Intranet Versus GroupWare

GroupWare is software systems that support a group of decision makers engaged in a common decision making task by providing access to the same-shared environment and information. The shared environment may be a memo, a single file, or even an entire database. Lotus Notes, Microsoft Exchange, and Novell GroupWise are three popular examples of GroupWare on the market.

Intranet provide some of the capabilities of GroupWare programs such as sharing documents and accessing vital information throughout the organization. Intranets are cheaper and easier to use. However, GroupWare software offers certain features that are not available through the Intranet, such as replication capabilities, database support, and comprehensive security systems. Although Intranets are relatively secure from outside access through a firewall, there is not much security that can be implemented internally. For example, as soon as a document is loaded to the Web server, all employees may have access to the document. However, a user ID and password could provide adequate security. For confidential materials encryption technology should be used. One attractive feature of the Intranet is that it is operating system independent. It runs on almost all platforms. This is not the case with GroupWare, which is mostly vendor dependent.

7 What are Extranets?

Some organizations allows some of their customers and business partners to access their Intranets for specific business purposes. For example, a supplier may want to check the inventory status or a customer may want to check his account balances. These networks are referred to as Extranets. An extranet is basically an Intranet linked up with some other organization's Intranet.[12] The link may cross the Internet or use private network links. In either case, to organizations have decided to share information and allow users to interact between the organizations.

8 Implementation of Intranet in Libraries

8.1 Reasons

There are many good reasons to choose to implement an Intranet in library. Among them few are listed below:

1 Utilizing a standard Web browser, a corporate Intranet offers a hardware independent platform. This is an important issue as most libraries are in the process of upgrading their hardware from a combination of 386 and 486 computers to Pentiums, and from DOS or Windows 3.1 to Windows 98 or Windows NT. Hardware and software incompatibility is often compounded by conflicting groupware applications. An Intranet works on a TCP/IP network that many libraries have already implemented and it can be overlaid on the libraries' existing network structure.

2 Costs associated with an intranet are reasonably low. A library can expect to pay anywhere from a few lakh Rs for a smaller implementation to several hundred lakh Rs for a large project that is national in scope. These estimates are very competitive when compared to the cost of purchasing proprietary, in-house software designed to support networked document distribution.

3 Configuration options provide the flexibility to match the content to the requirements of the user group. An Intranet can be equally valuable to departments and the entire institute.

4 An intranet can be designed and launched quickly, often in a matter of weeks, and can support a wide range of information which is accessible through one uniform interface.

5 Intranet technology is scalable. In this environment, bigger does not necessarily equate to better. A complex network applications interface often imposes impediments to the user's ability to directly publish and disseminate documents throughout the organization.

6 An intranet can be installed on a stand-alone PC or made available on a LAN or WAN.

7 A library need not abandon its existing networked applications and start all over again to implement an intranet. Most applications, such as work product files, human resources data and library newsletters can be migrated to the intranet Web page.

8 Content can be written and published by many departments and individuals, allowing each group to exercise control and responsibility over their portion of the intranet through the publication and creation of information resources.

9 Information and documents can be published and distributed

according to different departmental practice or user related requirements. This information can also be disseminated to user and other authorized users outside the organization through the use of password protected access to the libraries' intranet.

10 An intranet provides a stable, secure, environment for the internal publication and dissemination of information and documents which may not otherwise find their way onto the libraries' network. The criteria for the value of online content becomes broader, and is no longer necessarily limited to library services. The resulting benefits, direct and indirect, strengthen the value of firm networking as well as resource sharing.

9 Application of Intranet in Libraries: A Overview

Many internal applications in use today can be easily converted to an Intranet or can be supported using an Intranet. Human resources applications, such as job information, name and phone number lists, and medical benefits can be displayed on a human resources Web page. A finance Web site might present information on time cards, expense reports. Library staff can easily access the latest information on a server. With E-mail and chat lines, employees can easily archive meeting minutes.

Intranet is supposed to help foster group working. It can do this in a number of ways. Firstly, in most academic institutions at least, E-mail has already become a replacement or alternative to internal memoranda. The ability to easily set up and maintain Internet mailing lists can be applied in the Intranet context to support group communication. Mailing lists can be archived and the archive made available from the Intranet's Web server to allow a group memory to be developed.

The Intranet allows organizations to evolve from a 'calendar' or 'schedule' based publishing strategy to an 'event driven' or 'need-based' publishing strategy. With an Intranet publishing strategy, information can be updated instantly. Intranets dramatically reduce the cost and time of content development, duplication, distribution, and utilization. The traditional publication model includes a multistep process including:

- Creation of content;
- Migration of the content to desk publishing environment;
- Production of the draft;
- Revision of the draft;
- Final draft preparation;
- Duplication;
- Distribution.

However, the Intranet technology reduces the number of steps to only two:

- Creation of content,
- Migration of content to the Intranet environment.

10 Conclusion

The Intranet looks set for a period of massive growth over the next five years, because it delivers simply and cheaply many of the functions that previous system architectures have failed to provide. An increasing number of libraries are trying to improve their efficiency, and in some cases, attract new clients, through Intranets.

Advantages of Intranet are obvious but there are certain issues that have to be kep in mind before arriving at any decision. Widespread use of computers in India is a recent phenomenon. New technologies and innovations in this field has been coming at a faster rate than the time period needed for a successful transition from one technology/solution to another. In countries such as US, Germany or Japan where introduction and assimilation of technology has been gradual process, it has been easier to induce people to try new technology. In our (India) case, people have to be made to accept that new and better solutions exists besides traditional systems and approaches. The mind set of most libraries are to pursue 'wait and watch policy'. At present whole world is using Intranet. It definitely makes sense to use a technology centered around this . Intranet is a thus a step in the right direction as it gives organization power to communicate more effectively in terms of time, money and skill. So the future looks bright for Intranet.

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31

Library Resource Sharing Network: Modern Trends

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BHASKAR MUKHERJEE

ABSTRACT

Attempts to explain the necessity to use networking in the field of information science as well as services keeping in view the latest developments in the 21th century emphasise the need and purpose of resource sharing especially in university libraries by means of resource sharing and networking. It also tries to explain the use and role of in networking among the automated academic libraries by means of the established methods i.e. LAN and WAN etc. The role of various known networking projects i.e. Internet, INFLIBNET, DELNET, MALIBNET etc. has been touched in brief. The article concludes with the stress on the use networking with special reference in Indian context

1 INTRODUCTION

Resource Sharing (RS) is modern (new) name of what was known as library cooperation in the recent past. Co-operation means, working together with same effort to achieve the objectives i.e. common work for a common goal. The various facets of co-operation are:

- Grouping of individuals having a common interest.
- Action by a group, for pursuing certain aim and target.
- Setting up of a permanent organization as an operational unit.[1]

It is a need based concept founded on the principle of give and take policy for mutual benefit.[2] With the explosion of multidimensional and multidirectional information and its high cost, librarian faces a tedious problem to acquire relevant documents for their readers. These conditions has led to the creation of various databases on various subjects for

pin pointed, exhaustive and expeditious information to its clientele. With the advancement of science in computerised era, libraries now build up various databases for providing latest information through computer terminals in short span of time by which we fulfill Ranganathan's fourth law 'Save the time of the user'. Such type of technologies have already been developed in the UK, USA, Australia and other developed countries. Many developing countries like India are now planning to launch these technologies for optimum utilisation of resource and provide better services to user.

2 Definition

According to Allen Kent 'Resource Sharing is a mode of operations whereby functions are shared in common by a number of libraries'.

A network is a form of arrangement or an administrative structure that links a group of individuals or organizations who have agreed to work together and/or share resources.

Network technology has already came into being in libraries for resource sharing. A group of specific subject libraries come forward and pool their resources through network which is technically called library resource sharing network. UNISIST working documents defines Library Resource Sharing Network (LRSN) as:

> 'A set of interrelated systems associated with communication facilities, which are cooperating together more or less formal agreements and instructional agreements in order to jointly implement information handling operation with a view to pooling their resources and to offer better services to the user. They generally follow identical and compatible rules and procedures'.[5]

3 Why Resource Sharing

The following are the main reasons of resources sharing:

- Proliferation of literature in each and every field of knowledge;
- Multiplicity of documents in different subject, language and formats;
- Development of new subject and subject specialization;
- Increasing of reading community and information seeker;
- Diversity of user group and their information needs; and
- Demand of pinpointed, exhaustive and expeditious information services.

- The increase access to information and services at existing cost; and
- Access to existing information and services at less cost.[2]

4 Areas of Resource Sharing

In recent past the sharing was being done in various areas. They are generally:

- Inter library loan;
- Co-operative procurement;
- Co-operative technical operation;
- Preparation of union catalogue;
- Co-operative storage;
- Browsing privilege of co-operative member;
- Co-operation in documentation;
- Exchange of publications; and
- Exchange of experts.

In modern time the libraries do all these above work, but some modifications has been adopted for better services. They are the networking facilities for quick and better use of latest information.

5 Library Resource Sharing Network

5.1 Characteristics

The Library Resource Sharing Network is having the following characteristics:

- Two or more libraries with common desire and goals;
- Two way communication system for free flow of information form one source to another; and
- Distribution of information may in so many forms; such as catalogue card, print out etc.[5]

On the basis of above characteristics, we can conclude the LRSN in brief is as any independent organisation for satisfying the common desires of a group of member libraries with two way communication facility for distributing the information through computer.

5.2 Objectives

- Improve the sharing of resources among the member libraries;
- Centralise the information processing system; and
- Reduce the communication gap among the libraries.[5]

5.3 Importance

- Bibliographic controlling of the explosion of literature and knowledge;
- Avoiding the duplication in purchase of costly documents;
- Facilitating the adoption of new areas in every field of knowledge;
- For improving the mobility of data; and
- Develop the flow of information among the special information center/libraries and other types of libraries.

5.4 Methods

Previously the Resource Sharing (RS) was done through inter library loan with the help of union catalogues and union catalogues/lists of periodicals. Now-a-days generally the RS is operated in two ways.

- LRS by telecommunication network.
- LRS by database in optical media.[5]

The telecommunication facility originated in 1844 with its 40 km range.[4] In the early past of twentieth century the telecommunication networking facilities were adopted in the library for dissemination of information through satellites. Due to high cost of telecommunication network, the database on optical media was introduced in library activity. The huge information is stored in optical disks for easy transferring from one place to another. Optical media can be divided into two main class (i) Digital; and (ii) Analogue. Further these are subdivided into Read only, Write only and Erasable. CD-ROM is a typical example of digital, read only memory device which is widely used in library and information field. It can carry 550 Mbs. of digital data.

There is another technology which is widely used in RS work that is online network. In this process the information is simultaneously stored and retrieved through computer terminal which is connected via a modem (modulator and demodulator) to telephone. The query entered through the terminal gets converted to the analogue mode and travels through the telecommunication lines and reaches the computer systems in which the data is loaded. There would be another modem at the other end of computer system to convert the analogue signals of the quarry into digital signals which the computer understand. The records of the database are searched and the results is converted from the digital mode, back to the analogue mode by the modem at the computer system, travels back in analog mode, reaches the modem at the terminal and gets converted into digital mode and search result appears on the display unit at the

terminal. All these happens in a few seconds the user feels that all this is happening instantaneously.[10]

5.5 Some Basic Difference CD-ROM and Online search

- In CD-ROM searchers get quick result then online. Because in online command is required to search the information.
- CD-ROM has graphic facilities. It can able to provide graph, diagrams, maps, illustration etc. but in online (expect the availability of TCP/IP account) only textual information can be retrieved but the biggest disadvantages with CD-ROM is frequency of updating. *Humanities Index* is updated twice per week for online but quarterly on CD-ROM. This is because of production of master discs, their replication and mailing to subscribers is an expensive and time consuming process.
- For retrospective research, document sharing, online is only alternative because major database are available from 1966 onwards; whereas CD-ROM databases are available from 1980.
- All CD databases don't use the same search software; at least two different kind of software are currently in use. As a result, it is difficult for the user to refer to different manuals for different databases whereas online vendors adopt common command language (CCL) for searching all databases.[6]

6 Networking and Its Developments in India

There are mainly two types of network found on the basis of area coverage (a) Local Area Network (LAN) and; (b) Wide Area Network (WAN).

6.1 Wide Area Network (WAN)

WAN is designed to serve an area of hundreds to thousands of mile. This is a network spanning a sizable geographical area with communication based on telephone or microwave transmission. Application of WAN in resource sharing is in the following three areas viz. inter library loan, interlining CD-ROM databases and providing access to bibliographical information.[9] Some of the examples of such networking are INDONET(INET), National Information Centre Network (NICNET) and Information and Library Network (INFLIBNET).

INET: INET was established by the Department of Telecommunication in 1992. It is a nation wide packet-switched-public data network (PSPDN) having nodes in eight cities viz; Delhi, Mumbai, Bangalore,

Pune, Ahmedabad, Calcutta and Hyderabad, connected through high speed (ranging from 9600-64000 bps) link. It provides fast reliable, flexible and effective service to the Government and private organisations. It can access the international data network through Gateway Packet Switched Service (GPSS) of Videsh Sanchar Nigam Limited (VSNL), Mumbai. The data search on Internet can also be possible through this network by providing the account number and password given by the corresponding DoT office and enter specific number of VSNL for various metropolitans. (for Delhi it is 404311017777 for Mumbai it is 404322017777 and for Calcutta it is 404333017777). Any businessman can easily get the required information from this network by making a single dial up. They also get connected to subscriber of Remote Area Business Massage Network (RABMN) of the DoT. The cost of communication are lowest, volume dependent (i.e. amount of data) and are independent of distance. It supports CCITT standards interface/protocols X.3, X.28, X.29, X.25 and X.27.[1] The facility which is provided by INET is:

(a) Reverse Changing;
(b) Close User Group (CUG); and
(c) Parmanent Virtual Circuit (PVC).

This is a revolutionary break through for the business community as well as government organisation. An organisation with a simple PC, modem and telephone can search and retrieve relevant information through this network facility.

NICNET: A unique infrastructural network with which was established in 1977 is National Information Centre Network (NICNET). The total network is designed in three phase. The first phase of NIC came into limelight during the IX Asian Games. This computer network with its 34 terminals spanning the 17 stadia in Delhi started functioning. NIC reached to second phase of extending NICNET service to state government thereby improving the information exchange between the centre and state. In the third phase NIC has connected with INSAT-ID and bring all the district of India within the limit of NICNET. It is unique in the sense that it uses almost exclusively satellite based communication, using low cost roof top micro earth station to connect 450 district headquarters and 32 states and union territory capitals with the central point at Delhi. Another distinct feature of NICNET is that it uses 500 Very Small Aperture Terminals (VSAT's), each of which is connected with a specific outbound and inbound channel on the satellite's transponder. NICNET is designed primarily to be a government information network.

It objectives are to promote the collection, storage, analysis, transmission and exchange of data at districts, state headquarters, central ministries and various departments at New Delhi, for using in planning, management and monitoring of projects and governments sponsored programmes. This is extensively used during emergencies caused by natural calamities.

INFLIBNET: During VII Five Year Plan (1985–90), the Report of the Steering Group on Science, Technology and Environment and the Report of the Planning Commission Working Group on Modernisation of Library Services and Informatics emphasise the need for computerisation of libraries and library network interlining all special libraries in India by AD 2000. The INFLIBNET proposal has emarged as a logical consequence of the New National Policy on Education (1986) and the National Policy on Library and Information System (1986). These proposal activated during the VIII Five Year Plan (1990–95) and establish a network namely as INFLIBNET (now it is a independent organisation).

It is envisaged as a computer communication network of libraries and information centre using satellite cum terrestrial networking.

The overall structure of INFLIBNET is as follow:

- A national centre to coordinate, oversee and manage and policy-making the affair of network (Located at Ahmedabad).
- Four regional national centre (N, E, W, S) will maintain Regional Union Catalogue and database of projects, institutions and specialists.
- Many sectoral information centres in each discipline, 4 UGC information centre of arts, science, engineering and humanities and seven NISSAT and other national level agencies like DESIDOC, IARI, INSDOC etc.
- 184 universities, 23 deemed universities, 6100 colleges and over 200 libraries affiliated to the organisation.
- 400 ground terminals situated at 150 university libraries, 50 post graduate colleges and 200 R & D institutions.

INFLIBNET is being planned as a multi service network and will provide:

- Catalogue based service including shared catalogued, union catalogue, online catalogue access, cataloguing production on books, theses and serials.
- Database service including bibliographic database service for retrospective search, SDI, CAS and non bibliographic database service.

- Document supply service, including document delivery through FAX, and non FAX.
- Communication based service, including E-Mail for transfer and receipt of massage, bulletin board service for viewing and updating.

6.2 Local Area Network (LAN)

LAN is a communication system that is used to link the terminals, computers, word processing stations and other data processing resources, in order to be shared, within the inter connection of processors located within the same building or in general, within one kilometer of one another.

The few major characteristics of LAN are:

- The connection between the work stations are usually at distance of few hundred feet upto several thousand feet within the specific range.
- It transmit data between user station and computers.
- The LAN transmission capacity is usually greater than that of a WAN; typical bit rate range from 1 Mbit/s to 20 Mbit/s.

DELNET, CALIBNET and MELIBNET are the typical example of these networking system which is now ongoing in libraries of metropolitan cities like Delhi, Calcutta and Madras.

DELNET: DELNET, the Delhi Library Network, a public switch network is supposed to connect 35 libraries of Delhi. The participating libraries have already started to enter their serial and monograph collection on a specific format using CDS/ISIS. Records are in conformity with the Common Communication Format (CCF). The participating libraries of DELNET have already prepared the serial database which is available at the one of the libraries in the network. In addition the monograph database is also searchable through the dialup access and participating libraries can also use and update data according to their need. It is proposed that their network will have E-mail, file transfer and bulletin board facilities.

CALIBNET: CALIBNET, the Calcutta Library Network will network 38 science and technology libraries in the Calcutta metropolitan area. The plan is for introduction of automated system, in the participating libraries before networking. Each of the libraries is expected to automate their book acquisition, cataloguing, serial control, finance accounting and circulation control. The network center will provide online accesses to the networks union catalogues and current awareness

services including SDI. As with DELNET each cluster of libraries will be serviced by packed switching exchange.

Libraries participating in CALIBNET will use AACR II for bibliographic description. The software, MAITRAYEE supports MARC records and will also enable records to be imported/exported via the CCF. CALIBNET will be linked to DELNET via dialup access and to external networks via the GPSS (Gateway Packet Switched Services).[12]

MALIBNET: In February 1993, MALIBNET (Madras Library Network) was registered as society in Madras with the support received from various institutions in Madras. A main computer system which has been acquired, installed and made operational with no direct funding from the Government. MALIBNET was inaugurated in June 1993 to link with five institutions viz. Anna University, IIT Madras, CLRI, Madras University and Mat Science.

MELIBNET will offer the following information services initially:

- Currently acquired serials holding in about 50 libraries.
- Contents information of about 400 important journals.
- Specialised database giving abstracts of articles;
- Door delivery system for document photocopies.

There are also some organisations which set up networking for the dissemination of information of their subject field. They are:

(a) SIRNET: Scientific and Industrial Network, CSIR Network, Government of India, New Delhi.
(b) ERNET: Education and Research Network, Deptt. of Electronics. Government of India, New Delhi.
(c) OILNET: Oil and Natural Gas Commission (ONGC) Network, Government of India, New Delhi.
(d) PUNET: Pune Network, Pune.

7 Conclusion

Ranganathan First Law says 'Books are for use'. In modern time we are not only dealing with books but also non-book materials such as microfilm, microfiche, AV material etc. Now it is better to say 'Documents are for use', and the documents, containing information is an important national resources for developing the country like India. It is like power. So its sharing is necessary for national development. Now a days we transmit information through telephone and optical media, which is more cheaper than conventional form. It is important that all available information is fully and efficiently disseminated for avoiding costly and unnecessary duplication of resources. The telecommunication network

is convenient if the telephone charges are moderate and easy availability of telephone lines. It requires little equipment like telephone, modem and one PC only. However, in India charges are very high and line is not always available. The optical media initially requires more investment like optical disc driver, CD-ROM database, software etc. This media is suitable if the organisation are capable of expanding within the available resources. Each of the above media are capable of quick and fast information sharing.

All the infrastructural networks mentioned above are in initial stages of development in India. The experience gained by the libraries and software developers in these networks will undoubtedly be very valuable. In case we are able to negotiate the hurdles coming in the way of development of the system we shall certainly to able to provide better services to our nation.

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40

On Line Services and Their Use in the Library

I N KUMBAR

ABSTRACT

This paper deals with the advantages of on-line information network and the role of CD-ROM. The classification of on-line system have been made on it data collection, file interrogation and updating system, files sharing system and massage system. The paper also discusses various issues related the use of softwares and the on-line search in various stages. Finally it draws a comparison between on-line & manual system.

1 INTRODUCTION

It is estimated that more than two million papers are published in various fields of Science and Technology, except Humanities and Social Sciences. The whole of these papers are being indexed/abstracted in may important abstracting and indexing journals like Chemical Abstracts, Science Abstracts and, so on.

It is now common practice to produce abstracting and indexing records in machine-readable form, before they are printed in hard-copy using photocomopsition techniques. During the process, the machine-readable records become the most useful by-products as data bases, enabling the users to get access to the required information at a faster rate.

Number of databases are available in the world and about 3000 and more are on on-line. It is possible that another advance technology of CD-ROM has similar impact on information storage and retrieval medium. The CD-ROM opens a new phase in and even made possible the completion of the computer revolution.

2 On-Line Information Networks

The developments in computer and communication technologies have made it possible now to access information stored in host computers through "terminals" from various remote locations. Several computer-communication networks solely dedicated for scientific and technical information, have come into existence since the 1970s.

3 Advantages of On–Line System

The advantages of On–Line information system are many:

- Data can be accessed into the system directly at source, with facility of error detection and correction, avoiding intermediate help;
- It avoids duplication due to centrally located data and thus eliminates excessive paper work and makes it more likely that every body would be using the same data;
- Files can be updated immediately;
- An individual reader's information needs profile, the information products/service can be stored retrieved and displayed within seconds and thus providing enquiry facilities;
- Through efficient search of the host computer conversational facilities can be provided. This is user-friendly feature of on-line information system; and
- At any time output can be made available as and when it is required and can be displayed or printed if hard copy is wanted

These advantages of on-line information system provide much more benefits to the user, viz: information storage system can be centralised, while the retrieval process can be decentralised and located at several points just like Radio waves or TV transmission. Allows to follow standardised operational procedures. Faster cumulation of information due to Centralised inputs of information aids. Centralised input provides augmentation to comprehensive coverage of information. Standard service can be given to customers and members of the public. Because of up-to-date information provision, Management can take vital decisions.

4 CD-ROM Plays an Important Role on on-line Information System

4.1 What is CD-ROM ?

Many information professional were already familiar with compact discs before the advent of CD-ROM. The compact discs have already

revolutionized the music industry, producing an outstanding quality of sound, free of any back ground noise. Same compact discs have now been adopted for storing bibliographic information. They are known and made revolution in the information industry as CD-ROM (Compact Disc Read Only Memory).

5 Classification of On-Line Systems

On-line systems may be classified, depending on the computers, terminals and communication devices assemblaged in a variety of ways, in different configurations. Various combination of these components can be designed depending upon range of facilities, level of service and reliability required, keeping in view of the budget. Some typical systems areas follows.

- Data Collection and Distribution.
- File Interrogating and Updating System.
- Time-Sharing System.
- Message Switching Systems.
- Other Systems.

5.1 Data Collection and Distributions

The Hardware requirements include a terminal that has an input device, such as paper tape, card reader, magnetic type device optical reader, input device and an output device, such as printer, or a display terminal CATV etc. There would also be a device at the computer and providing an interface between telecommunication link and the input/output channel of the processor. If the transmission link was a telephone line, it would have a modem at either end.

5.2 File Interrogating and Updating Systems

The configuration will include a terminal with a keyboard for input and a printer or screen for output (for example teletypewriter or visual display unit) and a direct access storage device. An advantage of such a system is that it allows the user to converse directly with the computer in addition to straight forward date entry and retrieval. It is possible to design the system so that the user can carry on a conversational dialogue incorporating human judgment. For example the user may be able to vary the types of questions he asks depending upon the answers he requires.

5.3 Time-Sharing Systems

In time sharing systems, users at different terminals can have access to

different application programs, and files for independent application. Typically, time-sharing systems provide the following facility:

- High-level conversational languages permitting users to write their own programs directly from the terminal keyboard;
- The ability to initiate a computer-run from the terminal; and
- Access to general library programs and private files, which may not be accessed by other users of the time-sharing system.

5.4 Message Switching Systems

Organisations with activities in many locations need to send information and date between these locations. As the complexity and speed of business increase, it becomes more advantageous to use a computerised message switching system to speed up communications. In message switching system, the computer receives a message entered at a terminal, stores it and retransmits it to the terminal(s) for which it is intended.

5.5 Other Systems

When it is essential to have a very high level of system, some of the components can be duplicated. Some large applications in Information Storage and Retrieval Systems, we can have two or more central processor systems. One processor may do low priority batch processing. but in the event of failure realtime work can be switched on it: this provides high availability. In other cases, two computers may be doing identical processing as a check that the results are correct. This improves reliability.

5.6 Wireless Internet Access

In order to avoide the time lag and telecommunication conjuncture, very recently, Indian Institute of Technology (IIT), Chennai has developed high speed Internet access and leaves line free to make and receive telephone calls.This low-cost system based on IITs Wireless in Local Loop (WLL) Technology, uses Radio Frequency waves instead of cables to send and receive signals. It allows the subscriber to connect to telephone or fax machine. Internet connection is provided without the need for a modem by directly connecting the personal computer (PC) to WLL subscribers terminal. An additional advantage with the IITs WLL systems is that the line is free to make and receive telephone calls even when the Internet is being accessed.

6 Software Issues

In on line work, their is greater variety going on inside the computer, around it in direct access storage devices, multiplexer and communication processors and away from it in transmission links terminals, terminal control unit and concentrators.Additional software is needed to control their activities. The operating system needs to be designed to support such software. Many of the user's problems are however taken care of to some extent by computer manufacturers, who packages for carrying out line control and associated tasks.In many cases, the user has only to write his own application programs and to know how to interface these with the supplied software.

The tasks of information management include:

- Polling and selecting terminals;
- Assembling bits for a terminal into a message for the computer for vice versa;
- Converting data form retransmission code to internal computer code and vice versa;
- Automatically correcting or requesting transmission of incorrectly received data;
- Providing an interface with the user's application program; and
- The package-program could also carry out line control.

However an information user may also need software control facilities which may be extended to the following aspects:

- To increase security;
- To extend the range of diagnostic messages;
- To keep logs for analysing incoming messages; and
- To provide special recovery procedures.

Because information is entered at a terminal directly into the on-line system, special software is provided by computer manufacturers to allow this to be done together with on-line verification and validation. Data may be entered in this way either at the point of origin in the data preparation room at the computing center. There is a growing tendency to have on-line data input terminals situated alongside traditional data preparation equipment.

The speed of computer information processing is aided by programs designed by small modules and with multi threading environment.

7 On line Bibliographic File

The on–line bibliographic record is similar to the one of manual record. However, it contains greater details; more number of data elements. A collection of records bring in the need for a sequence. Such a collection is called data set or data file. On-line bibliographic files are usually arranged by data or by order of entry of records into the file (the accession sequence) which is closely correlated with data. New records are generally added to the end of the file and depending on how these are handled before being introduced into the computer.

It the records are arranged by data, and if we are to search by author's name, it would be tedious to search every file. Hence we create inverted file or index. file.

This is followed by a series of combination and permutational logic, command languages and search strategies. These items will be touched immediately after the introduction in detail.

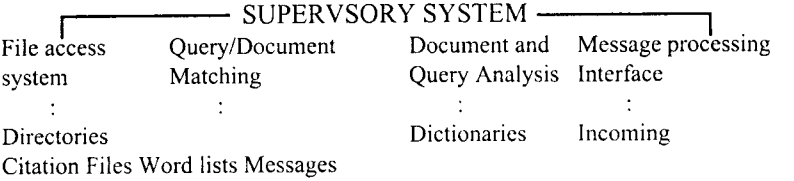
8 On-line Search

Here we are concerned with on-line information storage and information retrieval system wherein a request can interrogate with the database directly via terminal (e.g. teletype, console typewriter etc.) provided with a CRD display. The process may begin with the introduction of a user query, submitted through the on-liine terminal, normally expressed as a set of keywords with boolean connective. The system may then supply intermediate outputs, for example the number of documents that are likely to be retrieved using the given very specification. Alternatively, portions of a dictionary or authority list may be displayed to suggest to the user alternative ways of formulating the queries.

Alter completion of the query formulation, a file search is generally carried out, and select document citations often in the order in which they happen to be retrieved are displayed for the user's attention. If the user is satisfied, he may interrupt the output display and begin a new search; alternatively the output process may continue or the user may choose to rephrase his query using as a guide to some of the previously retrieved items. Finally the user can ask depending on the size of the document matched, for the print out of the citations.

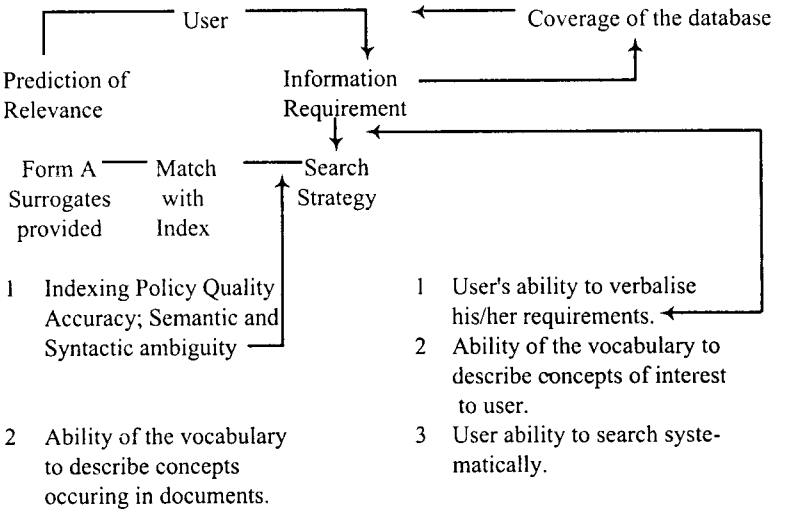
Regardless of variations in detail, all the existing on-line systems are based on a structure similar to that shown in the following chart:

The interactive on-line process calls for user's awareness of system's capabilities. The system user has to express verbally his



8.1 Factors Influencing On-line Search

The various factors affecting on-line interactive search may be visualised by the as shown below:



requirements. The system user has to express his information needs in terms that the system understands and can act responsively. How successful a searcher will be at the terminal, is almost depending entirely upon:

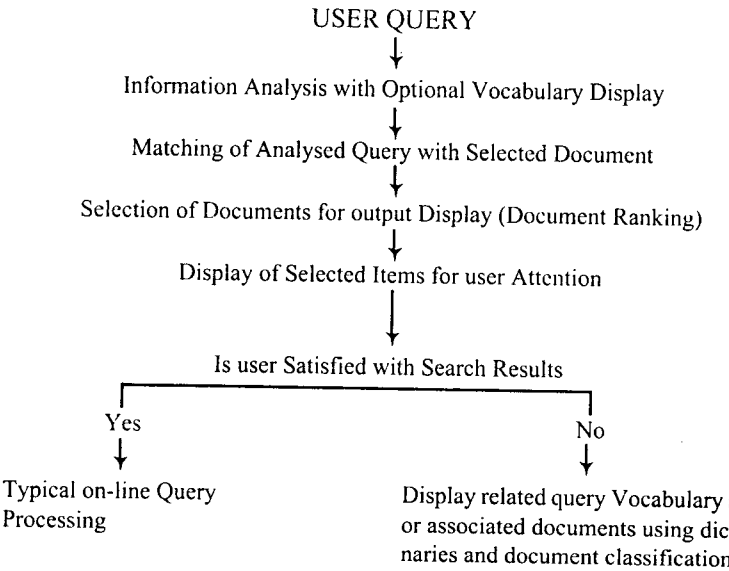
- his ability to think of alternative approaches to retrieval; and
- his knowledge of the vocabulary of the system.

However, a major advantage of on-line interactive dialogue between the search and the system is the ability to involve the interactive cycles of searching with successive refinements or expansions of the search terms; Frequently the search statement will change as the user having found some related documents, develops a clear idea of what he wants with the quite possible effect that recall and precision are both improved. Alterna-

tively it may be that after his first tentative approach to the system, he will be guided to more effective search terms, and thereby obtain a significant improvement in performance.

9 Stages of Searching

A typical interactive searching sequence is shown is shown in the following diagram:
Any on-line information retrieval system will operate via three major models.



- Start-up (Logging in and identification of the file to be interrogated);
- Search; and
- Browsing-and printing.

Given the desire to find documents on a particular topic, the searcher once he has logged-in and obtained access to the data base will normally enter one or more descriptors. In most systems, the program will first respond by displaying the number of documents indexed under the descriptor chosen. Such number are usually refered to as posting or tallies.

10 Conclusion

Perhaps, the following synoptic feature on the on-line system and manual system of Information retrieval will certainly diffuse the red tapism of the authorities and shall give impetus to automise the library services.

Sl.	Feature	On-Line System	Manual System
1	User and Source Relation	Dynamic interactive due to highly mobile data files.	Relatively less Dynamic in responce to user due to constraints in file manipulation.
2	Speed	Speed of movement of files and response is high.	Relatively very slow. Tests the patience of a searcher.
3	Reliability	Maintains a high level of reliability. and fall back procedures that can be brought into operation immediately. Ensures that messages do not get lost in the system.	Reliability is attempted but verification is often not there.
4	Comprehensive	Since input is highly mobile and the system has self arranging capability, information is input quickly and gets absorbed. This gives clue to comprehensive cumulation and its updatedess to publication of primary document are good based on program security.	Since input requires elebirate human interfacing and skills there is a delay.
7	Delimitation	Can cut off at any time	Cannot cut off at any point due to prerecordation
8	Ease of Access	Ease of access is very high in spite of high cumulation	Diminishing ease of access as the comulation in file increases

Contd.

Contd.

Sl.	Feature	On-Line System	Manual System
9	Cost	Compare to the old cost of the setting up the system has been come down and its maintenance and updating is little high, it gets distributed to several users. For user, except for the low cost of equipment the recurring cost is related to use.	Initial cost of setting up the system and its maintenance and updating may not be high. But the per capital cost to user is very high.

In conclusion we may say that On-line Information retrieval may appear costly, but the communication is being sought through the sun Rays due to the recent invention, we can very well imagine the comprehensive use of On-Line Information Technology

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Use of Internet in Library and Information Services: A Case Study on Business School Libraries of USA

R VENKATA KESAVAN AND K H SHUKLA

ABSTRACT

The new millennium has got to offer a lot of tools to the library and information professionals all over the world The important one among them is the Internet and related technologies, which are already playing a major role in library and information services. In this paper an attempt has been made to observe the use of Internet in the Business School Libraries (BSLs) of USA. This on-line observation study is focused on 40 leading business school library web sites. The finding of the study highlights the use of Internet in library services. The contents of the library web sites haven mapped systematically. The paper also makes few suggestions for the Indian libraries to be Net savvy

1 INTRODUCTION

As we move closer to the millennium, the information revolution is proliferating towards digitized communication channels, in cyberspace. Across the globe the Internet is playing a major role in information collection, storage and dissemination. Ever since the Intemet came into library operation, it has been adding value to the library and information services (LIS). With the help of web based library services, in developed countries library users are attended round the clock. More and more library OPACs are becoming accessible via the library's homepage. Right information to the right user at any time is really possible now with help of Internet. As the Internet originated from USA, it is quite natural

that the libraries, especially the academic and research libraries have taken the maximum possible advantage of Internet. The 'Business School Libraries (BSLs)' in USA are the real examples of using Internet for offering innovative library and information services. This papers makes an attempt to gather the information on how the 'Business School Libraries', in USA have advanced in the library and information service arena.

2 Objectives of the Study

- To observe the design of the library web sites
- To understand the library web site contents and map it
- To understand the type of information services offered through the library web sites. To offer suggestions for Indian library professionals to library web sites

3 Methodology

The on-line observation method has been used for the study. During July September 1999, about 40 web sites of the leading 'Business School Libraries', (Listed in the Annexure-l) have been visited on-line and various contents on the site have been carefully observed. Based on the objectives of the study important points and information have been downloaded.

4 Analysis and Findings

Various informations gathered from the web sites have been classified and mapped. The detailed analysis is as follows:

4.1 Appearance the web site (Homepage)

To begin with most of the Business School Libraries have a full-fledged web site either as a part of the parent University web server or hosted on a separate library server. On the home page of library web site about 70% of the libraries have the photograph (image) of the library building. 20% of the libraries have their library reading hall etc. Other 10% do not have any graphics on the homepage. Almost 90% of the library sites, it did not take more than a minute to load the homepage while accessing on-line.

4.2 Contents of the web site

BSLs web sites have a variety of contents ranging from information about the library to user feedback (on-line) contact form. The contents have been identified and mapped in the table 1.

Table 1: Contents of the BSLs Web sites in the US (Total No. of Web sites 40)

SNo.	Content Description	% of the Sites with the content	% of the sites without content
1	About the Library	100	NIL
2	Library Name & Address	100	NIL
3	Library Timings	100	NIL
4	Library Guides	85	15
5	Library Collection Outline	95	5
6	Library Services	100	NIL
7	Staff and Location	60	40
8	Course Reserve Materials	74	26
9	Working Papers	82	18
10	Library Policies	90	10
11	Library OPAC	100	NIL
12	Current/Recent Resources	100	NIL
13	Site Search	90	10
14	Links to Electronic Resources Subscribed	95	5
15	Links to Other Libraries	90	10
16	Links to WWW Resources	100	10
17	Library FAQ	95	5
18	User Feedback Forms	100	NIL

4.3 Information Resources Linked on the web site

Almost every BSL in the USA has subscribed to various leading business information sources, which are available in electronic form. Most of the libraries have subscribed the electronic resources through the Intemet. Library users are allowed accessing these databases via the concerned library web site. An authorized library user can be from any part of the world, using a valid User ID and Password can access his library resources through the Internet. The popular electronic resources subscribed by the BSLs of USA are listed in the following table 2.

TABLE 2: INFORMATION RESOURCES LINKED ON THE WEB SITE (TOTAL NO. OF WEB SITES-40)

SNo.	Electronic Resource Title	% of BSLs Subscribed	% of BSLs not Subscribed
1	ABI/INFORM	80	20
2	Britannica On-line	30	60
3	CIA World fact Book	60	40
4	Dialog Wed	80	20
5	Dow Jones	90	10
6	EconLIT	70	30
7	Economist Country Reports	65.	35
8	EIU Views Wire	50	50
9	Encyclopedia of Associations	70	30
10	Euromonitor Global Market Information	64	36
11	Hoovers Online	85	15
12	ISI Emerging market News	75	25
13	Lexis Nexis	76	24
14	Pro Quest Direct	60	40
15	PsycLIT	65	35
16	Sociological Abstracts	70	30
17	Sociofile	65	35
18	STAT USA	86	14
19	Wall street Research Network	89	11
20	Other web based reference collection	100	

4.4 LIBRARY SERVICES OFFERED THROUGH THE WEB SITE

The BSLs in the USA offer almost all kinds of information services via Internet. After visiting these library web sites, it has been observed that except for borrowing books and other materials a library user need not go to the library. Almost every service is linked with the library web site. The following are the important library services, which are offered through the library web site.

- Membership Registration
- Circulation Service
- Reference Service
- Curriculum Information Service
- Document Delivery
- OPAC Search

- Literature Search
- Referral Service
- Library Research
- InterLibrary Loan
- CurrentAwareness Service

4.5 Links offered

BSLs in the USA offer various useful links on their web sites to access the information resources, which are available all over the world. The links are related to the following broad categories:

- Business Organisations
- Academic Resources (Major Universities, Colleges etc.)
- Market Research Agencies
- Other Business Schools and Libraries
- NGOs
- Training Institutions
- Career Resources
- Govt. Information
- Exhibitions and special events etc.

5 Suggestions for Indian Library and Information Centres

Having visited several BSLs web sites on-line and also based on the observations made, the following suggestions are made to the Indian libraries and information centers.

- As early as possible all the Indian Libraries should have Internet connection
- The library staff must be oriented towards of Internet based library service which is going to be the future of the new millennium
- Indian Libraries should have at least a homepage on the Net, if not a web site
- The libraries, which subscribe to electronic resources, must learn from the experiences of US BSLs and try to offer web based library services which are cheaper and saves the time of the library staff and user
- Using Internet the Indian libraries can cull out a lot information

from other related libraries of the US and other developed countries.

- The Indian libraries should benchmark with these leading library web sites when they develop one for them

6 Conclusion

It is easy to make the above suggestions, but implementing them would certainly be difficult. The action should start from the policy makers. The agencies like ILA, IASLIC and other library associations in India should take serious steps to influence the state and central Govt, for offering Internet connection for every library in India. These agencies along with NISSAT and INFLIBNET must collaboratively see to it that in the new millennium all the Indian libraries should be equipped with necessary tools, technologies and manpower to offer web-based library services. At local level it should be the responsibility of every working library professional to convince the management for Internet connection and web based library services. The Internet and its World Wide Web are rapidly becoming a way of life for many in business, industry, and education. All sorts of library services can be offered through the Internet today. This trend is completely evident from the web sites of BSLs of USA. In India, too we could already see a beginning that few libraries (of IITs, IIMs, CSIR labories etc.) have already launched their web site (or at least library homepage). Web based library services yet to see the light on a large scale in India. Let' us hope for a new kind of Indian library and information environment in the new millennium.

ANNEXURE I

BUSINESS SCHOOL LIBRARIES WITH URL

1 Babson College- Horn Library
http://www.babson.edu/library/index.html
2 Bentley College - Solomon R. Baker Library
http://bnet.bentley.edu/dept/li/
3 Boston University - Frederick S. Pardee Management Library
http://www.bu.edu/library/management/
4 Columbia University - Thomas J. Watson Library of Business &Economics
http://www.columbia.edu/cu/libraries/indiv/business
5 Cornell University - Johnson Graduate School of Management Library
http://www.library.cornell.edu/jgsm/
6 Dartmouth College - Feldberg Business and Engineering Library
http://www.dartmouth.edu/~feldberg/
7 Duke University - Fuqua School of Business Library
http://www. lib.duke.edu/fsb/index.htm
8 Emery University - Center for Business Information
http://www.emery.edu/LIB/CBI
9 Harvard Business School - Baker Library
http://Nlibrary.hbs,edu
10 Indiana University Bloomington - Business/SPEA Library
http://www.indiana.edu/~bslib/index.html
11 Long Island University - C.W. Post Campus - Center for Business Research
http://www.liunet.edu/cwis/cwp/library/cbr/cbrhome.html
12 MIT - Dewey Library for Social Sciences and Management
http://libraries.mit.edu/dewey/
13 Michigan State University William C. Gast Business Library
http://www.lib.msu.edu/coll/branches/business/
14 Ohio State University Business Library
http://www.lib.ohio~state.edu/Lib_Info/BUS.html
15 Purdue University - Management and Economics Library
http://www.thorplus.lib.purdue.edu/library_info/departments/kran/index. html

16 Southem Methodist University Business Information Center
http://www.cox.smu.edu/bic/welcome.html
17 Stanford Graduate School of Business Jackson Library
http://weslesy.stanford.edu/library/
18 SUNY Buffalo - Lockwood Memorial Library
http://uubibbbuufaaoo.edu/libraries/units/Iml/
19 Tulane University - Lillian A. and Robert L. Turchin Library
http://freeman.tulane.edu/turchin
20 University of Alabama - Angelo Bruno Business Library
http://www.cba.ua.edu/~bruno/
21 UC Berkeley - Thomas J. Long Business & Economics Library
http://www.lib.berkeley.edu/BuSI/
22 UCLA - Anderson School of Management - Rosenfeld Library
http://www.anderson.ucla.edu/resources/library/libhome.htm
23 University of Chicago Library Information System - Business and Economics
http://www.lib.uchicago.edu/LibInfo/SourcesBySubject/BusinessAndEconomics
24 University of Colorado at Boulder - William M. White Business Library
http://www-libraries.colorado.edu/ps/bus/frontpage.htm
25 University of Illinois at Urbana-Champaign Commerce Library
http://www.library.uiuc.edu/crx/
26 University of Iowa - Marvin A. Pomerantz Business Library
http://www.lib.uiowa.edu/biz/
27 University of Michigan Business School - Kresge Library
http.//lib.bus.umich.edu/
28 University of New Mexico William J. Parish Memorial Library for Business and Economics
http://www.unm.edu/~pmleref/
29 University of Pennsylvania - Wharton School - Lippincott Library and Safra Business Research Center
http://www.library.upenn.edu/lippincott/
30 University of Pittsburgh (Pitt) - Katr Graduate School of Business Library
http://www.library.pitt.edu/libraries/busi ness/business.html
31 University of Rochester Management Library
http.//www.lib.rochester.edu/mgt
32 University of Southem Califomia - Crocker Business Library
http://www.marshall.use.edu/library

33 University of Virginia - Darden Graduate School of Business Administration - Camp Library
http://www.darden.virginia.edu/library/default.html
34 University of Washington - Foster Business Library
http://www.lib.washington.edu/business
35 University of Wisconsin Madison - Business Library
http://www.library.wisc.edu/libraries/Business/
36 Vanderbilt University - Owen Graduate School of Management - Walker Management Library
http://www.library.vanderbilt.edu/walker/home.html
37 Villanova University - Bartiey Virtual Reading Room (Falvey Memorial Library)
http://WWW. vill. edu/-vbl/aweb/vi rtual. htm
38 Wake Forest University - f3abcock Graduate School of Management - Professional Center Library for Law and Management
http://www.law.wfu.edu/library/
39 Washington University - Olin School of Business - Kopolow Business Library
http://www.olin.wustl.edu/library
40 Yale University - Social Sciences Library
http://www.library.yale.edu:80/socsci/

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Application of Information Technology (IT) in Academic Libraries and Information Centres (LICS) in Channai: A Study of its Impact on LIS

V KASI RAO, B RAMESH BABU
AND K KALIYAPERUMAL

ABSTRACT

The development in Information Technology (IT) which has been acquired from developed countries and their use in LICs in India is currently dominating. The application of IT in different types of Libraries in India has gained sufficient momentum and it is of continuning interest to the information professionals in order to provide IT based services. On review the literature reveals a number of studies conducted in the application of IT in Library and Information Centres (LICs) in the recent years. The present paper presents one such study which has been carried out by surveying the application of IT among academic Libraries and Information Centres (LICs) in and around Chennai. There are nearly 100 academic institutions at graduate, post-graduate (PG) and Research levels in various academic disciplines. A sample of 45 institutions under various divisions such as Universities, Colleges (Govt.), Adied and Self-finaincing colleges and polytechinc libraries have been covered in the survey to analyse the nature, extent and type of applications of IT based services. It also studies the areas of IT applications, Collection Development Policy(CDP), manpower development and attitudes of staff towards IT applications working in the academic libraries under survey. Finally, it also analyse the reasons for poor application of IT, if any and concludes objectively that the application of IT in academic libraries would certainly put an order and bring out a sequence of operations in the Information Management (IM) without much of human intervention.

1 Introduction

The developments in Information Technology (IT) which has been acquired from developed countries and their use in India is currently dominating. The application of IT in different types of libraries in India has gained sufficient momentum and it is of continuing interest to the information professionals in order to provide IT based services. On the review of literature reveals a number of studies conducted in the application of IT in Library and Information Centres (LICs) in the recent years. The present paper presents one such study which has been carried out by surveying the application of IT among academic libraries and information centers(LICs) in and around Chennai. There are nearly 100 academic institutions at graduate, post graduate and research levels in various academic disciplines. In these libraries the application of IT is slowly implemented, but not in a totality of the library and information services (LIS) area.

2 Scope of the Study

This paper aims to study the extent of application of IT in a sample of 45 academic libraries, comprising of Govt. aided/autonomous colleges, Govt. professional colleges and polytechnics, self financed engineering colleges, specialised institutions category and the universities including the IIT. Further, it covers the IT application in collection development, manpower development, nature and quality of information services and the areas of LICs. Finally it also the libraries attitude towards the IT applications and the reasons for poor, if any, application of IT. It concludes and argues towards the total application of IT in academic libraries in the view of the emerging networking environment at national and regional levels.

3 Hypotheses

Majority of the academic libraries in Chennai have introduced IT. Among academic libraries, University libraries are in better position in the application of IT. Majority of the academic libraries are using commercially developed software packages. There is an increasing trend in the provision of IT based services in the academic libraries. Academic libraries are positive towards IT. Factors like budget, training to staff etc. have caused hindrances for the provision of IT in academic libraries.

4 Methodology

A questionnaire has been drafted in the light of the stated scope of the paper and administered to 45 academic libraries in and around Chennai. Appendix–1 provides list of the academic libraries surveyed.

5 Annalysis and Discussion

Appendix–2 provides the data pertaining to the survey. Out of 45 libraries 7 libraries are of the Government professional colleges and polytechnics, 14 libraries are of the self financed professional colleges, 3 libraries are of the government aided/autonomous colleges, 6 libraries are of the self financed arts and science college libraries and 8 libraries are of the special institution category. In Chennai, the academic libraries are widely scattered in different types as shown in the Appendix 2 under classification of libraries.

With regard to the collection size 80 percent of the libraries are having collections of below 50,000 volumes. These are mostly libraries of arts, science and engineering college. The libraries, having collection of above 1 lakh volumes are the university libraries including IIT. Similarly about 85 percent of the libraries and information centres (LICs) are having a positve approach towards the IT application and 30 percent in the view of Insufficient funds, lack of trained staff are the reasons for the poor IT application based on the data analysis.

6 Conclusion

The Survey has achieved its aim, in that it has provided the summary of the IT impact on LIS in academic libraries and information centres (LICs) in Chennai. The awareness of IT and the level of IT application processes were started the year between 1980–85. None of these academic libraries and information centres possessed the IT application based information handling services before 1980 and followed the traditional approach to information management. It is only after 1995 (85 percent) of these libraries and information centres are possessing IT application based services and 15 percent of these libraries and information centres are lacking IT application products and services due to inadequate financial support and trained staff.

The survey has also shown that Foxpro, dBase and indigenous software packages are in popular use for IT application services. 50 per cent of the libraries and information centres are using the CD-ROM databases for information retrieval purpose. 75 percent of the libraries and information centre's collection developments have been affected by IT and the (90 percent) management supports are in the personnel management development policy.

The survey has further witnessed that there is no alternative way except the IT application based information handling services in libraries and information centres whether it is academic or special including the R&D Libraries in near future in and around Chennai.

APPENDIX I

University Libraries

1 Dr Ambedkar Law University.
2 Anna University
  (a) Main Library.
  (b) Madras Institute of Technology(MIT), Chrompet.
3 Indian Institute of Technology (Deemed University).
4 Dr MGR Medical University.
5 Sri Ramachandra Medical College & Research Institute (Deemed University).
6 Tamil Nadu Veterinary and Animal Sciences University (TAVASU).
7 University of Madras
  (a) Main Library – Marina Campus.
  (b) AC College of Techonology – Guindy Campus.

Government Professional Colleges and Polytechnic Libraries

8 Dr Ambedkar Law College.
9 Chennai Medical College.
10 Dr Dharmambal Womens Polytechnic.
11 Institute of Hotel Management and Catering Technology.
12 Kilpauk Medical College.
13 Stanely Medical College.
14 Technical Teachers Training Institute.

Self Financing Professional College Libraries

15 Sri Balaji Dental College.
16 Bharat Engineering College.
17 CL Baid Metha College of Pharmacy.
18 Cresent Engineering College.
19 SRM Eswari Engineering College for Women.
20 SRM Engineering College.
21 Hindustan College of Engineering.
22 Dr MGR Engineering College.
23 MNM Jain College of Engineering.
24 Jaya Engineering College.
25 Jerusalem College of Engineering.
26 Satyabhama Engineering College.

27 Rajeswari Engineering College.
28 Savitha Dental College.

Government Aided/Autonomous College Libraries

29 Loyala College.
30 Saint Christopher College of Education.
31 Women's Christian College (WCC).

Self Financing Arts and Science College Libraries

32 Alpha Arts and Science College.
33 Asan Memorial College of Arts and Science.
34 Guru Shree Shanti Vijai Jain College for Women.
35 Mohammed Sathak College of Arts and Science.
36 Narayanasamy Arts and Science College.
37 MOP Vaishnav College for Women.

Specalised Institutions Category Libraries

38 Anna Institute of Management Studies.
39 Asan Memorial Institute of Management Studies.
40 Hindustan Institute of Engineering Technology.
41 International Institute of Tamil Studies.
42 Madras Institute of Developmental Studies.
43 Madras School of Economics.
44 Ponmanam Institute of Management Studies.
45 Satya Nilayam Institute of Philosophy & Culture.

APPENDIX 2

The statements tabulated below are showing the quantitative data of the academic libraries in Chennai under survey:

TABLE 1: CLASSIFICATION OF LIBRARIES

S No.	Types of Libraries	Total No. of libraries	%
1	University Libraries	7	15.5
2	Govt. Professional Colleges and Polytechnic Libraries	7	15.5
3	Self Financing Professional College Libraries	14	31.0
4	Govt. aided/autonomous College Libraries	3	7.0
5	Self Finance Arts and Science College Libraries	6	13.5
6	Specialised Institutions Category Libraries	8	17.5

TABLE 2: COLLECTION BUILDINGS

S No.	Types of Collections	Total No. of Libraries	%
1	Books		
	Below 50,000	36	80.0
	50,000–1,00,000	6	13.5
	Above 1,00,000	3	6.5
2	Current Periodicals		
	Below 500	42	93.5
	Above 500	3	6.5
3	Non-book Material (NBM)		
	Below 500	24	53.0
	500–1,000	12	27.0
	Above–1,000	9	20.0
4	Others		
	Below–1,000	20	44.5
	1000–2,000	18	40.0
	Above–2,000	7	15.5

TABLE 3: YEAR OF AUTOMATION

S No.	Year of Automation	Total No.	%	Not automated so far	%
1	Between 1985-85	1	20		
2	1985–90	3	70		
3	1990–95	8	17.5		
4	After 1995	27	60.0		
	Total	39	86.5	6	13.5

TABLE 4: AREAS OF IT APPLICATIONS

S No.	Services %	Total No.	LIBSYS	ORA	CDS/ISIS	Other Software Packages	%
1	Catalogue	39 (88.5 %)	4 (9.5 %)	3 (7%)	8 (17.5%)	24	54.5
2	Circulation	36 (79.5 %)	3 (7.0 %)	3 (7%)	8 (17. 5%)	22	49.5
3	Acquisition	36 (79.5 %)	3 (7.0 %)	3 (7%)	8 (17. 5%)	22	49. 5
4	Serial Control	29 (64.5%)	3 (7.0%)	3 (7%)	7 (15. 5%)	16	36. 0
5	I L L	24 (54.5%)	13 (29.5%)	3 (7%)	1 (2.5%)	7	15. 5

TABLE 5: DATABASE SERVICES

S No.	Database Type	Total No.	%	Retrieval Purpose			
				Bib	%	Full Text	%
1	Commercial Online Database	16	35	12	27	4	9
2	CD ROM Database	22	49	14	31	8	18
3	Image Database	12	27	8	18	4	9
4	Multimedia Database	18	40	13	29	5	11
5	Personal Reference Database	16	36	9	19	7	17
6	Internal Records	20	45	16	36	4	9

TABLE 6: IMPACT OF IT ON COLLECTION DEVELOPMENT

S No.	Discriptions	LICS Collection Development affected by IT		LICS Collection Development not affected by IT	
		No.	%	No.	%
1	IT affects regular budgeting provision	35	78	10	22
2	IT takes major share from the library-budget	35	78	10	22
3	Annual maintenace cost of IT products affects the collection development	35	78	10	22
4	Operational costs are exceding year by year	35	78	10	22
5	Higher salaries for a trained staff also affecting the collection development	35	78	10	22

TABLE 7: IMPACT OF IT ON PERSONNEL MANAGEMENT POLICY

S No.	Descriptionts	LICS Responded for changes in the Personnel Managment Policy (Yes)		Responded for not changes in the Personnel Management Policy (No)	
		No.	%	No.	%
1	The authority wants to appoint a computer personnel for the operation of IT Porducts	20	45	25	55
2	The authority wants to appoint library professsional those who know well about in IT applications	20	45	25	55
3	The authority wants to train the library professionals in the contaxt of IT	40	90	5	10
4	The authority is not interested for the library professional development			45	100

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Application of Infomation Technology in Libraries: Practical Experience in A University Library

M BAVAKUTTY AND MUHAMMED SALIH TK

ABSTRACT

Libraries are one of the most important place where computers are used in a large scale. In India also, though a little late, utilisation of computer for various services and operations of libraries are widely made. Yet a majority of libraries have not utilised the technology due to one or the other reason. This paper discusses the automation project at a university library with a view to share the experiences with others so that those who wish to proceed in this direction may be benefited.

1 INTRODUCTION

The most talked about subject among librarians now a days is the need for application of IT in libraries to meet the information requirements of the present changing society. Libraries and Librarianship are undergoing rapid changes to cope with the demands of fastly changing information requirements of its users. Unless we try to cope with the situation librarianship will definitely become obsolete. Traditionally, we have been doing all library operations manually and the curriculum of the library and information science courses in the country are not suitable to meet the requirements of present days. Many librarians, therefore, are really in a dilemma where to start and how to proceed, to adapt the new situations.

Invention of computer can be regarded as one of the greatest achievements of the century. The basic function of any library is information storage, processing and retrieval. So it is the ability of computer to do these jobs with greater accuracy and speed, that brings these two aspects

i.e. library and computer so closer. The application of computer and communication technologies in libraries helps us to improve the services to the users as well as to do the in-house operations of libraries in a far better way. Once we realize the need to apply such technology in our library we should have a clear idea about the steps to be taken.

Though related literature published on the subject as well as workshops and seminars helps us to gain lot of information on this, the experiences of those libraries who have already advanced in this direction will be very helpful, because there always exists a gap between theory and what we really do in a practical situation. The CHMK Library, the central library of University of Calicut is the first fully automated library in the state of Kerala. Though other university libraries in Kerala started to use computers years back, they have not yet been able to utilise it for the total operations in libraries. The automation processes in Calicut University Library started only in April 1996, and within two years we could complete it and presently all the house keeping operations are done through computers and many other services like information services, E-mail service and Internet service are also being provided.

Before we start the computerisation process we need to make a system analysis in a formal or informal way in which we have to clearly understand the existing system, its scope, capabilities, limitations and the changes that need to be incorporated in the newly proposed system. The areas where use of computers can be made are to be ascertained on a priority basis. Here we may find different options like converting the existing catalogue or accession register into a machine readable form, starting a new information service, providing multimedia service to the users, starting network based services like Internet and E-mail service etc. In CHMK Library we felt that the creation of the database of our bibliographical information should be given top priority. This was selected after considering the need for having a bibliographical database in digital form for making speedy and effective information search and retrieval as well as automating the circulation procedure to save the time of readers.

2 Procurement of Hardware & Software

Once the areas of computer application are selected we can ascertain the hardware and software requirement of the proposed system. The selection process is very important and systems and other equipments should be purchased according to the need of the proposed system. For this

consultancy with people who have earlier experience and hardware and software vendors may help us. Now a days there is enough literature available on the selection of hardware and software. While we discuss with vendors we should be well aware that they will be trying to market their product and their main intrest will be in selling their product to us. Here much care has to be taken so that we are able to procure appropriate systems to meet our requirements. Some of the checkpoints to be considerd here are:

- Compatibility of computer systems for the proposed information system;
- Earlier experience of vendors in the field;
- Reputation of the manufacturer and the product;
- Installation base of the system;
- After sale service facilities and the availability of service personnel;
- The cost factor;
- Is the product a standard item or locally manufactured;
- Documentation provided;
- Time needed by the vendor to supply the items;
- Payment terms;
- Cost of consumables;
- Warranty period; and
- Annual maintenance contract.

Usual practice in libraries is to invite quotations for the items needed and select the lowest ever. Here we should never compromise with quality and whatever we select on this bases should be useful for the organisation without any operational difficulties.

3 Equipments needed for Libraries

The equipments and apparatus needed for library automation are different form that of commercial organisations. The selection of computer systems and other accessories should be relevent for the purpose of library operations and services. Regarding the hardware configuration of machines there is not much need to stress on the speed and capacity of systems, because due to the liberalisation policy of government towards computer systems and other related gadgets the prices of these items have come down considerably. The systems available now a days are commonly Pentium II and III and the RAM can be extended without much additional cost. The speed of machines available in market are

considerably good and computers with 350 MHz speed are very common now. The server machines may need SCSI hard disk as well as the CD Network server may need SCSI drives. The cabling work for a network should be done in consultation with the hardware and software vendors so that no problem creep up in future regarding the transfer of data.

Now a days many of the documents like encyclopaedias, books, journals etc. are coming out in the form of compact disks. To read these disks a machine with CD Drive is needed. If animation and audio are to be supported we will need a computer with Multimedia kit and a CD Drive, Sound card and speakers.

Most of the large databases like *Chemical Abstracts*, *Biological Abstracts*, *LISA* are available in CD form. So to make this facilities for a wider use a CD network is advisable. For this purpose a CD Tower in which sufficient CD drives can be mounted and nodes to access this facility is required.

To speed up the work of circulation, barcode facility is a necessity. This will enable to check in and checkout books without keying-in the accession numbers and membership numbers, instead it scans the barcodes pasted on books and membership cards. More over the use of this facility will enable to overcome the problem of entering wrong numbers when it is done manually. The data collection unit helps us to collect data from books in shelves by just scanning on the spine of books if barcodes are pasted on this part. Barcodes also facilitate easy stock verification . An appropriate software and a laser printer are required for generating Barcodes.

4 Manpower Development

Manpower is considerd as a vital resource and the availability of efficient manpower is the pre requisite of any automated system. Qualified and trained staff is required for running any computerised library. Library professionals should, therefore, be imparted with enough training before introducing the new system. Either they can be sent for 'computer training programs for librarians' or they can be given in-house training. The training should be given just before the introduction of the new system. If the training is given months or years before there is a chance that the staff may forget what they have learnt and the entire training effort may have to be conducted once again. The training can be imparted by such staff members who are trained or familiar with computer operation or by the software vendors. Staff at different levels may

require different training. For day to day operations like issue and return of books, ordering of books, etc. staff may not require an in depth training but for database administration jobs the staff may require higher level training and they need to be qualified in the subject as well. Staff working in various sections of the library require different types of training. A reference librarian may need to learn how to search a CD-ROM database or how to operate a multimedia computer but one working at the circulation desk may need to know handling of a Barcode scanner and operations related with issue and return of books. So while conducting the training the operations to be carried out by every staff member are is to be considered. Apart from making each one an expert in their field they should also be trained in operations of other sections. This would facilitate smooth functioning of the library during vacation, or when the staff on leave.

5 Experience at CHMK Library

To begin the library automation process necessary systems which include two Pentium machines and five diskless nodes were purchased. Thereafter immediately a LAN was set up in a room using the Novell Netware. The CDS/ISIS software which is widely available, was installed and data entry was begun. This enabled 5 persons to engage in data entry work at a time. Retrospective conversion of the existing database to machine form has different methods and we can choose one which is suited for our situation. The sources of data entry can be:

- Existing library catalogue;
- Accession register;
- Document itself—either from circulation desk or from shelves;
- Specially prepared worksheets; and
- Machine readable catalogue of other libraries or databases etc.

The method adopted by us was conversion from the existing main entry of the card catalogue as this will not hamper the normal functioning of the library. Thus maximum information available through the catalogue were fed to the computer. As no catalogue can be a comprehensive key to a large collection, the already converted records needs to be sorted according to a unique key. Since the accession number of books are unique access points, database was sorted on the basis of accession number and a list of missing numbers were generated. Then details of these books were collected from the Accession Register and fed to the computer in the second phase of data entry. Thus the conversion of

records into machine readable form was done within the stipulated time. For creating the member database we used Dbase III Plus and all the details of members were converted to machine readable form.

5.1 In-house Operations

CDS/ISIS is a very powerful package for information retrieval but it is not an integrated package that can look after all the library operations. Any how the provision for adding Pascal programs makes it convenient to use the package for many operations. A large library like a university library may find it difficult to meet its requirements using this package. So we opted for Libsys (Client/Server model) package which is an integrated and most widely used package in the country. Libsys has got different versions and it is run on different platforms like Unix. Windows NT, Solaris etc. This package can accept database created using DBMS like Dbase, Foxpro, CDS/ISIS etc. So the database created using CDS/ISIS could be converted into Libsys format without any difficulty.

Meantime we procured some more systems and upgraded the existing systems so that it could be used in a client/server model. This model necessitates all the nodes to have a hard disk and Windows operating system on it. The Server we have installed is a very powerful machine and it is operating on Sco Unix.

The acquisition procedures became so fast with the introduction of new system in our library. When a request for purchasing a new book arrives, it is to be checked with the existing database for finding duplication. Earlier, in some cases this was a time consuming procedure which took days to complete the checking. Presently since the entire database is available in digital form this a job takes only a few seconds. The time involved in ordering and receiving has been considerably reduced and the total processing of a book after its arrival in library now takes only one or two days.

The cataloguing module makes provision for selecting index terms, assigning class numbers and book numbers etc. Though Online catalogue is available for users the old card catalogue is still maintained in our library because some of the readers may take little more time to switch over from an earlier system to a new one. This card catalogue is generated by the cataloguing module using continous cards purchased for this purpose. Cards are generated through Dot Matrix printers. The quality of Dot Matrix printing is sufficient for making catalogue cards.

5.2 Services to Users

Computerised environment makes the earlier services error free and

speedy and it allows us to introduce new services. At the circulation desk speed of issue and return procedures can be increased. The overdue charge calculation is done by computers which considerably reduced has the time required earlier for this purpose. Apart from this, reservation of documents, inter library loan record keeping, providing information on various enquiries related with document circulation etc. also are dealt with. The management reporting option helps us to generate various statistics on different aspects of document circulation, acquisition, technical processing, etc.

The serials control module makes provision for article indexing and SDI services. When a new journal arrives in the library its bibliographic details and the titles of articles, the names of authors and keywords are entered in the periodicals section. This helps readers to retrieve information on current articles without any time delay. The selective dissemination of Information is also taken care by this module.

5.2.1 *Internet and E-mail Services*

The library also provides e-mail facility and internet services to its registered members. This facility helps students, researchers, teachers and other staff to collect information from anywhere in the world available through internet. Through the e-mail facility these members are able to send and receive messages anywhere in the world. These facilities are extended to teaching departments and higher officials of the university through the campus wide EPABX system. Presently the web page of Calicut University is available on the net and it is updated day by day to add more information about the various departments and offices in the university. Apart from the Online catalogue of the library the syllabii of all courses conducted in the university will be made available through our library's homepage in the near future.

6 Conclusion

With all these facilities the CHMK Library has gone far ahead of the other university libraries in the state of Kerala. It is expected that, by the beginning of the next century many more new services and facilities will be added in the library and more information and services will be made available world over through our website.

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Application of Information Technology in University Libraries of Punjab, Haryana and Chandigarh: A Comparative Study

K C DABAS AND SEWA SINGH

ABSTRACT

This paper is designed to measure the level of Information Technology (IT) application in the university libraries of Punjab, Haryana and Chandigarh with an ulterior objective to establish some co-relationship between quality in libraries and level of IT application. Briefly outlines the meaning, scope, importance and possible application of IT in different library and information environment. Enumerates the causes for low level of IT application in Indian university libraries in comparison to their counterparts in developed countries of the world. The findings presented are based on a survey conducted with the help of three questionnaires, interview and observation methods. The survey includes types and forms of collection, hardware and software facilities, application of computers in housekeeping operations, level and size of the in house databases, services of the libraries (manual, mechanised and computerised) and access to national and international databases. The paper concludes that technological level of the university libraries is far below the satisfactory level. No university library has yet computerized its housekeeping operations. Only Panjab University Library, Chandigarh and G.N.D. University Library, Amritsar have provided computerised access to inhouse databases. CD-ROM facility is available in all & E-Mail and Internet facility is available in many libraries. Library literature reveals that quality depends on merging print culture with digital culture but the results of this survey confirm that print culture is still dominating in university libraries of this region.

1 INTRODUCTION

It is now believed that in the 21st century, a new information society is likely to emerge in which electronic information will play key role. 'The

primary technology to support an info society is the information technology (IT)',[1] which obviously will move to occupy a centre stage role. Information Technology (IT) is the modern science of collecting, storing, manipulating, processing and communicating information. Computer and communication technology are the two main supporting pillars of IT; while information science and management science are the two basic disciplines for proper understanding and utilisation of IT. Librarian's connotation of IT should also include all those technologies which are used for collection, processing, storage, retrieval and dissemination of recorded information and are operative in library automation, library networking, reprography, technical communication and library administration and management environment.[2]

Indian university libraries are far behind their counterparts in developed countries in the matter of the application of IT because our attitude to modernisation of libraries is not governed by some basic convictions such as:

- that information is a resource which has value;
- that the utilisation of information resources is dependent upon application of information technology (IT);
- that the value and contribution of information in development is dependent upon the individual capacity to access and utilise information;[3]
- that information gains value with use and it should be made available to the broadest possible audience by managing it as a resource;
- that positive framework of librarianship concentrates on the needs, wants, desires and expectations of the library users and not on bureaucratic rules and regulations;[4]
- that information handling activities shift with technological stage of mankind and every organisation is expected to remain ahead of its customers;
- that convergence of traditional and digital culture enables the libraries to provide internal and external information as a unified transaction;[5]
- that university libraries are no more sacred cows. They must learn the language of rupees and paisa (i.e. efficiency, effectiveness, economy) in delivering of services, products and consultations; and
- that customer service with ease, convenience, comfort, speed, completeness and excitement has become the norm of the day.[6]

In addition to the above factors, increasing cost of reading material, escalating exchange rates, tight budgetary ceiling, self sufficiency movement and financial crunch have further enhanced the problems of the university libraries. But this situation cannot be allowed to continue indefinitely. The University Grant Commission (UGC) and other funding agencies, such as INFLIBNET programme of the UGC came to the rescue of the university libraries in developing modern information infrastructure. Moreover, availability of other information providers in the market, rising expectations of users for fast, uptodate, consistent, accurate, reliable, comprehensive and exhaustive information services have forced the university libraries to use computers for housekeeping operations and to access national and international networks. It is in this context that the application of IT to the university libraries is timely. The study in hand, therefore, is an effort to investigate the existing level of IT application in the university libraries of Punjab, Haryana and Chandigarh.

The libraries under study are:

1 Guru Nanak Dev University Library, Amritsar (GNDU);
2 Punjab Agriculture University Library, Ludhiana (PAU);
3 Punjabi University Library, Patiala (PUP);
4 Thapar Institute of Engineering and Technology Library, Patiala (TIET);
5 Kurukshetra University Library, Kurukshetra (KUK);
6 Choudhary Charan Singh Agriculture University Library, Hisar (HAU);
7 Maharishi Dayanand University Library, Rohtak (MDU);
8 Guru Jambeshwar University Library, Hisar (GJU); and
9 Panjab University Library, Chandigarh (PUC).

3 Methods

A cursory review of library literature reveals that quality management has some relationship with application of IT. With this objective, the present study was conducted as a small part of a comprehensive study on 'Application of total quality management to the university libraries in Punjab, Haryana and Chandigarh'. The data presented in this paper are collected with the help of three questionnaires meant for University Librarians, Deputy and Assistant Librarians and users of the above mentioned university libraries. Interview and observation methods were also applied as and when required for authentic and detailed information.

4 FINDINGS

4.1 COLLECTION DEVELOPMENT

It reflects the forms of reading material available in the different university libraries.

Table 1 shows that 78.62 per cent of the collection of the university libraries under study are in the form of books, followed by journals (21.23 per cent) (back volumes). Only a limited collection (0.15 per cent) is available in audio, video, microforms and CD-ROM (non print) form, but these are available in all libraries. However, 99.85 per cent reading material of all the university libraries is in print form.

Forms of Periodicals: Table 2 depicts that 99.68 per cent of the total periodicals of all the university libraries of Punjab, Haryana and Chandigarh are in print form, while only 0.32 per cent periodicals are in electronic form.

4.2 COMPUTER FACILITIES

Some of the computer facilities available in the libraries under study are described here:

4.2.1 Hardware Facilities

Table 3 shows that all the university libraries under study have installed micro computers, CD-ROM drives, and network facilities. Punjabi University, Patiala and Thapar Institute have LAN facility, while Guru Nanak Dev University Library and Panjab University, Chandigarh have started online public access for books acquired after 1993 and 1997 respectively.

4.2.2 Software Facilities

Software helps to bring hardware establishment into activation and real use. The software facilities available in these university libraries are presented in Table 4 which displays that excepting PAU Library, Ludhiana, and HAU Library, Hisar, others have CDS/ISIS software based on DOS and UNIX platforms and also have Network and DOS communication software. However, lack of trained manpower is the major problem before all the university libraries for the proper use of available software.

4.2.3 Computer Applications

Libraries under study initiated computerisation work at different times

which is revealed in Table 5. The table indicates that PUC initiated the computerisation work in 1988–89 where as GJU started in 1999. While PUC and PUP have programmers, whereas GNDU has both programmer as well as information scientist in addition to 4 Professional Assistants and one Data Entry Operator.

Computer application in these university libraries can be divided into three types of functions:

1. Housekeeping operations;
2. Retrieval services; and
3. Administration/management.

4.2.4 Housekeeping Operations[7]

Table 5A reveals that none of the university libraries in Punjab, Haryana and Chandigarh has fully computerised house keeping operations. Some universities have made some initial efforts for current documents.

4.2.5 Retrieval Services

Table 6 shows that only GNDU and PUC have started online public access catalogue for current books. But no university library is providing computerised documentation service except GNDU and PUC Library.

4.2.6 Library Administration

University libraries are the major purchaser of documents, furniture, equipments, stationary items, and employ large staff next only to administrative offices. Computers are required for day to day functions, e.g., account statistics, official correspondence, employees records, internal telephone directory, inventory list, absentee statements etc. Management Information System (MIS) provides all types of data for annual report, planning, decision making and control instantly.

Table 7 displays that all university libraries are now using computers for administration, but no university library is using them for Management Information System (MIS).

4.3 In-house Databases

It can be noted from Table 8 that only GNDU and TIET have complete computerised records of current journals and back volumes subscribed after 1993 & 1996. While TIET has completed the book as well theses databases whereas GNDU has completed only theses databases. KUK has completed theses database and has bibliographic records of more than 1,10,000 books. The databases in other libraries are in progress.

4.4 Library Services

In addition to acquisition and organisation of reading material, the university libraries are the service organisations which bring users and ideas together irrespective of geographical limitations. Table 9 provides the services offered through manual, mechanised and computerised means at the university libraries of Punjab, Haryana and Chandigarh. It depicts that all these university libraries are manually offering the traditional services such as reference, lending, orientation of users, CAS and SDI. As regards the mechanised services, all the university libraries are providing photocopying services. However, GNDU, Amritsar and PUP provide microfilming services, while MDU, Rohtak and GNDU, Amritsar provide microfilm reader service. But only MDU, Rohtak provides audio-video and press clipping service.

As regards computerised services, no university library is providing all these services, though only E-Mail service is provided by GNDU, PUP, KUK, HAU, PUC and MDU, Rohtak. Online search is provided only by GNDU and PUC. The CD-ROM search service is available in all the university libraries and the CD-Net facility is available only in PAU and TIET, Patiala.

4.5 Network Access

Table 10 provides the names of networks at the national and international level to which the university libraries have access. It can be noted from the Table that no university library has access to major national and international networks at present.

5 Conclusion

The application level of information technology in university libraries of Punjab, Haryana and Chandigarh can be measured by a single indicator, i.e., an insignificant collection (0.15 per cent) of all the libraries is in non print form, while the rest is in print form. The INFLIBNET Programme of the UGC could be helpful in establishing technological infrastructure and training human resources of the university libraries but its various databases are still beyond the reach of academic community. What to talk of accessing internal and external information as a unified transaction, the students and teachers engaged in pursuit of higher education and researchers cannot access even the internal information. Except GNDU, PUC, KUK, TIET, other libraries are not doing much and they are not in the forefront of developments and innovations in the application of information technologies.

The university libraries in this region have started introducing computer technology to improve efficiency of their activities and have started moving towards automating their library functions like circulation. Keeping in view the low percentage of the non-print media collection of the university libraries, the UGC should allocate special grants for the development of the non-print media collection of the university libraries. INFLIBNET should also encourage university management for training of library staff so that they could acquire sufficient knowledge and skills. The promises of INFLIBNET for the development of a compatible software for housekeeping operations, access to INFLIBNET databases and provisions of V-SAT connection to all the university libraries are yet to be realised. This is the most challenging time for university libraries when technology and traditional library values are converging. Environmental challenges also warrant that the university libraries should not just survive but thrive in this information age. Internet and other emerging technologies ought to be considered as opportunity and not as threat at the turn of the century where these are knocking repeatedly at our windows.

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TABLE 1: FORM OF READING MATERIAL AVAILABLE IN DIFFERENT LIBRARIES

Form	GNDU	PAU	PUP	TIET	KUK	HAU	MDU	GJU	PUC	Total
Books	279641	219574	270609	34540	226416	177352	184821	15382	493879	1902214
	(80.4)*	(70.95)	(78.98)	(85.84)	(83.17)	(67.63)	(82.79)	(99.05)	(81.49)	(78.62)
Journals	679475	89419	71564	5663	45670	84504	38120	130	110724	513741
	(19.3)	(28.89)	(20.89)	(14.07)	(16.78)	(32.23)	(17.07)	(0.84)	(18.26)	(21.23)
Audio and video cassettes, Micro forms CD-ROMs etc.	223 (0.07)	483 (0.16)	436 (0.13)	35 (0.09)	136 (0.05)	377 (0.14)	308 (0.14)	18 (0.11)	1490 (0.25)	3506 (0.15)
Total collection	347811	309476	342609	40238	27222	262233	223249	15530	606093	2419460

* Percentage are provided in parenthesis.

TABLE 2: AVAILABILITY OF DIFFERENT FORMS OF PERIODICALS IN UNIVERSITY LIBRARIES

Form	GNDU	PAU	PUP	TIET	KUK	HAU	MDUR	GJU	PUC	Total
Print	702	484	767	266	660	1320	590	125	608	5522
	(98.87)	(98.78)	(100)	(99.26)	(100)	99.85	(100)	(100)	(100)	(99.68)
Electronic media	8	6	–	2	–	2	–	–	–	18
	(1.13)	(1.22)		(0.74)		(0.15)				(0.32)
Others (Microforms)	–	–	–	–	–	–	–	–	–	–

*Percentage are provided in parenthesis.

TABLE 3: HARDWARE FACILITIES AVAILABLE IN DIFFERENT UNIVERSITY LIBRARIES (8).

Description	GNDU	PAU	PUP	TIET	KUK	HAU	MDUR	GJU	PUC
1 Computer Systems									
i. Main Frame	No	No	No	No	No	No	No	No	No
ii. Mini Computer	No	No	No	No	No	No	No	No	No
iii. Micro									
Pentium	13	16	9	6	7	20	8	6	12
486	No	4	3	2	6	2	2	1	No
386	1	1	2	No	No	No	No	No	6
286	5	No	No	No	2	No	1	1	No
Dummy	10	6	5	2	4	5	4	4	6
2 Printers									
Dotmetrix	7	6	2	1	5	2	2	1	7
Laser	1	1	1	1	1	1	1	2	1
3 UPS	Yes	Yes	Yes	No	Yes	2	Yes	No	Yes
4 LAN facility	No	No	Yes	Yes	No	No	No	No	Yes
5 Network facility	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6 On-line facility	Yes	No	No	No	No	No	No	No	Yes
7 CD-ROM Drives	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8 CD Net	No	Yes	No	Yes	No	No	No	No	Yes

TABLE 4: SOFTWARE FACILITIES AVAILABLE IN DIFFERENT UNIVERSITY LIBRARIES

Software	GNDU	PAU	PUP	TIET	KUK	HAU	MDU	GJU	PUC
(a) Operating Systems									
i. DOS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ii. UNIX	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
iii. Any others	Windos 95	Windos 95	Windos 95	Windos 95	Windos 95	Windos 95	Windos 98	Windos 98	Windos 98
(b)Software Package									
i. LIBSYS	No	No	No	No	No	No	Yes	No	No
ii. CDS/ISIS	Yes	No	Yes	Yes	Yes	No	No	Yes	Yes
iii. Any other	Locally	Yes	Yes	No	No	Libsys	No	No	Techlib plus
(c) Communication Software									
i. DOS PROCOM	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
ii. UUCP	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes
iii. Any other	Yes	No	No	No	Yes	No	No	No	No
(d) LAN Scanner									
i. Netscape	Yes	No	Yes	No	Yes	No	No	Yes	Yes
ii. Netware	No	No	No	No	No	No	No	No	No
iii. Any other	No	No	No	No	No	Yes	No	No	No

TABLE 5: INITIATION OF COMPUTERISATION WORK

Description	GNDU	PAU	PUP	TIET	KUK	HAU	MDU	GJU	PUC
Initiation of Computerisation work	1993	1993	1994	1996	1989–90	1992	1995	1999	1988–89
Staff involved in computerisation									
Programmer	1	No	1	No	No	No	No	No	1
Information Scientist	1	No	No	No	1	No	No	No	No
Professional	4 p.a.	1 Asstt.	No	No	1 Dy.	1 Asstt.	1 Asstt.	No	No
Data Entry Operator	1	2	2	2 clerk	2	2	1	2	4

TABLE 5A: STATUS OF HOUSEKEEPING OPERATIONS IN DIFFERENT UNIVERSITY LIBRARIES

Description	GNDU	PAU	PUP	TIET	KUK	HAU	MDU	GJU	PUC
Acquisition	Partial	No	No	Partial	Partial	No	No	No	Partial
Cataloguing	Current books after 1993	No	Partial	Partial	Partial	Partial	Partial	Just started	Partial
Circulation	Memership records are completed	No	No	Partial	No	No	No	No	Partial
Serial Control	Partial complete after 1993	No	No	Partial	Partial	Partial	Partial	No	Partial
Stock taking	Partial	No	No	Partial	No	No	No	No	No

TABLE 6: RETRIEVAL SERVICES IN DIFFERENT UNIVERSITY LIBRARIES

Description	GNDU	PAU	PUP	TIET	KUK	HAU	MDU	GJU	PUC
OPAC	Current books after 1993	No	No	No	No	No	No	No	Current Books after 1.1.97
Documentation services	Seven databases have been creeted	No	No	No	No	No	No	No	Yes

TABLE 7: COMPUTER APPLIICATION FOR ADMINISTRATION

Description	GNDU	PAU	PUP	TIET	KUK	HAU	MDU	GJU	PUC
Computers in Library Administration	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Management Information System (MIS)	Budget provisions	No	No	No	No	No	No	No	No

TABLE 8: PREPARATION OF IN HOUSE DATABASES IN THE UNIVERSITY LIBRARIES

Description	GNDU	PAU	PUP	TIET	KUK	HAU	MDU	GJU	PUC
Current periodicals	540+170 Complete Records but correspondence manually	No	Biblio-graphical information	Complete records	Biblio-graphical informa-tion	Biblio-graphical informa-tion	Biblio-graphical information	No	Biblio-graphical information
Back Volumes	800 records after 1993	No	In progress	Completed after 1996	In progress	In progress	In progress	No	In progress
Theses & Dissertation	750+1908	No	In progress	Completed	Completed	Completed	In progress	No	5000 in progress
Books	55000	No	30000	Completed	110000	Just started	10000	Just started	237000

TABLE 9: SERVICES OFFERED BY DIFFERENT UNIVERSITY LIBRARIES

Description	GNDU	PAU	PUP	TIET	KUK	HAU	MDU	GJU	PUC
(a) *Manual:* i. Reference	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ii. Lending	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
iii. Orientation of users	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
iv. CAS/SD	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
v. Translation	No	No	No	No	No	No	No	No	No
vi. Press clipping	No	No	No	No	No	No	No	No	No
(b) Mechanised: i. Photocopying	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ii. Microfilming	Yes	No	Yes	No	No	No	No	No	No
iii. Microfilm reader	Yes	No	No	No	No	No	Yes	No	No
iv. Audio-Video Service	No	No	No	No	No	No	Yes	No	No
(c) Computerised: i. Lending	No	No	No	No	No	No	No	No	Yes
ii. CAS/SDI	Yes	No	No	No	No	No	No	No	Yes
iii. Automate translating	No	No	No	No	No	No	No	No	No
iv. Multimedia	Yes	No	No	No	No	No	No	No	Yes
v. E-Mail	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes
vi. Telex	No	No	No	No	No	No	No	No	No
vii. Fax	No	No	No	No	No	No	No	No	No
viii. Teleconferencing	No	No	No	No	No	No	No	No	No
ix. LAN	No	No	No	No	No	No	No	No	No
x. Hypertext/Hypermedia	Yes	No	No	No	No	No	No	No	Yes
xi. Online Search	Yes	No	No	No	No	No	No	No	Yes
xii. CD-ROM Search	Yes	Yes CD-Net	Yes	Yes	Yes	Yes	Yes	Yes	Yes
xiii. Technical communication (Desk Top Publishing systems)	No	No	No	No	No	No	No	No	No

TABLE 10: NETWORKS TO WHICH DIFFERENT LIBRARIES HAVE ACCESS

Description	GNDU	PAU	PUP	TIET	KUK	HAU	MDU	GJU	PUC
(a) National Level									
i. INFLIBNET	No	No	No	No	No	No	No	No	Yes
ii. ERNET	No	No	No	No	Yes	No	Yes	No	No
iii. NICNET	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes
iv. I-NET	No	No	No	No	No	No	No	No	No
v. INDONET	No	No	No	No	No	No	No	No	No
vi. GISTNIC	No	No	No	No	No	No	No	No	No
(b) International Level									
i. INTERNET	Yes	No	Yes	No	Yes	No	Via	No	Yes
ii. DIALOG	No	No	No	No	No	No	nicknet	No	No
iii. JANET	No	No	No	No	No	No	No	No	No
iv. Chemical Abstracts	No	No	No	No	No	No	No	No	No
v. Physical Abstracts	No	No	No	No	No	No	No	No	No
vi. BIOSIS	No	No	No	No	No	No	No	No	No

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CD-SERVER: A Promising New Library Device for Information Storage and Dissemination

D C OJHA

Abstract

The paper describes CD-Server as one of the best storage tool which has got tremendous capacity to store voluminous non-modifiable data/information on multiple-CDs. CD-SERVER has emerged as a powerful tool for information storage and dissemination from more than one CD drives simultaneously. Its a device holding many CD-drives to give simultaneous data access from more than one CDs. The CD-tower can be accessed and shared by different clients and servers on a Local Area Network. Once connected to a network, it works independently with other servers on the network, resulting in high performance and reliability. From any of several types of clients supported, even over a LAN, CD Server enables simultaneous access and shared use of CDs in the collection. Data on CDs can be transparently accessed, directly from applications or file management utility. When data on a CD is requested, the CD is automatically mounted in a drive and the data is accessed and returned to the requester. Thus CD-Server has turned out to be a faster, more compact and cost effective data sharing solutions. The server is helpful for Library, educational institutes, industries, state and Central Govt. organizations etc.; specially where digital data is in large volumes and faster access is needed. The paper recommends the system for libraries to facilitate its readers for browsing, downloading and printing desired information from several CDs simultaneously.

1 Introduction

There are many ways in which different persons access the information from various sources. The information sources are available in various forms like paper, film, digitized format etc. The fastest mode of extract-

ing information being the digital one, which again can be stored on Hard-disks, Floppy-disks, Compact-disks, DVDs etc. CD's are considered to be the most reliable storage media as it allows to archive any document or data and provides with ultimate protection (the disks are readable). As the name suggests CD-ROM (Compact Disk Read Only Memory). There are many servers which are used to enable the sharability of stored infromation namely file server, web server and CD-server. The CD-server is ranked as one of the best storage tool which has got tremendous capacity to store large amount of non-modifable data on multiple-CDs for storage and dissemination of information. The tool has been catching up very fast for its ability to give fast finger-tip access to the stored documents, records and database.

2 More About CD-Tower

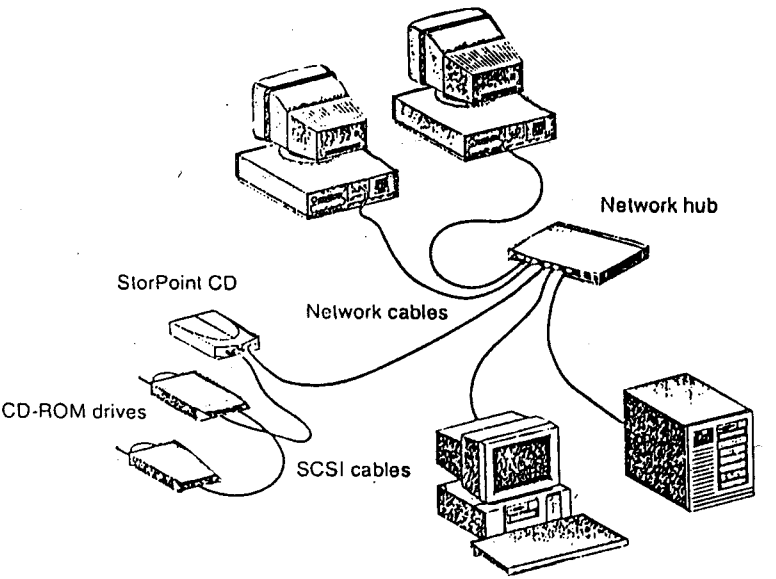
CDs are the medium in which data once written can be read but can not be modified. The read-only disk can be read using its drive which helps decoding the data marked with laser-beams into the digital information which can be viewed on our computer system. Now-a-days more and more information is available on CDs. Many encyclopaedias, references, books, directories, annual reviews, advances and journals are available on CDs. Presently when we talk about the paperless or the electronic libraries, these are the CDs, which are replacing the conventional forms of documents. A CD-drive can facilitate the browsing of information from one CD at a time but the need is to access the same information using multiple CDs for which CD-tower, also known as CD-server can be used efficiently. A CD-server holds many CD-drives to give simultaneous data access from more than one CDs. The most remarkable feature of this device is its ability to seamlessly integrate itself into many networking environments which in turn facilitates access to multiple CD-ROMs across a network.

3 Main Features

A CD-server is an ideal tool not only for libraries but also for all the organizations namely Law, Insurance, Banking and financial insitutes, Medical and Universities etc., where the data storage is considerably high and the demand for the fastest speed to retrieve data is mandatory. A CD-server enables its users to retrieve upto several gigabytes of information, like documents, presentations, records and database with high speed and efficiency enabling them to remain productive and competitive. A CD-server comes with 4, 7, 14 drives expandable to 28 or 56

drives (Fig. 1). The drives can easily be added to the CD-server as per the need and growth of an individual organization. Dr Raheja Library has two CD-towers, AXIS StorPoint CD, each with 7 CD-drives allowing users to access 14 CDs simultaneously. The features and benefits of a CD-server can be identified as follows:

CD-SERVER connectivity with other systems



3.1 File server Independence

A CD-server works as a part of the network in any topology/ layout of a network. It is identified as a separate file server which allows the direct connectivity and communication to take place between the other network clients and the CD-server. This results in high performance, reliability and independent to other equipments. It integrates itself with any type of operating system available on the various clients server environment, thus providing simultaneous access and shared use of CDs in the collection.

3.2 Plug and Play

The CD-server needs only to be physically connnected to the network to start working with the CD-tower. The plug and play approach makes the installation quick and quite convenient for the users as there is no need for any softwares to be installed on clients or file servers to access the CD-server from any client using any environment. The tower once

connected to the network automatically configures itself as a file server for any networking environments such as Novell, Windows NT, OS/2 LAN manager and Unix etc. Thus no dedicated server, special drives or complex administrative functions are necessary.

3.3 Easy Access

The CDs once inserted into the CD-server get mounted automatically and the CD-server also configures itself to be available on the network. CD-server makes a collection of CDs appear as a drive letter (in Novell netware) or as a separate server (in Windows environments) and each CD platter appears as a directory and with an independent file system. Every directory (CD-platter) can then be mapped and accessed. (Appendix 'A').

3.4 Environment

The CD-server can be used simultaneously from different environments independently ie. Netware, Windows, OS/2, DOS, Unix and Internet/ Intranet clients also. It supports the basic network protocol required for networking using any of the aforesaid environments. Thus eliminating the need for additional installation of any protocol or software.

Internet/Intranet Web Server

The CD-server (AXIS StorPoint) has a built-in Web server making it possible to access data over internet/intranet. The CD-server is just to be assigned an IP (Internet Protocol) address and can be used as an internet server for increased sharability of data. The users from any computing environment and platform can browse directories and retrieve files using standard Web browsers such as Internet Explorer, Netscape Navigator etc.

3.5 Access Control

The administrator can restrict access to the CD-ROM by users, groups etc. Thus providing security to the valuable data sharability.

3.6 Year 2000

The StorPoint CD is year 2000 compliant. It overcomes the flaw of the dates to be considered after year 2000. It is a significant feature if the CD-server is being used in eductation or Information-technology field.

4 Connectivity with Other System

The CD-server comes with two different parts ie. the CD-drives and the StorPoint CD. The CD-drives are used to read the CD-ROMs inserted into them but Stor-Point is used to manage the CDs in a CD-tower. The drives are connected internally with each-other using a SCSI cable which in turn is connected to the StorPoint CD. Then once all the CDs are connected to the StorPoint CD, the CD-server is connected with the network. This connectivity can be made for both ethernet as well as UTP based star network. The CD-server is connected with a Network hub compatible to the network type ie. ethernet or UTP switch. Both the file server as well as the CD-server are connected via a network hub or an external switch for extended sharability of CD-ROM data. Then the CD-server becomes an independent server which can be shared over the network it has got connected to. StorPoint CD front panel indicators flashes up as soon as the power is supplied and performs the self-test. When the status indicator stops flashing and remails off, the StorPoint CD becomes ready for use.

5 Network Setup

Generally all CD-Servers are automatically recognised over a network as they come built-in with the network protocol support. Thus, after completing the hardware connectivity, the CD-server is visible in network neighbourhood using any networking operating system. The CD-server (AXIS StorPoint) is shown as AXIS<nnnnnn> where n denotes some numbers, the name can be changed by changing the required parameter to a more meaningful name. *(See Appendix 'B').* Then the configuration file stored on StorPoint CD (in AXIS<nnnnnn>\Config\config.ini) can be changed by setting various parameters. The parameters varies depending upon the kind of network operating system one has, ie, for Novell netware the parameters have to be changed to get the CD-server recognised to the novell clients where as for Microsoft and IBM network operating systems such as Windows for workgroups, Windows 9x, Windows NT or OS/2, the AXIS StorPoint does not need any specific configuration to be operational. However, the default settings can be changed to better suit one's specific needs. Once the setting are changed, the file is saved which takes about 15 seconds. Once the file is saved, the CD-server can be used without any problem over a network. The network administrator can further define rights for specific users or user-groups to access the CD-server.

The CD-server must be assigned an appropriate internet address in order to establish communication over internet, the TCP/IP network. The Internet address can be set from Windows 9x, Windows NT, UNIX or OS/2. The AXIS WinPoint utility can be used for the same. The Internet address and the host name are assigned by changing the values in the host table found generally in the hosts directory in any operating system. The Internet address can be given by appending the following line in the host table:

nnn.nnn.nnn.nnn <Host name> eg. 192.168.1.150 cazri_cdserv

6 Advantages

The basic advantage from any server is the sharability of data. The CD-server allows us to share the data on various CDs to be accessed simultaneously. The CDs can be placed in the CD-drives of the CD-server which can be mapped and accessed across the network (See Appendix 'A'). In a 7 drive CD-server, seven CDs can be accessed simultaneously and the CDs can be changed only if some other data from other CDs are required. Thus the problem of changing the CDs everytime can be eliminated. Depending upon the networking system, around 50-100 users can browse the same CD simultaneously. Another significant advantage is its accessibility to other network using any type of client, ie., Windows 9x, Windows NT or Novell client etc. The CD-server comes with different CD-drive specification such as 6X, 8X, 12X, 24X, 32X etc. which determines the average access time. The access time for a 12X CD-drive is 110 millisecond and the data transfer rate is 1800 Kilobytes per second. The higher speed drives gives an even better performance. The information available on the CDs can be extracted or retrieved through appropriate software. For Libraries, particulary agricultural libraries, the popular databases are AGRIS, CAB, TREE, HORT-CDs which can be browsed using WinSPIRS software marketed by SilverPlatter Inc. The references can be searched, downloaded or printed-out using the software. (See Appendix 'A').

7 Technical Specifications

The CD-server are now available from many vendors in various specifications. The following are some of the technical specifications for the CD-servers from different vendors:

1. AXIS StorPoint CD-Server

CD-make	Pioneer
Tower standards	7, 14 or 28 bay case
Max Number of Drives	7, 14 or 28 as per the model
CD-drive specification	36 X
Locking door	Yes
Operating system support	Novell, Windows 9x, Windows-NT, UNIX, OS/2
Network Attachment	Ethernet 100 base T, 10 base T & Token-ring networks

Contact Address

AXIS Communications AB
S-223 70 Lund
Sweden
Email: info@axis.com or info@axisinc.com (for USA)
Internet: http://www.axis.com or http://www.axisinc.com (for USA)

2. *Boffin CD-tower*

Tower standards	7, 14 or 28 bay case
Max Number of Drives	7, 14 or 28 as per the model
CD-drive specification	32 X or higher
Locking Plexiglass Door	Available with 14 and 28 drives model
Weight	45 lbs., 100 lbs. and 200 lbs. respectively
Operating system support	Novell, Windows-9x, Windows NT, OS/2, UNIX, Banyan vines

Contact Address:

BOFFIN Limited
2500 Country Road
42 West, Suite 5; Burnsville, Minnesota - 55337
Email: sales@boffin.com
Internet: http://www.boffin.com

3. *Value LineCD-tower with Opti-Access*

Tower standards	7, 14 or 28 bay case
Max Number of Drives	7, 14 or 28 as per the model
Drive type	Tray, Slot, Caddy, DVD based drives
CD-drive specification	Caddy: 32 X or higher; Slot: 24 X; DVD: 10 X

Locking Plexiglass Door	Available with 14 and 28 drives model
Operating system support	Novell, Windows-9x, Windows NT, OS/2, UNIX, Mac, DOS
Network Attachment	Ethernet 100 base T and 10 base T

Contact Address:

TODD Enterprises Inc.
Internet: http://www.toddent.com
Marketed by:
Global Information Systems Technology Pvt. Ltd.
877, Phase-V, Udyog Vihar, Gurgaon-122 001
E-mail: gist@gistdel.ernet.in

8 Conclusion

After the CD-server replaced a single CD-drive, the benefits seem to be manyfold. The tremendouse benefit is in terms of time-saving which can be utilized for other productive work. With a single CD-drive, the CDs were supposed to get changed over and again making the information retreival task cumbersome. But CD-server facilitates multiple CD access, making the information retrieval faster and saving a lot of time thus increasing productivity. Around 9-10 GB of information can be browsed using CD-server. The easy to set up and access to mulitple CDs across a network has made it remarkably popular. In Dr. Raheja Library, CAZRI, Jodhpur the heart of the CD-tower is the StorPoint CD-ROM controller from AXIS Communications. It is the network interface and the SCSI controller, and it runs the software that lets the CD-server look like a NetWare file server, a Web server, a Network File System (NFS) host, and a Microsoft networking device. The AXIS StorPoint controller supports Ethernet 10Base-T, 100Base-T and Token Ring networks. The CD-server has become a boon for the persons who frequently need to access data from voluminous data source with greater speed.

References

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Internet sites

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2 http://www.infoseek.com
3 http://www.boffin.com
4 http://www.axis.com
5 http://www.toddent.com

APPENDIX 'A'

Instruction to use CD-SERVER

(For Windows 9x / Windows-NT clients)

1 Click on the icon 'Network Neighbourhood' present on your desktop. You'll find the list of computers working currently besides connected to the network.
2 Click on 'CDSRV1' which is the icon displayed for CD-SERVER. Now, you'll find many folders in the window. (The name of the AXIS StorPoint was changed by modifying the parameter 'Appendix 'B')
3 Right-click on the following folders one by one and select the option 'Map Network Drive' followed by a click on 'OK' button. Another window for each mapping would get opened which you can close. *Remember, you are supposed to map only following window, don't touch other folders (i.e. CD, CONFIG, MEDIAGNT, VOLUMES) because those are of no use for the users.* For example, the CD volumes names appears as CI0A; CIA6; CI13; CI8A; CI9B; CI5I; and CI5H (for CAB-CDs).
4 Close the 'Network Neighbourhood' Window too.
5 Now Click on 'Start' button on the task bar and go to 'Programs' menu. If WinSPIRS software is installed, you'll find the option displayed as 'WinSPIRS 2.0', click on that and you find another sub-menu; select the last option labeled as 'WinSPIRS 2.0'.
6 Wait till 'Start' button of the dialog box gets activated. *If you have not mapped the CDs, the 'Start' button is not activated and the application get closed automatically.* Once the button appears dark, click on it to move ahead.
7 The next dialog box contains the list of all mapped CDs out of which you can select a few or all of them as per the requirement. To select multiple CDs, hold down the 'Control' Key and keep on clicking the CDs you want to add for search. If you want to add all, click on first CD label, hold down the 'Shift' key and click on the last CD label. Once you have selected CDs to be added, click on '<<Add>>' button. Then click on 'OK' to move ahead.
8 Now, the information window appears, you can again click on 'OK' button to come to the application window.
9 To perform a search, type a term in the Search: text entry area and click the Search Button. The search is listed in the Search History

area and records containing the search terms are displayed in the Retrieved Records area.

10 You can mark the appropriate records by clicking on the icon, which looks like a book, displayed at the beginning of every record/ reference, if at all selective records are to be downloaded/printed.

11 To download / show / print the specific fields, go to 'Options' window and select either of three options, i.e. Show option . . . / Download option . . . / Print option. . . . You are shown a dialog box with two boxes displaying fields-list. Double-Click on the specific fields from the right box to remove them. And double-click on the fields in the Left box to include the desired fields in your show / download and print process.

12 Alternatively, the dialog-box can be brought by clicking on the Download / Print button available in the toolbar just below the menu bar. In the respective dialog box, click on 'Options...' button to get the same field-lists window.

13 To make specific search or the nearest possible search, click on the 'Index' button. You find a different window, now type the part of the keyword and WinSPIRS automatically filters the term. This is useful when you don't know the exact term.

APPENDIX 'B'

AXIS StorPoint CD100 Parameter List [IP]

```
InternetAddress      = 192.168.1.150
                       ;(Network specific addresses must be given)
DomainName           = JODHPUR
                       ;(Network specific workgroup can be defined)
PrimaryDNS           = 192.168.1.150
                       ;(Network specific addresses must be given)
SecondaryDNS         = 255.255.255.0
                       ;(Network specific addresses must be given)
Domain/GroupName     = JODHPUR
                       ;(Network specific workgroup can be defined)
ServerName           = CDSRV1
                       ;(The New name of the server )

[NetWare]
NWEnable             = yes        ; yes/no
Frame_802.2          = auto       ; auto/off/XX-XX-XX-XX
Frame_802.3          = auto       ; auto/off/XX-XX-XX-XX
Frame_EthernetII     = auto       ; auto/off/XX-XX-XX-XX
Frame_SNAP           = auto       ; auto/off/XX-XX-XX-XX
NetWareIP_Enable     = no         ; yes/no
NetWareIP_DSS_Server =            ; Host name or IP address
ServerName           = CDSRV1
                       ;(Name of the server for Novell Clients)
InternalNetAddress   = 8C-32-2A-B7
BurstMode            = on         ; on/off
ShowAllVolumes       = yes        ; yes/no
BinderyEnable        = yes        ; yes/no
BindAuthentication   =            ; Servername
NDSEnable            = yes        ; yes/no
NDSTreeName          = CAZRI
                  ; (Network specific Network Tree must be defined)
NDSServerContext     = CAZRI
                       ;(Network specific Context must be defined)
NDSAdminName         = SUNITA.cazri
                  ; Distinguished name of supervisor equivalent user
NDSAdminPassword     = ********
NDSInstall           = no         ; no/install/forced
NDSRightsStorage     = NDS        ; NDS/File
```

```
NDSRightsFile          = HCLHP/SYS:/CDSERVER/CDSRV.DAT
(SERVER/VOLUME:DIR/FILE.DAT)
TimeSyncSources        = SAP
                         ; SAP or SERVER1,SERVER2,...
[END]
```

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Challenges to Indian Librarians with Specific Reference to Developments in Information Technology: Current Scenario

HARISH CHANDRA AND R K BHATT

Abstract

This paper briefly surveys the impact of Information Technology (IT) on libraries and discusses the conceptual framework of the challenge. It also describes various areas of challenges existing for the librarians like formulation of a suitable automation strategy, electronic collection building, digitisation, database creation, data security, intellectual property rights, users behavior, quality based services, changing nature of workforce, and organisational transition. Various measures based on experience and exposure for meeting these challenges have also been suggested.

1 Introduction

In ancient days library used to be treated as the storehouse of books and the librarian merely a custodian of stored books. But these days the entire situation has totally changed due to various developments including IT application in libraries. Accordingly, a library is now treated as the centre for the creation and recreation of information activities and products for academic pursuits. Presently, libraries are involved in the collection, processing, storage, retrieval, dissemination and distribution of information and its products to the end-users through using various modern systems and techniques of information handling and also exploiting various electronic information sources including CD-ROMs and On-line databases. These developments have totally changed the traditional roles and responsibilities of the librarians in India. Presently, there are various challenges available due to IT developments, which are to be faced by Indian librarians.

2 The Challenge: A Conceptual Framework

It is a universal truth that man is a social animal. This factor provides an opportunity to human beings for interaction with various internal and external environments. This leads to generate various types of problems and challenges for which we all need appropriate solutions. The concept of challenge can be defined as strong will to complete the specific mission already set within a specific time frame. The scientists, engineers, entrepreneurs, social workers specially give much importance for the concept of challenge. Despite this, generally it is true that there is no area left for human beings without challenges including library and information science. Accordingly, the librarians also face various challenges due to various factors. One of the major challenges is the development in the area of IT available for Indian librarians.

3 Importance of Library and Information Services

Due to the developments in the area of IT, Indian academicians and administrators have given considerable importance to the library and information services. As a result, during present electronic era, information is treated as a resource of resources. Due to this, all institutions including industries are seriously engaged to set up modern libraries and information centres with the objective to support the academic, research, development, consultancy and extension programs in various fields. Pursuant to this, libraries and information centers are also playing a pivotal role of a catalyst for the acceleration of all above mentioned activities.

4 Impact of New Technologies on Libraries

Indian libraries are directly affected with the advent of IT. The major technologies like bar-coding, scanning, CD-ROM, electronic security system, close circuit TV, DTP, multimedia, video and, teleconferencing, speech recognition, networking, Internet, electronic publishing, e-commerce, digitisition etc. have directly revolutionised the functioning of libraries. We have noted that a large number of libraries in India are in the stage of implementing these technologies in one form or the other for providing best services for the users and also to meet the existing as well as potential challenges of IT.

5 Major Challanges

There is no doubt about the utility of IT for libraries but it is not so easy to implement IT in libraries. The librarians have to face various problems

like resource crunch, non availability of required infrastructure, lack of trained human resources, lack of self exposure, lack of motivation and disinterest of staff and also some time lack of management support etc. In addition to this, the librarians need to face various other challenges. Some of them are discussed as under:

5.1 Automation Strategy

Automation strategy is the base for the entire computerisation process, which is the first step towards the modernisation of a library. Formulating a suitable automation strategy is really a big challenge to the librarians. The librarians need to decide whether to have in-house library software or software from a private vendor. In addition to this, there are various other factors, which are to be taken into account while formulating an automation strategy. Some of them are like financial resources, choice of software and hardware, data preparation activities, site preparation, retrospective conversion of catalogue, bibliographic standards, sharing of electronic resources and providing various IT based services.

5.2 Electronic Collection Building

Currently, IT has affected the documentary resources so closely that most of the publishers including professional societies have started to publish their publications electronically. This has added new challenge to the librarians at global level. The collection development strategy needs to change, which requires total support from the top management and also the users so that the electronic collection building is done with satisfaction. The librarians need to study the electronic resources very carefully keeping in view the available funds, accessibility, continuance or discontinuance of printed resources. In this connection, on the basis of experiences, it is stated that electronic resources are very useful to the users as well as to the librarians. For example, the Central Library of IIT Madras has stopped the print subscription of Engineering Index and INSPEC, as we are subscribing these abstracting journals in CD-ROM form. The users with the help of 64-drive CD-ROM networking system access these databases under LAN. This arrangement has generated satisfaction among the users, staff and also saved a huge space of the Central Library.

5.3 Digitisation

Due to the implementation of IT, the librarians need to be well aware of the technical issues, potential problems involved, trained man power available, the hardware required, document management systems, OCR

technology for implementing digitisation of the collection and services. As we know the concept of digital library is growing very fast globally. It is a welcome trend that various institutions and professional societies are involved to provide opportunities for the library and information professionals to upgrade and enhance the professional knowledge about the digital library. In this regard, Society of Information Science[1] has already organised a national conference on digital libraries in 1995. Various important aspects like digital libraries issues, architecture, electronic publishing, collection building, storage, organization, transmission of digital information, creation and use of hyper text and hyper media systems, electronic publishing, networks and their implications, manpower development, user interfaces, specific case studies were discussed in detail.

5.4 Database Creation and Data Security

The present librarians have a great challenge pertaining to the database creation and maintaining it error free. Earlier libraries were only engaged to acquire the publications and make available after processing to the users. But due to the implementation of IT, the libraries are more engaged to create electronic database of the collection. This requires a considerable experience for handling electronic information resources and services. The various aspects like data structure, accessibility, presentation, packaging, storage, retrieval, security are to be taken into account while creating the databases.

5.5 Intellectual Property and Copy Right Issues

Due to the implications of intellectual property and copyrights, the librarians have to face a totally different challenge, which is not related to library and information science. In this connection, the librarians need the proper handling of intellectual property and copyright issues very carefully. Presently, there is strong need to assist the users in updating and upgrading the knowledge regarding IPR issues. In view of our experiences and users needs, we have made arrangement in the Central Library of IIT Madras to provide patents information services not only to the institute faculty, students and staff but also to the industries. The Central Library provides patents information services to the users with the help of all traditional and non-traditional information resources. Regarding copyright, we have taken extra precautions not to permit the users to take the complete photocopy of the documents but the restricted pages as per the norms of copyright.

5.6 Users Behaviour

The impact of information technology is directly visible on the users. The users have become more information conscious. They need pinpointed, updated, comprehensive and relevant information and data pertaining to their special interests and academic pursuits. This has totally changed the user behavior regarding information seeking and using pattern. The users need more exposure for handling modern information retrieval techniques for getting right information at right time through right means. Accordingly librarians need to formulate the pragmatic strategy for meeting the challenges pertaining to the users behavior with the special reference to the implication of new information technology on libraries.

5.7 Quality Based Services

As we know that the concept of quality has affected the entire organizational culture, behavior, strategy, plan, systems and procedures etc. in all areas including library and information science principles and practices. Due to this fact, globally, librarians have discussed a great deal on various aspects of quality, standards for implementing TQM including ISO standards for making the library systems and procedures more dynamic, professional, transparent and user oriented. This has adequately been discussed in various professional fora. The librarians need to have a practical approach to provide quality based library and information services to the end-users. For this purpose, we have to consider redesigning and reorienting our style of functioning, approach for providing services to the users with the help of strong committed professional team. Therefore, providing quality library and information services to the users, is a great challenge for the librarians. This has to be faced professionally. The implementation of TQM will ensure best services to the library users.

5.8 International Developments

As we all know that various international developments are taking place in the developed countries in the area of library and information science, which have direct bearings for Indian librarians. For example digital library is an international development which is growing very fast in the developed countries like UK, USA and others. In these countries, various institutions have setup special research centres for research and development work regarding digital libraries. It can be stated that our professional societies and institutions like IISc and IITs are in the proc-

ess to discuss and develop digital libraries for various applications. In addition to this, there are various developments like electronic publishing, CD-ROM networking, Internet application, which are in advanced stage of the development in these countries. These developments are also affecting our environment. We need to develop a positive attitude for accepting these international developments professionally.

5.9 Changing Nature of Workforce

We are passing through a social change influencing the nature, attitude, feelings, and style of functioning and preferences of the people in our society due to socio-cultural changes. Presently we have generation gaps, which directly influences the entire spectrum including librarianship. For example we have noted that the students after completing Bachelor of Library and Information Science or Master of Library and Information Science while working in the libraries, hesitate to work in stack areas. They prefer to work in other areas.

5.10 Organisational Transitions and Initiatives

Some time it has been experienced that librarians face various challenges due to organizational transitions and new initiatives. This brings direct impact on the libraries attached to the concerned organizations. Recently IIT Madras decided to get ISO 9001 certification for support services of the institute including the Central Library. Accordingly, we have reoriented our entire efforts and prepared the quality systems and procedure manual and also faced various internal and external quality auditing. This challenge was very new to us due to innovative initiative of IIT Madras.

6 Meeting the Challanges

The Challenge of changes has added new dimension to the roles and responsibilities of the librarians. These days the librarians are not only the custodian of collection but also a content analyst for documentary as well as electronic information resources for satisfying the increased information needs of the users. This change expects from the librarians to be well versed with the recent advances regarding the implementation of IT. This will be an asset to the librarians facilitating effective and efficient formulation of the implementation strategy and perspective plan for IT application. On the basis of experience and exposure, the following measures are suggested for the librarians in India, which will provide adequate base to face the challenges more comfortably.

- Continuous self updating,

- Developing a strong professional team in respective libraries,
- Conducting continuous education and training programs for users and staff on issues of IT,
- Changing the style of functioning characterising the flexibility, sympathy, cordiality, and progressive attitude for the staff and users.

7 Conclusion

It is a fact that librarians need to implement IT in their respective libraries one-day or other to cope up with recent and potential IT developments and it's application in library and information activities. It is further stated that this will certainly generate various types of challenges for the Indian librarians but all these challenges needed to be faced. It will be fitness of the thing that we happily and professionally meet the challenges for the overall professional prosperity and development.

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Collection Building in Libraries in the Electronic Information Environment

SOHAN LAL

Abstract

The present paper discusses collection building in libraries and information centers in the electronic information environment. Examines the Internet as a world wide source of information. The impact of CD-ROM databases, Internet, OPAC and digital libraries on collection building. New techniques are needed to search, store and download data. Policies relating to collection building should be linked with such changing trends.

1 Introduction

A library is a social institution or a part of institution that keeps books, newspapers, journals, audio-visual materials etc. for people to read, study or consult. The aim is to serve the society by providing with the wanted documents or information. Therefore, collection building is one of the major functions of any library or information center to meet the demand of its users. In a Library of any level collection building is a vide range of exercise related to the system and policies of selection, assessing readers needs, evaluation of the in house collection and planning for resource sharing. In nutshell it is a planning and decision making process. But in the context of new developments in information technology (IT), a mere collection of book is meaningless because much of the information can be accessed through various networks. Information technologies have advanced to such an extent that their impact on

libraries is significant, specially development of digital libraries, Internet, electronic publication, CD-ROMs etc. The changing trends of libraries have forced the librarians to change the way they are functioning presently. Keeping in view these changing trends and also due to financial bindings, librarian are giving importance to accessing the other libraries collection rather then possessing almost all documents on a given discipline. For instance a number of full text databases are available on Internet. Why then one has to purchase of a similar documents? Why can't one access such records and download, if required? Once downloaded such electronic documents must be kept in the library in some order, so that, one need not search and download the same documents again, if and when required. However, in some cases it may be economical to download again. An effort has been made to discuss the impact of advances in IT on collection building.

2 Internet and Collection of Books

Internet is a network of networks connecting millions of computer systems and individuals. It is growing at a fast rate. For the last few years it has become the focus of a great deal of commercial, governmental, and media attention. It is used as a tool for communication, research, study and recreation by individuals in variety of organisation and institutions. It provides access to the remote databases housed some where else. Databases can be full text or bibliographic. Actually the net was not designed to the world-wide entity as it is today. Initially it was online Information retrieval using remote login to a fewer number of databases pertaining to a subject domain.

But now due to Internet any one can have access to a large number of databases located any where in the world. The net has established itself as the store house of all world's resources in the electronic form ready for accessing. Variety of sources exist on the Net. The nomenclature of these electronic documents are comparable to that in any traditional collection, some documents may be now incorporating in multimedia hypertext etc. But for the general purpose of developing a collection, it suffices that the kind of documents available on the net conform to the kind of collection in libraries and information centers like dailies, reports, periodicals, text books, maps and reference books. An attempt has been made to cover the various kinds of documents that are available on the net and examples of some titles of each and the addresses to access them.

2.1 Primary Source

It includes periodicals, research monographs, research reports, patents and standards etc that give the first published data or information on a discipline. Examples of full text of monographs available on the Net or on line are:-

- American Journal of Agriculture Economics. (www.aaea.org/ajae.htm)
- Agriculture Water Management (http://www.elsevier.nl/locate/agwat) or http://www.elsevier.com/locate/agwat
- British Journal of Nutrition: An International Journal of Nutritional Science. (http://nutrition.cabweb.org.)
- Cells Tissues Organs. (www.karger.com/journals/cto/cto-bk.htm.)
- International Social Science Journal.
- The Spanish edition is published on Internet at: (www.unesco.org/issj)
- Journal of Agricultural Science. (http://www.journals.cup.org)
- Journal of the American Chemical Society. (http://pub.acs.org)
- P C Quest. (www.pcquest.com)

2.2 Secondary Sources

Guides to the primary sources, reviews, digest, textbooks and reference books are also available on the Net. Though, organising the mass of information that is available on the net is impossible yet there are some tools to keep track of what is available where. These give information of files and their location. Telnet, Archei, Gopher, Mosaic, www,wais,ftp etc. are example of such tools. These help the users to locate the information they are looking for. A few of the documents falling under this category available on the net are:

- Big Web India (Directory of Indian corporate and business related sites on the internet) (www.bigwebIndia.com)
- Booklist (Reference Books Bulletin) (http://www.ala.org/booklist)
- Books Review (ftp: csn.org path:/pub/alt.books.reviews)
- Directory of Electronic Journals, Newsletters and Academic Discussion Lists: Association of Research Libraries, USA. (http://arl.cni.org/scomm/edir
- Encyclopaedia Britanica (www.eb.com)
- H.W. Wilson's James Rettig's Rewiews. (www.hwwilson.com/retintro)
- Information Please Almanac. (www.infoplease.com)

- The Internet Resource Guide. (ftp: una.hh.lib.urlich.edu path:/inetdirs)
- The Whole Internet Catalogue. (http://nearnet.gnn.com/wic/newrescat)

2.3 Tertiary Sources

These act as guides to the primary and the secondary sources like guides to indexes and directories. In general these sources do not contain subject knowledge. Among the various kinds of sources tertiary sources are last to appears. Examples of such sources available on the net are:-

- Index of On-line Dictionaries (www.bucknell.edu/'rbeard/diction.html)
- InterNIC-Directory of Directories. (ftp: ds.internic.net)
- List of Gopher Sites. (ftp:cwis.usc.edu)
- My Virtual Reference Desk (http://www.refdesk.com)

Offers dozens of links on dictionaries, encyclopedias, reference/research material, the sauruses, atlases, sports, entertainment, and much more as well as a search engine for locating more information.

2.4 OPAC

The library catalogue exists primarily to indicate the books available in a particular library. Catalogues of libraries available for searching online are known as Online Public Access Catalogues (OPACs). Such OPACs may be searched from a terminal within the orginating library or at a terminal elsewhere in the organisation. The net has made it possible to access library catalogue of libraries world-wide. Examples of catalogues on line are:

- Library of Congress. (locis.loc.gov)
- Catalogues-Catalogue Guide to several OPACS (ftp:funet.fi path:/pus/doc/library)
- Library, University of Southampton. (http://www.soton.ac.uk/'library)
- University Library, University of Newcastle. (http://www.ncl.ac.uk/library/)

The objectives of the library catalogue, first set out by Cutter in 1876, were:

(1) To enable a person to find a book about which one of the following is known

- the author
- the title
- the subject

(2) To show what the library has
- by a given author
- on a given subject
- in a given kind of literature

(3) To assist in the choice of a book
- as to its edition

OPAC meets all these objectives. Rather it allows rapid retrieval and post - coordinated retrieval. Post-coordinated retrieval allows a user to define interactively search specifications that precisely describe the information being sought.

3 CD-ROMs or Electronic Publishing

CD-ROMs are now being accepted as standard storage medium. A CD can store about 650 MB of data and the life time of a CD-ROM is about 100 years. It is not expensive. A good number of CD-ROM databases are available on almost all subject. Multimedia databases, the most useful educational tools are now becoming popular. These are very helpful for the beginners in any subject. If CD-ROM databases are subscribed and are made available on CD-NET, many can access them on network from remote distances. Under this environment less space is required as bulky volumes are not subscribed. CD-ROM need least space. Complex inquiries can be traced by Boolean expressions and thus there is no need to subscribe secondary periodicals in printed media. Cost which is considered as a major factor to decide whether or not one should subscribe to CD-ROM databases is no longer true. Now these are becoming cheaper with the passage of time. The important factor relating to CD-ROM databases is the evaluation and that can be done on the following points:

- Frequency of updating.
- Coverage by country wise and language wise.
- The quality of retrieval engine.

3.1 Advantages

- Electronic publication can be more speedily accessible.
- Electronic publication can be more timely.
- Binding/Shelving not required.
- No chances of missing pages.

3.2 Disadvantages

The information in digital form is very helpful in many respect but there

are lot of problems involved for accessing this huge amount of information also:

- In comparison to the printed form it is difficult to search the information in digital form.
- Spot access to document is more comfortable then remote access.
- Non-availability of latest information on the Internet.
- Surfing on the Net.

4 Digital Libraries

The word digital libraries refers to a totally new style of working of libraries. Covering electronic information resources, new way to collection of books (especially, more access to other libraries holding of sharing it), news system of storage and preservation, new approaches to cataloguing and classification especially of electronic database, through use of electronic systems and networks. It is knew as a distributed textbased computerised information system and service also. In a digital environment, only digital information is disseminated and more of the information is obtained by distance access. Much of this information is less permanent in nature. In this situation, it is difficult to decide by librarians:

- Which information is to be retained by down loading to be stored and organised?
- The information is accessed by the users generally is not structured; no rules are followed and no one controls the information that is made available.
- We may have variety of data or information and to organise them we need cataloguing practice which calls for a suitable data model for organising data. For organising information specialised technologies are wanted. For librarians these are the challenging tasks in digital library environment.

5 Conclusion

Electronic information environment definitely has impact on libraries particularly in the field of collection building. It is essential to check what is available on various networks. It may also be important to locate such networks and down load the wanted records depending upon the demand. For storing and searching downloaded data new system may have to developed. As electronic publication are getting recognition in the world of libraries the policy relating to collection building should be linked with such changing trends.

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Commercial Exploration of Information Potential of University Academics

V VENKATA RAMANA AND
N VARTHA RAJAN

ABSTRACT

Science and Technology holds the key to the global development. The explosion in Information Technology is destined to effect the university academics and the traditional approaches are undergoing dramatic changes and contribute to the industrial development. Space exploration is bound to bring in dramatic changes in electronic communication. The research is no longer needs the physical proximity of the past and industrial revolution is imminent with the exploitation of information potential by the university academics.

1 INTRODUCTION

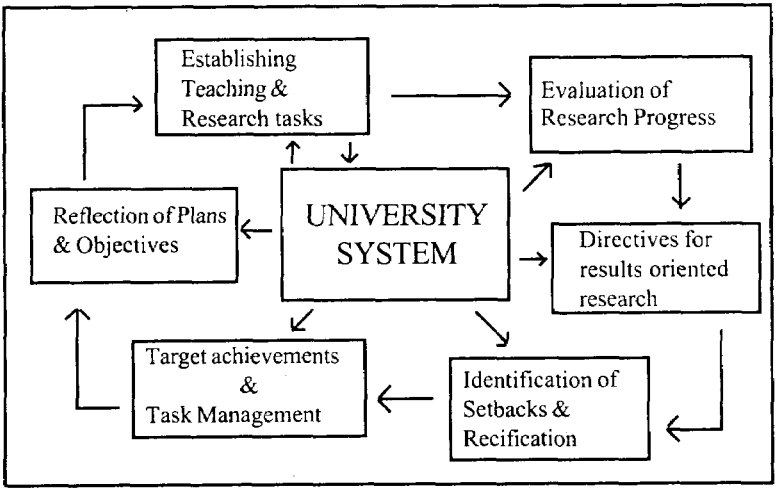
Science and Technology need a new dispensation for the new century. Science has already established its significance as a 'creator of wealth'. This science has to focus on its role in attracting world poverty, environmental degradation and militarism. Most science, goes on in the developed world and 40% in the US alone. The spending on military necessarily be reduced substantially and priorities be set for sources of funds for science. The priority being the creation of bodies centred on a reformed capabilities of pushing new research and their priorities to drive sustainable development. The commercial consequences have to be evaluated and it would form the most important factor for the development of any nation. The Information Centres/Libraries primarily need to be oriented for commercialization for the benefit of the institutions and the nation as well. The research potential of the university academics should signify the greatest contribution to the nation's building through the commercialization cooperation with the growing industrial world.

2 Enterprising Academics

Indian economy can become knowledge driven when industries exploit the expertise of the universities. The present interaction between industry and Indian universities is far behind even when compared to many third world countries. The intellectual property of Indian nation is not appropriately motivated, primarily by the universities to contribute to the economy of India than wishing the benefit to the university concerned. The institutions are bound to get more than ten times as much income from direct work with industry and even more from government sponsored research. The growing importance of knowledge demands even more enterprise and innovation. This means, a new role for government as an investor, a catalyst and a regulator. In Taiwan and the US, most academics take it for granted that they should conduct research with a view to its commercialization. The information centres play a vital role in the dissemination of right and most enterprising information to the university intellectuals through the means of developed digital information technologies. The virtual libraries are the repositories of the greatest research advances and contribute to the flourishing industrial growth and advancement.

3 Research Tendency

The notable international scientists of repute and science academies like New York Academy of Sciences say that new organizations for interna-



Organizing University Information System

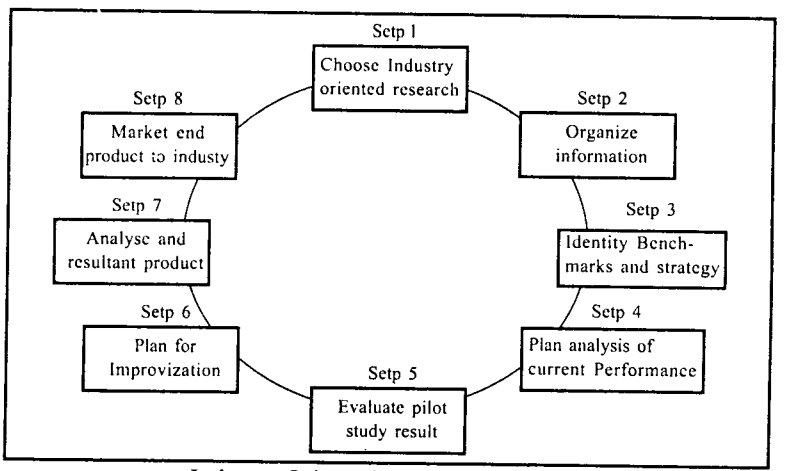
tional research cooperation will be an essential part of the new world science system. Many existing and private global institutions are yet to organize to ful fill their expectations and there is much to achieve new goals for global action. The national apex bodies of India needs to take advantage of technological advances together with the growing research projects. It is time to tame the technology to achieve the ambitions through international collaborations and exploit the greatest potentials of the information world using the innovative gadgets and methodologies. Failure to employ the right choice of information may eventually lead to backwardness and inexplicable miseries.

4 Information Potential

The latest proposal from USA being that high technology in science be explored through space exploration. The world space agency, Russia, France and other nations are keen to setup a space effort to exploit the information potential. Some nations have put forward the idea that this space exploration should be funded by 'UN Budget' - thereby the benefits can be tapped internationally by all the nations. Even charging for remote sensing data including meteorological information, satellite communications etc., would produce big revenue.

5 Space Exploration

Effective electronic communications are producing new styles and approaches in research and facilitate much easier global contacts. The



Industry Oriented Research Planning

active investigators of global scientific organisations around the world are looking forward for result oriented information and this can be achieved through space exploration of vast information potential. Commercial space exploration for information as envisaged by developed countries could be minimised had the United Nations envisage the universalization of the project thereby third world countries like India can avail the greatest advantages.

6 Transformation

The explosion in information technology would fundamentally effect universities in the sense, that traditional libraries/information centres would become indispensable by the virtue of their inherent abundant service approaches. In India, not many universities are embracing the information technology while the Western universities in the developed countries have embraced technology to such an extent that several schools established institutes for tele-information, University libraries fulfill several functions including (a) producing information (b) storing information and (c) passing on the information to future generations. The research endeavours, as such, no longer requires the physical proximity of the past information world. As the amount of information increases, the amount of specializations does simultaneously increases. The transformation of technology is such that a lab in the neighbourhood need not necessarily depend on adjacent information centre. These days, communication is available on world wide basis. Traditional methods of teaching proves to be expensive and are being replaced with on line lessons. This provision of cheaper means of information distribution attract people for its opting.

Many a National Institutes in USA proposed most ambitious schemes to place academics world wide at the heart of electronic communication. For example, one of the eight health agencies of the US Public Health Service, NIH conducts its own biomedical research and supports researchers in the US and abroad, with a huge budget of $16 billion (&10 billion) for the year 1999-2000, the US Public Health Service acclaimed the reputation not only to become world's premier on-line repository for biomedical research. The US government is also encouraging other disciplines to move further into the digital domain. Electronic journals have been around for many years in many disciplines and new ones are being launched by academics and learned societies regularly. But the scale of digital publishing by scholars of their own papers in electronic journals is dwarfed by the print and electronic initiatives of the commer-

cial publishing. The full potential of electronic communication has yet to be realised. The scientific community has made sparing use so far of the Internet as a means to publish scientific work and to distribute it widely and without significant barriers to access.

7 Accelerated Service

Electronic publishing can 'accelerate the dissemination of information, enrich the reading experience, deepen discussions among academics and scientists, reduce frustrations with traditional mechanisms for publication and save substantial sums of public and private money. Without exception, no one can deny to acknowledge the virtual strengths of the current information system for publishing scientific research work. The quality control through peer review and editing can be continuous process even in the new medium of publication at a commendable speed - to the satisfaction of the academic and scientific community. The electronic mode of journal publication paves way for easy storage, retrieval and transmission or transportation to various destinations. An essential feature of the electronic publication is cost free and instantaneous access to potential users. However the authors can retain the rights for free transmission, downloading and publication.

Increasingly sophisticated ways of presenting the information open up the possibility of multimedia formats, that allow use of, for instance, photographs and video. There will also be reduced costs to users who are currently levied in a variety of ways. Many a, more revolutionary technological systems are around and it is the most appropriate time to tap the inherent potentials in all academic and scientific research endeavours.

8 Electronic Publication

In the recent past there are two well associated forums viz., E-biomed and Scholar's Forum took initiatives in United States to speed up the development of on-line resources for scholars. Though there are some functional and operative weaknesses in the forums, their relationship with E-journals is quite encouraging. A few journal articles are available on-line, free of charge and are accessible to any researcher worldwide. The trend is fee-based digital editions of articles, but this will eventually cease because readers prefer to use free versions of articles that have been deposited with on-line achieves. Senior researchers around the world opine that journal costs will fall rapidly and eventually their-sole function will be to carry out peer-review and certification. Such a develop-

ment will be of considerable benefit to institutions and individual scholars. The process of peer-review will still need to be paid for but it will cost much less than with classical publishing and can be paid by institution out of the massive savings they will make from cancelling subscriptions.

9 Librarian's Ideology

The Librarian's principal expertise is not concerned with organizing books and journals, but organizing information. Printed formats have been the vehicles for so long that librarians have been almost inextricably associated with print media. However, it is information librarians they store and help people find. The gate keeper with library skills is what researchers need to save their own valuable lime. It is rather difficult to assess tile actual potential threat of a successful e-journal. Some scholars say that printed journals will have high quality illustrations as compared to clumsy electronic competitive journals.

10 Patents in Universities

According to a survey in 1997, there were 3000 licensing agreements with the industries in United States of America. Research patents developed in US Universities have been commercialised to an extent of 2 percent of an institutions' budget. Still the survey says, their expectation in revenue through patents licensing agreements is much shorter than the deserving level. A patent of the Stanford University fetched $250 million over a span of 12 years, two universities in US earned about $10 millions for the commercialization of patents licensing. The expertise in UK universities is advocated for more use by the industry to drive the Britain's economy. In India, the expertise in most of the universities remain untapped and scarce use of the technology developed in these institutions. Not that there is no potential research in Indian universities, the attitudes of the Indian government does not focus appropriate in developing the patents and their commercialization through industry. The budgets in many Indian universities sans any contribution from the patents revenue - while the expenditure soar every year in the name of research.

11 The Ultimate

The strengths of the current technology based information dissemination system needs to be acknowledged by everyone. The traditional research approaches should invariably orient towards commercial utilization and

with due tie-ups with the industries. The dwindling economies of the Indian university system can overcome the magnitude of the financial crunch through innovative industry oriented research and exploration of the space for common good of the mankind. Massive earnings are envisaged with the advent of industry prone research by the university academics and scientists and the transformation of the information world is bound to make a dent in the overall economy of the educational system.

43

Creation of Database of Records in Madras School of Economics (MSE), Chennai: An Experience with WINCALIBLAN[1]

R PARAMESWARAN AND B RAMESH BABU

ABSTRACT

This paper presents the need for creating in house database as a means of bibliographic control of records in a library of research institute. A scenario of the library attached to Madras School of Economics, a Scientific and Industrial Research Institute with respective genesis development of the MSE library its resources and services etc. is presented. Presents an overview of the database namely WINCALIBLAN (Windows Current Awareness Library Local Area Net Work) which has been used in the creation of database of records. Explain the steps involved in the design and development of database of MSE records. As a pilot project a total of 7000 records comprising of Books, Periodicals, Back volumes and reports have been considered in this task. Based on the experience this paper identifies certain difficulties faced in this process and solution arrived at in the creation of database. Explains the retrieval performance of the database with its merits and demerits. Finally concludes the practical utility of the software used while creating database of information records.

1 INTRODUCTION

The present century has witnessed tremendous changes in Library Information Centres with the applications of Information Technology. It is not too far off that all the libraries have to pass through the route of computers. The modern era of libraries and their services are to be thought of

with data base support services than the traditional services. There is a shift emphasis from the card form of the catalogue to the online public access catalogue (OPAC). In order to convert the bibliographic records into Machine readable form a number of software packages are being developed both by the commercial agencies and by the individual libraries. This paper is an attempt to explain the experiences in the use and application of one such commercially developed software for the in house operations of a medium sized library.

2 Scope

This paper aims to explain the application of a software package known as WINCALIBLAN (Windows Current Awareness Library Local Area Network) in the creation of data base for the collection of MSE library. It brings the salient features of the WINCALIBLAN. It also gives a brief scenario of the MSE library. Further it brings the experiences of the authors in the design and development of data base of MSE records by using WILCALIBLAN.

3 Madras School of Economics: A Scenario

Madras School of Economics (MSE) emerged as privately funded centre for post graduate studies in economics which attempts to maintain excellent standards in teaching and research, comparable to well known international centres like London School of Economics. The major educational programme of MSE consists of Ph.D programme based on the course work dissertation, M.Sc. Economics programme. The school will conduct refresher course for the university and college teachers as well as economists working in other field on request.

The main campus of Madras School of Economics is located adjacent to the Government Data Centre in Kottur, Madras. One boundary of school land is adjacent to the campus of Anna University.

3.1 HT Parikh Memorial Library

The building exclusively meant for library has been added as an annex to the Administration-cum-Academic building and named as 'H.T. Parikh Memorial Library'. The library was inaugurated by Shri C.Rangarajan, Governor, Reserve Bank of India on 13 September, 1997 in the presence of Shri Deepak S. Parikh, Chairman, HDFC. The staff comprises of Librarian, Library Assistant, Documentation Assistant, Word Processor, Technical Assistant and Counter Staff.

3.1.1 Library Collection

The library has the collection of 7000 books, 700 reports and 110 journals which includes foreign and Indian Journals in economics. The school is fortunate in receiving many books and reports by the way of donations. MSE spends about 10 lakhs for the purchase of books every year. Annually 500 books were added to existing books.

The library follows Universal Decimal Classification (UDC) for books and reports and AACR 2 for cataloguing the books and reports.

MSE library has computerised all its library activities with the library software WINCALIBLAN. The library also has CD-ROM Service section. MSE has the CD-Rom Database on Environmental Science and it provides the Internet services to its users.

4 Salient Features of WINCALIBLAN-MIS Package

(a) The package is the unique Data Management System covering all types of documents and technical information related to every operation of Industry/Institution including their Library or Information Centres. The package consists of three main parts, namely:
- Operations;
- Management Information System; and
- Utilities

(b) Operations part deal with all the operations in an information centre, such as Data or Document collection, ordering, cataloguing, abstracting, Indexing, Retrieval etc.

(c) MIS part presents Instant Decision Making information Tool, based on the operational Statistics, on user, document, supplier and budget in graphical and tabular form.

(d) Utilities: part deal with ID and PASSWORD control, indexing, and approved corrections in master database.

(e) Menu driven format is followed, with help at all levels. Features are modified to suit the needs of the Individuals. Codes and Tables are Menu driven for selection of document type, language, category and classification. The features needed by your Institution can be included in the package during customization of the package.

(f) All types of document in the Industry/Institution in the form of book, report, patent, standard, thesis, conference proceedings, journal article; Trade catalogues, Periodical Marketing Reports, Finance Reports, Proceedings Files etc., present in various media of paper, audio and videotape, floppy and microfilm can be processed for

ordering, receiving, Bill passing, cataloging, indexing, Abstracting,. Newspaper clippings can also be maintained.

(g) 45 fields are given for each document. All the fields can be searched singly or in combination. Boolean logic (AND, OR NOT) can be used in the combination. The retrieval system features are stadardised to international online retrieval system. Any Index word can be combined with any other word in the abstract for searching.

(h) All the function of circulation area including reservation of a document can be done. Charging, discharging, number of documents taken by user, total transactions of the user, reservation for a document, and overdue notice can all be done by this function.

(i) User profile with details on the Information needs of user is created and used for providing all the services, including Current Awareness Service. Matching the specific information requirements of the user with the information content of document, whether it is a book, journal article, patent, standard, report or File specify user oriented Current Awareness Service can be generated periodically to automatically inform the concerned user.

(j) Supplier profile giving address of the supplier is maintained. Supplier wise reports can be generated for review.

(k) For serials management, serials master database, check-in system, back volume data, Holdings data, and missing issues reminder letter generation features are available.

(l) Management Information System part gives the top management an exclusive access to instant decision making tool to assess information on user, document, budget, and supplier without depending on systems specialist or operation personnel. Information about the documents used, not used, analysis of specific user, analysis of the cost effectiveness of a document procured, or data collected, amount used for each budget head are presented in tabular and graphical form.

(m) User Identification, and password control are available to control the entry of unauthorized person to any portion. Four types of user identification codes are given. This prevents the corruption of data by any other person. Data entry and retrieval personnel's access to MIS and Utilities portion is restricted. Backup and restore functions are provided as part of the system.

(n) The cost of the software packages is Rs 1,00,000. As a special incentive for making all the industries/institutions automated, we are offering the package at Rs 35000/- with a sponsorship of Rs 65000/- from Ranganathan Institute for Library and Information Science for Applied Research.

(o) The CALIBLAN CEO-MIS Package is available on MONTHLY LEASE basis also as an introductory offer, along with Data Processing Service for Industries/Institutions at Rs 5,000/- per month. RILISAR (Ranganathan Institute of Library and Information Science for Applied Research) OPERATOR will be deputed to your place during the lease period for processing your data or document subject to the maximum of Rs 1000 records a month. For additional records Rs 5/- per record will be collected. Your are free to cancel the Lease arrangement and own the Package for yourself by paying the net cost of the Package Rs 35000/- and training your own staff for operation.

(p) The system will be customized for your needs. After installation, training for one of your staff will be given free of cost.

(q) Maintenance and future updates of the package are free of cost for 3 years. This is an unique offer from RILISAR considering the transition period of computerization, and no where such service is available in any part of the world.

5 Design and Development of Bibliographical Database

A Pilot study of creating 7000 records has been created comprising of books, periodicals, and back volumes and reports. The relevant formats are given on next page.

Fig. 1. Worksheet for book

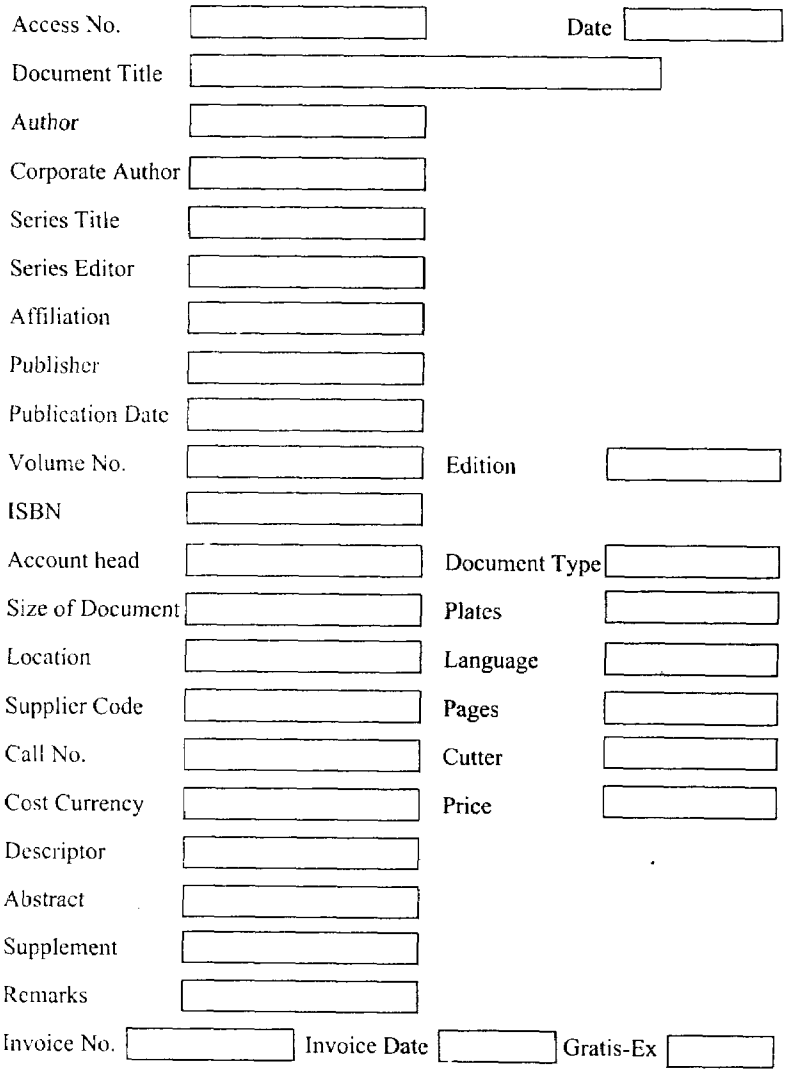


Fig. 2. Worksheet for Reports

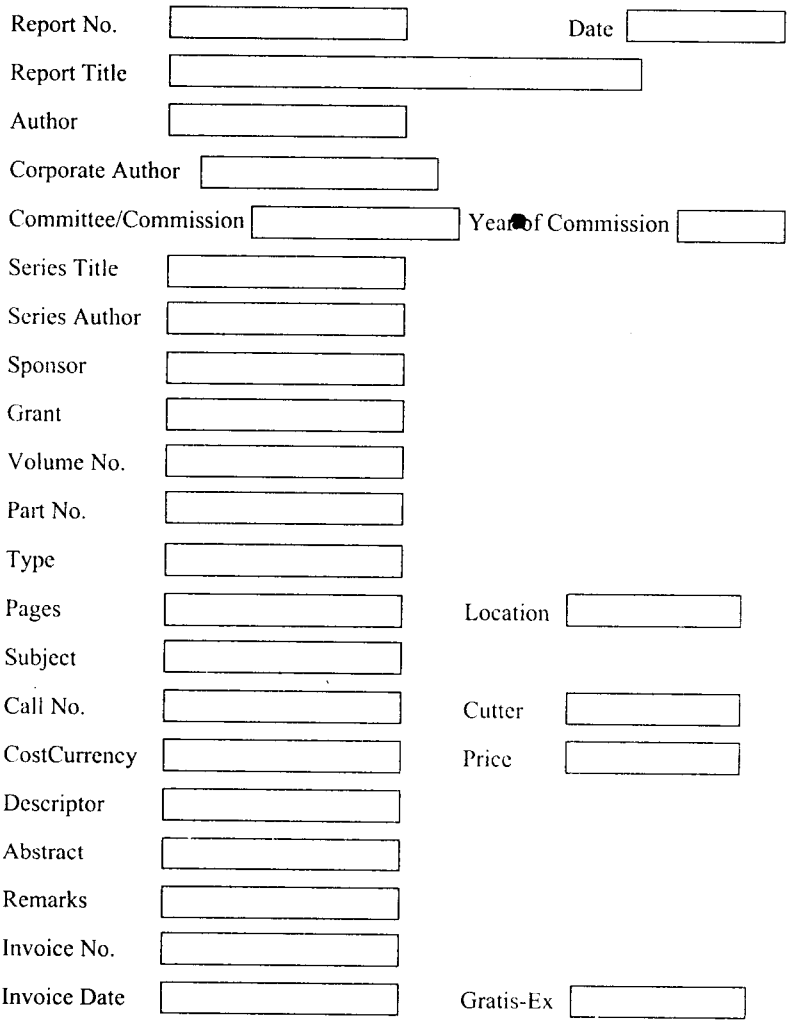


Fig. 3. Worksheet for Journals

Journal Title			
Publisher			
Vendor		ISSN	
Frequency		Volume per Year	
Issues per Volume			
Subscription from		Subscription to	
Subscription No.		Amount	
Gratis/Purchased			
Remarks			
Subject			
Call No.			

Display Format

The relevant display format are given below:

Sample display format for book

Accession No.	- 79
Document Title	- Macro Economics: An introduction to Keynesian New classical contraversies
Author	- Levacic, Rosalind; Rebmann, Alexander
Publisher	- The English language book society
Publisher date	- 1983, Edition -2
ISBN	- 0 333 36696 4
Pages	- XVII, 455
Call No.	- 330.101.541 LEV
Descriptor	- Micro Economics
G/P	- G

Sample display format for Report

Report No.	- 486
Report title	- Economic Survey, 1997-1998
Corporate Author	- Economic Division, Ministry of Finance, Govt. of India.
Year of Commission	- 1997–99
Publisher	- Economic Division, Ministry of Finance, Govt. of India Pages - IX, 149
Call No.	- 330 (048.8) '1997–98' MIN

Sample display format for a Journal Article

Journal title	- Energy Policy		
Volume No.	- 25	Issue No. 7-9	Year 1997
From	- June To July	Received date - September 1997	
Current / Backvolume - BV		Backvolume No. - 324 Remarks -Nil	
Article Title	- Cost benefit analysis of environmental damages		
Author	- Richard Samson		
Affiliation	- French Agency for the Environment and Energy Management.		
Corporate author		-E.Worrell	
Pages	- 17		
Descriptor	- Environmental Economics		
Abstract	-		
Notes	-Nil		

6 Experiences in the Design and Development of Databases by Using WINCALIBLAN

While designing and development of database in many instances the authors have taken lead to make certain changes in the software itself. The authors have identified certain problems in the search and circulation files and have been communicated to the designer of the package to incorporate the same in its future revision.

7 Conclusion

The development of software package are on large scale phenomenon. Every individual or organisation in the field of software trying to create software packages to suit library operations. It is a progressive move and development marching towards the application of Information Technology in the libraries. As a matte of fact databases are very important in the electronic era so as to share and participate in the network environment. The WINCALIBLAN is one such commercially available data base which has been on its application by more than a dozen Library and Information Centres in Tamil Nadu and Karnataka. It is gaining its significance due to the policy of of the designers for subsequent revisions.

Acknowledgements

1 Dr Abbas Ibrahim, Chairman, RILISAR Industrial Information Network Private Ltd., Chennai.

2 Paper for presentation in the 45th All India Library Conference of ILA on 23-26 December 1999 at Hisar.

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Database Management in Computerised Libraries of Delhi: A Study

S KUMAR AND SUNIL GORIA

ABSTRACT

The paper studies 44 bibliographic databases having 64 computers in 35 libraries of Delhi. Studies hardware, software, database, documents & source profiles with the help of 5 tables. The profile studies various aspects of database management such as types of computers, capacites, software used, network connectivity, subject covered, retroconversion, up dating, annual grewth etc. Concludes various problems & suggest various methods.

1 INTRODUCTION

The world is striking with the wide use of computers, multimedia and telecommunication facilities. Now it is possible to handle large volume of data on computers with the use of database management softwares and can be transmitted at high speed with TCP/IP, Novel softwares. Now it is fruitless to discuss invasion of computers in the world and in India, especially in library and information centres. It is now part of society.

Databases are set up for three different types of information i.e. the words, numbers and symbols. Pictorial databases consist of shapes, colours etc. The bibliographic databases are word oriented containing bibliographic references to published literature and books, journal articles, reports, newspapers, etc. Many softwares like CDS/ISIS, Libsys, Ilms, Sanjay, Palm, etc. are available to handle bibliographic data 35 libraries of Delhi have been studied and discussed in 5 profiles supplemented with tables.

2 Hardware Profile

The study is based on 35 libraries of Delhi (including New Delhi). These institutions have one or more computers. There are 64 computers in these libraries. The hardware profile, as shown in table 1 gives information about their make, RAM, HD and also wheather stand alone or working in LAN: It is very surprising that some of the institutes are still working with PC-286 or PC-386. Seventeen PC-386 and twenty six PC-486 are still in use in these libraries. Even three PC-286 computers are working in these libraries. All these computers have slower speed, less RAM & small HD capacity. Only 11 Pentiums are available in these libraries as shown in table 1 & 1B.

Hardware	Numbers	RAM	HD Capacity
PC-286	3	64 KB-2MB	20MB–40MB
PC-386	17	2MB–20MB	30MB–280MB
PC-486	26	80 MB–42 MB	80 MB–1 GB
Pentium	11	20 MB–64 MB	2 GB–6GB
Others	7	2 MB–64 MB	160 MB–3 GB
Total	64		

It is clear that some of the libraries are still using outdated technology. Pentium III is already in the market with lot more facilities. It is necessary to improve hardware profile to provide better, quick, reliable & cheaper computer based services to the readers.

The table 1 also shows that 21 institutes use computers only in stand alone while 9 institutes have installed computers in LAN.

Most of the libraries have not discarded old generation computers and are trying to modernize by adding latest technology. Low price of Pentium have attracted more purchasers.

Table 1: Hardware Profile

S No.	Institute	Hardware Platform	Memory RAM	HD Capacity	LAN/ STAND Alone (SA)
1	Associated Chambers of Commerce and Industry of India (Association), 17, Parliament Street, New Delhi–1	PC/AT-386	8 MB	80 MB	SA
2	Bio Informatics Centre, Jawaharlal Nehru University, New Delhi	Dee Albha Micro Voux	64 MB 8 MB	3 GB 1 GB	SA

Contd.

Contd.

S No	Institute	Hardware Platform	Memory RAM	HD Capacity	LAN/ STAND Alone (SA)
3	Bio Informatics Centre (IARI), Pusa, New Delhi–12	MICRO-AX System (Digital)	16 MB	200 MB	SA
4	Bureau of Indian Standards 9, Bahadur Shah Zafar Marg, New Delhi–2	MV 4000 PC-486 SX	5 MB 8 MB	240 MB 240 MB	SA
5	Central Water Commission Library & Inf. Bureau, West Block, Wing 7, R.K.Puram, New Delhi–66	HP 2600-37 PC-486 SX	2 MB 8 MB	160 MB 200 MB	SA
6	Council of Scientific & Industrial Research, Anusandhan Bhavan, Rafi Marg, New Delhi–1	HCL XL-386 PC-486-DX-2	8 MB 16 MB	80 MB 200 MB	LAN
7	Dayal Singh Evening College, Lodi Road, New Delhi - 3	PC-386	2 MB	80 MB	SA
8 a	Defence Scientific Information and Documentation Centre, Metcalfe House, New Delhi–54	PC 486 DX 2	16 MB	540 MB	LAN
b	Defence Scientific Information and Documentation Centre, New Delhi–54	PC-386 Pentium	8 MB	280 MB 32 MB	LAN 2 GB
9	Delhi Library Network, DELNET, 40, Max Muller Marg, New Delhi–3	–	–	–	–
10	Department of Environment Paryavaran Bhavan, CGO Complex, Lodi Road, New Delhi–3	PC/AT-386	4 MB	80 MB	SA
11 a	Department of Science & Technology, National Management Information System, Technology Bhavan, New Delhi–1	PC/AT-386+ SX	4 MB	160 MB	LAN
b	DST, NMIS, New Delhi–1	PC-486 DX 2	16 MB	260 MB	LAN
c	DST, NMIS, New Delhi–1	Pentium	32 MB	2 GB	L A N

Contd.

Contd.

S No	Institute	Hardware Platform	Memory RAM	HD Capacity	LAN/ STAND Alone (SA)
12	Directorate General of Health Service, NLM, Ansari Nagar, Ring Road, New Delhi–29	PC-486	8 MB	80 MB	SA
13	Distributed Information Sub Centre, Beuito Juare Road, New Delhi–21	PC-486, DX-2	8 MB	540 MB	SA
14	District Rehabilitation Centre, IPH Complex, 4, Vishnu Digamber Marg, New Delhi–2	PC-286	640 KB	40 MB	SA
15	ICMR-NIC Centre for Biomedical Information, A-Block, CGO Complex, Lodi Road, New Delhi–3	PC /AT-386 PC-486 Pentium	8 MB 16 MB 32 MB	160 MB 240 MB 2 GB	LAN
16	Indian Agricultural Research Institute, Library, Pusa, New Delhi–12	PC- 486 DX-2 PC-386 (2) PC/AT-286	8 MB 4 MB 2 MB	170 MB 100 MB 60 MB	LAN
17	Indian Agricultural Statistics Research Institute, Library Avenue, New Delhi–12	PC/XT-386	8 MB	80 MB	SA
18 a	Indian Council of Agricultural Research, Agricultural Research Information Centre, Krishi Anusandhan Bhavan, Pusa, New Delhi–12	PC/AT-386 PC-486 DX-2 PC-386	8 MB 20 MB 8 MB	80 MB 200 MB 80 MB	LAN
b	ICAR, ARIC, New Delhi–12	PC-486 DX-2	20 MB	200 MB	LAN
19	Indian Institute of Mass Communication, Aruna Asaf Ali Road, New Delhi	PC/AT-386	8 MB	80 MB	SA
20	Indian Institute of Tech. New Delhi–16	HCL-486	32 MB	1 GB	LAN
21 a	Indian National Scientific Documentation Centre, 14, Satsang Vihar Marg, New Delhi–67	PC-486	16 MB	200 MB	LAN

Contd.

Contd.

S No	Institute	Hardware Platform	Memory RAM	HD Capacity	LAN/ STAND Alone (SA)
b	INSDOC, New Delhi–67	PC/AT- 486	16 MB	200 MB	LAN
c	INSDOC, New Delhi–67	PSI-Sirius 32 Pentium	4 MB 32 MB	660 MB 1 GB	LAN
22	Indian Statistical Institute, Institutional Area, New Delhi	PC/AT-386	20 MB	100 MB	SA
23	Minerals & Metals Trading Corporation of India Ltd., Scopoe Complex, New Delhi - 3	PC-386	4 MB	80 MB	SA
24	National Council for Cement & Building Materials, M-10, South Extension-II, New Delhi - 49	PC/AT-386 Pentium	4 MB 20 MB	160 MB 2 GB	LAN LAN
25	National Informatics Centre, CGO Complex, Lodi Road, New Delhi–3	PC-486 Pentium	8 MB 32 MB	500 MB 2 GB	LAN
26	National Council of Education, Research & Training, New Delhi–16	PC-486 PC-286	4 MB 1 MB	182 MB 20 MB	SA SA
27	National Institute of Immunology, Shahid Jeet Sing Marg, New Delhi–67	PC-386	2 MB PC /AT486	80 MB 16 MB	SA 200 MB
28	National Institute of Public Finance and Policy, 18/2 Satsang Vihar Marg, Institutional Area, New Delhi–67	PC /AT-486 DX-2	8 MB	120 MB	SA
29	National Medical Library, Ansari Nagar, Ring Road, New Delhi–29	PC-486 DX 2	16 MB	200 MB	SA
30	National Physical Laboratory, Dr K.S. Krishnan Road, New Delhi–12	PC/XT-486	16 MB	540 MB	LAN

Contd.

Contd.

S No.	Institute	Hardware Platform	Memory RAM	HD Capacity	LAN/ STAND Alone (SA)
31	National Social Science Documentation Centre, ICSSR, 35, Firozshah Road, New Delhi	PC-486	16 MB	270 MB	SA
32	Planning Commission Library, Yojana Bhavan, New Delhi	PC/ XT-486	16 MB	540 MB	SA
33	Publication & Information	HP 3000/37,	32 MB	500 MB	LAN
a	Directorate (PID), CSIR Hill Side Road, New Delhi–12	PC-486		16 MB	200 MB
b	PID, New Delhi–12	HP 3000/37, PC-486	32 MB	500 MB 16 MB	LAN 200 MB
34	Tata Energy Research	PC/AT-386	16 MB	200 MB	LAN
a	Institute, 7, Jor Bagh, New Delhi–3	PC/AT-386	8 MB	80 MB	LAN
b	TERI,	PC/AT-486	16 MB	200 MB	LAN
	New Delhi–3	PC/AT-386	8 MB	80 MB	LAN
c	TERI,	PC/AT-486	16 MB	200 MB	LAN
	New Delhi–3	PC/AT-386	8 MB	80 MB	LAN
35	Water Technology Centre	PC-286	2 MB	40 MB	SA
	(IARI), New Delhi–12	PC-386	4 MB	80 MB	
		PC-486	8 MB	200 MB	

3 Software Profile

The software is a set of computer programme, procedures, rules and associated documents connected with the computer operations. The software should be compatible on hardware available. The language used should also be compatible with the library operations. It should be able to give high speed performance. It must be able to handle large files, adaptable to existing data and compatible with other packages.

The software profile (Table 2) includes software platform, operating system, software development, Networking Platform (WAN), average log-in-time, international database connection & mode of accessing the databases. It is found that twenty institutes use CDS/ISIS package. Libsys is used by 9 institutes. A few have developed in house programmes, usually in dBase & Foxpro. CDS/ISIS is in MS-DOS &

Windows while Libsys on Unix. Techniplus promoted by NIC is being used by DELNET & NIC. Other softwares like Minisis, C + 7 Cobal are also is use in some libraries.

TABLE 1A: SOFTWARE PROFILE

	Software	OS	Numbers
1	CDS/ISIS	MS-DOS/Window	20
2	dBase/Foxpro	–	9
3	Libsys	MS-DOS Unix	9
4	Techniplus	–	2
5	Others	MS-DOS/UNIX	24
	Total		64

Many libraries do have networking platform (WAN). Some have internet connections to provide facilities of accessing international databases. Some also have CD databases as shown below:

Internet	15
DELNET	10
NICNET	9
SIRNET	5
ERNET	4
CD databases	10

4 DATABASE PROFILE

There are large number of databases, mostly in science, available on line. In house databases are also other important databases available to the readers.

The updation of databases is very important. The table of data base profile covers database name, subject covered & time span. It also covers updation.

The databases in the table cover various subjects. The number of databases in various subject fields are given below:

TABLE 1B: SUBJECTS COVERED IN THE DATABASES

1	Science & Technology	7	6.	Social Science	2
2	Agriculture	4	7.	Bio Information	2
3	Information	3	8.	Commerce & Industry	2
4	Medical	3	9.	Others	19
5	Water	2	10.	Total	44

TABLE 2: SOFTWARE PROFILE

S No.	Institute	Software Platform	Operating System	Software Development	Networking Platform (WAN)	Average log in time	International Database connection	Mode of Accessing
1	Associated Chambers of Commerce and Industry of India (Association), 17, Parliament Street, New Delhi–1	CDS/ISIS 3.0	MS-DOS	Imported	Internet	depends	Internet	Online
2	Bio Informatics Centre Jawaharlal Nehru University New Delhi	GCG 8.1 UNIX	OSF/UMS,	Imported	-	-	Gene Bank	Offline
3	Bio Informatics Centre, (IARI), Pusa, New Delhi–12	VMS Fortrom, MS-Windows, CDS/ISIS	UNIX, MS-DOS	Imported	NICNET	depends	AGRIS (GUEST)	Online
4	Bureau of Indian Standards 9, Bahadur Shah Zafar Marg, New Delhi–2	COBOL CDS/ISIS	AS-V MS-DOS	In House developed	-	-	-	-
5	Central Water Commission Library & Inf. Bureau West Block, Wing 7, R.K. Puram, New Delhi–66	CDS/ISIS	MS-DOS	Imported	-	-	-	-

Contd.

Contd.

S No.	Institute	Software Platform	Operating System	Software Development	Networking Platform (WAN)	Average log in time	International Database connection	Mode of Accessing
6	Council of Scientific & Anusandhan Bhavan, Rafi Marg, New Delhi-1	dBase III+ dustrial Research,	MS-DOS	In House developed	DELNET, Internet, SIRNET	-	Internet	Onlinle
7	Dayal Singh Evening College, Lodi Road, New Delhi-3	Foxpro 2.0	MS-DOS	In House developed	-	-	-	-
8 a	Defence Scientific Information and Documentation Centre (DESIDOC), Metcalfe House, New Delhi-54	CDS/ISIS	MS-DOS	Imported	SIRNET Internet DELNET	Immediate	Internet	Online
b	DESIDOC, New Delhi-54	COBOL	SCO Xenix	In House developed	SERNET Internet	-	Internet	Online
9	Delhi Library Network (DELNET), 40, Max Muler Marg, New Delhi	LIBRIS, TECHLIBplus	UNIX	Imported	RENNIC, ERNET, Internet, DELNET	depends	Internet	Online
10	Department of Environment, Paryavaran Bhavan, CGO Complex, Lodi Road, New Delhi-3	dBase III+	MS-DOS	In House developed	-	-	INFOTERRA	Offline

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S No.	Institute	Software Platform	Operating System	Software Development	Networking Platform (WAN)	Average log in time	International Database connection	Mode of Accessing
11 a	Department of Science & Technology, National Management Information System, Technology Bhavan, New Delhi–1	dBase III+	MS-DOS	In House developed	SIRNET Internet	Immediate	Internet	Online
b	DST, NMIS, New Delhi–1	dBase III+ & C language	MS-DOS	In House developed	SIRNET Internet	Immediate	Internet	Online
c	DST, NMIS, New Delhi–1	dBase III+ & C language	MS-DOS	In House developed	SIRNET, Internet	Immediate	Internet	Online
12	Directorate General of Health Service, NLM, Ansari Nagar, Ring Road, New Delhi–29	CDS/ISIS	MS/DOS	Imported	-	-	-	-
13	Distributed Information Sub Centre, Beuito Juare Road, New Delhi–21	CDS/ISIS 3.1	MS-DOS	Imported	NICNET	depends	-	-
14	District Rehabilitation Centre, IPH Complex, 4, Vishnu Digamber Marg, New Delhi–2	dBase-III +	MS-DOS	In House developed	-	-	-	-

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S No.	Institute	Software Platform	Operating System	Software Development	Networking Platform (WAN)	Average log in time	International Database connection	Mode of Accessing
15	ICMR-NIC Centre for Biomedical Information A-Block, CGO Complex, Lodi Road, New Delhi–3	CDS/ISIS ORACLE	MS/DOS XENIX	Imported Imported	Internet	Immediate	Medlars of NLM USA Internet	Online
16	Indian Agricultural Research Institute, Library, Pusa, New Delhi–12	CDS/ISIS 3.0 & 3.07, Libsys 2.0, Xenix	MS-DOS, UNIX	Imported	DELNET, NICNET, Internet	Minimum	CARIS	CD-ROM On-line
17	Indian Agricultural Statistics Research Institute, Library Avenue, New Delhi–12	CDS/ISIS, dBase III+	MS-DOS	Imported In House developed	Internet NICNET		Internet	Online
18 a	Indian Council of Agri-cultural Research, Agricultural Research Information Centre, Krishi Anusandhan Bhavan, Pusa, New Delhi–12	CDS/ISIS (2.3)	MS-DOS	Imported	NICNET Internet	With in 30 min.	CARIS (Current Agriculture Research Inf. System of FAO), Internet	CD-ROM On-line
b	ICAR, ARIC, New Delhi–12	CDS/ISIS (2.3)	MS-DOS	Imported	NICNET Internet	With in 30 min.	AGRIS of FAO (International Inf. System for Agril. Sciences and Technology)	CD-ROM On-line

Contd.

Contd.

S No.	Institute	Software Platform	Operating System	Software Development	Networking Platform (WAN)	Average log in time	International Database connection	Mode of Accessing
19	Indian Institute of Mass Communication, Aruna Asaf Ali Road, New Delhi	Libsys Ver. 3	MS-DOS UNIX	Imported	DELNET	-	-	-
20	Indian Institute of Technology, New Delhi–16	LIS (In C Language)	UNIX	In House developed	Internet	depends	Internet	On-line
21 a	Indian National Scientific Documentation Centre (INSDOC), 14, Satsang Vihar Marg, New Delhi–67	CDS/ISIS	MS-DOS	Improted	SIRNET Internet NICNET	Immediate	Internet	On-line
b	INSDOC, New Delhi– 67	CDS/ISIS	MS-DOS	Imported	SIRNET Internet	depends	Internet	On-line
c	INSDOC, New Delhi - 67	UNIFY	UNIX	-	SIRNET Internet	depends	Internet	Online
				-	SIRNET Internet	depends	Dilog, STM International ESA-IRS, ECHO & EASYNET	Online CD-ROM
22	Indian Statistical Institute, Institutional Area, New Delhi	CDS/ISIS 3.7	MS-DOS	Imported	-	-	-	-

Contd.

Contd.

S No.	Institute	Software Platform	Operating System	Software Development	Networking Platform (WAN)	Average log in time	International Database connection	Mode of Accessing
23	Minerals & Metals Trading Corporation of India Ltd., Scope Complex, New Delhi-3	CDS/ISIS	MS-DOS	Imported	-	-	-	-
24	National Council for Cement & Building (NCCBM), M-10, South Extension-II, New Delhi-49	CDS/ISIS and XENIX (Indigenously)	MS-DOS/ UNIX	Imported/ In House developed	SIRNET	One Hour	-	-
25	National Informatics Centre, CGO Complex, Lodi Road, New Delhi-3	Libsys, TECHLIBplus	UNIX	Imported	NICNET Internet	Immediate	Internet	Online
26	National Council of Education, Research and Training, New Delhi-16	CDS/ISIS 3.0	MS-DOS	Imported	DELNET	-	-	-
27	National Institute of Immunology, Shahid Jeet Singh Marg, New Delhi-67	CDS/ISIS 3.0	MS-DOS	Imported	-	-	-	-
28	National Institute of Public Finance and Policy, 18/2, Satsang Vihar Marg, Institutional Area, New Delhi-67	CDS/ISIS 3.07	MS-DOS	Imported	-	-	-	-

Contd.

Contd.

S No.	Institute	Software Platform	Operating System	Software Development	Networking Platform (WAN)	Average log in time	International Database connection	Mode of Accessing
29	National Medical Library Ansari Nagar, Ring Road, New Delhi–29	Libsys Ver.2	UNIX	Imported	Internet	-	Internet	Online
30	National Physical Laboratory, Dr.K.S.Krishnan Road New Delhi–12	dBase/Fox Base	MS-DOS	In House developed	DELNET SIRNET	10 minutes	CD- Databases	CD-ROM
31	National Social Science Documentation Centre, ICSSR, 35, Firozshah Road, New Delhi	dBase III+	MS-DOS	Inhouse developed	DELNET, NICNET	30 min.	CD Database, POPLIN, SSI, ERIC etc.	CD-ROM
32	Planning Commission Yojana Bhavan, New Delhi	Libsys	UNIX	Imported	DELNET	20 minutes	-	-
33 a	Publication & Information Directorate (PID), CSIR, Hill Side Road, New Delhi–12	MINISIS	-	Imported	-	-	-	-
b	PID, New Delhi–12	MINISIS	-	Imported	-	-	Asian and Pacific Information Network on Medicinal Aromatic Plants (APINMAP)	Off line CD-ROM

Contd.

Contd.

S No.	Institute	Software Platform	Operating System	Software Development	Networking Platform (WAN)	Average log in time	International Database connection	Mode of Accessing
34 a	Tata Energy Research Institute, 7, Jor Bagh, New Delhi-3	CDS/ISIS, SCI-MAT	MS-DOS	Imported	Internet	depends	Internet	On-line
b	TERI, New Delhi–3	CDS/ISIS, SCI-MAT	MS-DOS	Imported	Internet	depends	Internet	On-line
c	TERI, New Delhi–3	CDS/ISIS, SCI-MAT	MS-DOS	Imported	Internet	depends	Internet	On-line
35	Water Technology Centre (IARI), Pusa, New Delhi–12	dBaseIII+, Lotus, Graphics	MS-DOS	In House developed Imported	NICNET	-	-	-

The table also shows that most of the databases cover science subjects. Table 3 shows that most of the databases do not have retrospective conversion. Columns: 'starting year' & 'time span' shows that in most cases it is same. There is no retrospective conversion. In 35 institutes, 44 databases have been prepared of these only 13 have done retrospective conversion. But time covered for retrospective conversion also varies.

Total databases	44
No Retrospective Conversion	30
Retrospective Conversion	14
1–5 Years	3
6–10 Years	3
11–more Years	8

Only 8 covers 11 or more years, 3 each covers 6–10 years & 1–5 years as shown in this table.

Regular updation of databases is also very essential. The table shows that out of 44 databases 12 are updated daily, 1 each weekly and fortnightly, 16 monthly and 4 each bimonthly and quarterly. The monthly, Bimonthly and Quarterly updation is adopted by more than 50 per cent of the databases in the study which is too great time. As far as possible data updation should not be delayed.

5 Document Profile

The document profile covers document indexed, classification schemes adopted, cataloguing/indexing method, searching method, annual growth rate and total numbers of records.

Most of the libraries includes books, journals, proceedings, reports, articals in their databases. The classification scheme adapted by various institutes are given below:

Scheme	Number
UDC	11
DDC	7
Coding	5
Others	6
Not available	15
Total	44

For indexing purposes 9 libraries use ACCR 2 while 7 use CCF. Other schemes are used by 12 libraries, 7 libraries did not provide information.

TABLE 3: DATABASE PROFILE

S No.	Institute	Database Name	Subject Covered	Starting Year	Time Span	Updation
1	Associated Chambers of Commerce and Industry of India (Association). 17, Parliament Street, New Delhi–1	ASSOCHAM	All Subjects related to Commerce and Industry	1993	1993	Daily
2	Bio Informatics Centre Jawaharlal Nehru University New Delhi	Gene Bank, EMBL	Gene, Molecular Biology	1980	1980	Quarterly
3	Bio Informatics Centre, (IARI) Pusa, New Delhi–12	Crop Productivity, AGRIS, AGRICOLA CAB, Biotech Abstract etc.	Crops: Rice, Wheat, Jowat, Bajara, Soybean, Pulses, Gram, Linseed, Oilseeds, Potato, Banana etc.	1988	1970	
4	Bureau of Indian Standards 9, Bahadur Shah Zafar Marg New Delhi–2	MANAKSANDAR-BHIKA	Standards	1981	1981	Monthly
5	Central Water Commission Library & Inf. Bureau West Block, Wing 7 R.K. Puram, New Delhi–66	ABS, CWC, Books, JRNL	Engineering, Applied Sciences, Water Resources, Civil Engineering, River Engineering, Earthquake, Irrigation, Power, Dams, Basin Planning, Geotechnical, Engineering, Hydro-electronic Engineering and Flood Forecasting.	1985	1985	Monthly

Contd.

Contd.

S No.	Institute	Database Name	Subject Covered	Starting Year	Time Span	Updation
6	Council of Scientific & Industrial Research, Anusandhan Bhavan, Rafi Marg, New Delhi–1	CSIR, ACCRG, Standard Labtreas etc.	S & T Policy, R&D Management, Technology Management, Technology Transfer Biotechnology, Environment, Chemical Technology, Computer Science etc.	1987	1987	Daily
7	Dayal Singh Evening College, Lodi Road, New Delhi–3	ELBD	All Subjects taught in the College	1991	1980	Weekly
8 a	Defence Scientific Information and Documentation Centre (DESIDOC), Metcalfe House, New Delhi–54	DRDO-Translation Bank-DRDO-TB	Military Science & Technology, Applied Sciences, Engineering, Electronics and Computers etc. (database contains bibliographic details of English translated documents done at DESIDOC)	1982	1982	Biomonthly
b	Defence Scientific Information and Documentation Centre (DESIDOCO0, Metcalfe House, New Delhi–54	DRDO ONLINE CATALOGUE-OC	Military Science & Technology, Applied Sciences, Engineering, Electronics and Computers etc. (database contains documents related to Defence oriented R & D work in the DRDO Laboratories and Establishments).	1980	1980	Fortnightly

Contd.

Contd.

S No.	Institute	Database Name	Subject Covered	Starting Year	Time Span	Updation
9	Delhi Library Network (DELNET) 40, Max Mueller Marg, New Delhi–3	Union Catalogue of books,	All the subjects of libraries of DELNET member. (Science & Technology, Social Science, Humanities, general etc.)	1988	1988	Daily
		Union list of current periodicals.	Current periodicals of DELNET member.			
		Indian specialist database.	Specialists in Science & Technology and Social Science etc.			
10	Department of Environment Paryavaran Bhavan, CGO Complex, Lodi Road,	Environmental Information System - ENVIS	Environmental, Air, Water, Noise, Pollution Ecology, Health, Toxocilogy, Energy and Environment.	1984	1984	Quarterly
11 a	Department of Science & Technology, National Management Information System, Technology Bhavan, New Delhi–1	Equipment Database	Contains data relating to Scientific Equipments under DST Grands Imported equipment costing Rs. 5 lakhs and Rs 1 lakh and above if indigenous are included.	1980	1980	
b	Department of Science & Technology, National Management Information System, Technology Bhavan, New Delhi–1	Publication Database	Science & Technology (Provides access to Information on the Publications brought out by Scientific Departments/Agencies of Government of India)	1985	1985	Monthly

Contd.

Contd.

S No.	Institute	Database Name	Subject Covered	Starting Year	Time Span	Updation
c	Department of Science & Technology, National Management Information System, Technology Bhavan, New Delhi–1	Technology Database Other Database-S&T Information System, R&D Project Database etc.	Various Technologies, Project Profiles, Market Surveys if various Products in small and medium/ large scale Industries	1985	1985	Monthly
12	Directorate General of Health Service, NLM, Ansari Nagar, Ring Road, New Delhi–29	Acquired Immune Deficiency Syndrome (AIDS)	Medical Science, Primary Health Care, Health Planning and Administration	1989	1981	Monthly
13	Distributed Information Sub Centre, Beuito Juare Road, New Delhi–21	Lib, Thesis	Membrane biology, Delhi Univ., Ph.D. Thesis Liposome research	1993	1993	Monthly
14	District Rehabilitation Centre, IPH Complex, 4, Vishnu Digamber Marg, New Delhi–2	1. Organisations/ Institution for handicapped 2. Professionals working for handicapped. 3. Organisations receiving grants under various schemes of Ministry of Welfare.	Names and addresses of the Organisations/Institutes working for the handicapped, Category of disability deal with, Typer of Services provided.	1993	1993	Monthly

Contd.

Contd.

S No.	Institute	Database Name	Subject Covered	Starting Year	Time Span	Updation
15	ICMR-NIC Centre for Biomedical Information, A-Block, CGO Complex, Lodi Road, New Delhi–3	Medline, Biosis, Neurology, Cancer, Tuberculosis, Environmental, VET Bibliographic Database.	Bio Medical, Botany, Chemistry, Psychology, Environmental Sciences, Cancer, Tuberculosis, Veternary Science etc.	1986	1986	Monthly
16	Indian Agricultural Research Institute, Library, Pusa, New Delhi–12	BK (Books & Bulletin) CI (Conference Proceedings) TH (Thesis), JR (Journals) CD-Database-CAB-SPECTROM Series, CAB Abstract FAO States	Agriculture, Animal Husbandary Fisheries, Agroforestry, Ag. Economics, Statistics, Extension, Education, Home Science.	1992	1980	Daily
17	Indian Agricultural Statistics Research Institute, Library Avenue, New Delhi–12	Thesis, IASRI	Agricultural Statistics, Computer Applications, Agricultural Economics, Sample Survey.	1995	1965	Monthly
18 a	Indian Council of Agricultural Research, Agricultural Research Information Centre, Krishi Anusandhan Bhavan, Pusa, New Delhi–12	Current Research Project Information System - CRPIS	Agriculture, Animal Husbandary, Fisheries, Agroforestry, Ag. Economics, Statistics, Extension, Education, Home Science.	1985	1967	Monthly

Contd.

Contd.

S No.	Institute	Database Name	Subject Covered	Starting Year	Time Span	Updation
b	Indian Council of Agricultural Research, ARIC Pusa, New Delhi–12	Indian National Agricultural Bibliography, INAB	Agriculture, Animal Husbandary Fisheries, Agroforestry, Ag. Economics, Statistics, Extension, Education,	1980	1975	Monthly
19	Indian Institute of Mass Communication, Aruna Asaf Ali Road, New Delhi	Mass Communication	Advertising, Mass Media, Broadcasting Television, Satelite, Television, Politics in India & Abroad, Economic Affairs.	1991	1991	Daily
20	Indian Institute of Technology, New Delhi–16	Lib. & Inf. Services, ISS, CD-Compendex, INSPEC, Biotechnology Abstract etc.	Engineering, Humanities & Social Mathematics, Physics and Applied Mechanics.	1989	1984	Monthly
21 a	Indian National Scientific Documentation Centre (INSDOC) 14, Satsang Vihar Marg, New Delhi–67	Database of Conference, Proceedings	Science & Technology, Library & Information Science.	1980	1980	Monthly
b	Indian National Scientific Documentation Centre (INSDOC) 14, Satsang Vihar Marg, New Delhi–67	Directory of Indian Scientific & Technical Periodicals.	Indian Science & Technology Periodcals	-	-	-

Contd.

Contd.

S No.	Institute	Database Name	Subject Covered	Starting Year	Time Span	Updation
c	Indian National Scientific Documentation Centre (INSDOC) 14, Satsang Vihar Marg, New Delhi–67	National Union Catalogue of Scientific Serials in India (NUCCSI) Other - ISA DATA, DSRII DATA, CSIR Technologies, MAPA, Polymer Science, NIT etc. About 1500 Omtermational data bases.	Science & Technology, Market Demand/ Supply, Product development, World wide Export/Import Statistics, Patents, Standards Specifications, R&D Requirements etc.	-	-	-
22	Indian Statistical Institute, Institutional Area, New Delhi.	ISI	Inventary Central, Statistical subjects.	1994	1993	Daily
23	Minerals & Metals Trading Corporation of India Ltd., Scope Complex, New Delhi–3	Books Mast, Book Trans, Member Mast.	Economics, Management, Transport-ation Minerals, Metals, Encyclopedia, Fertilizer, Taxation, Export, Import, Policy, Indian Economy, UN Publica-tions and other trade related books.	1991	1963	Daily
24	National Council for Cement & Building Materials (NCCBM)	HCB Database	Cement, Concrete, Construction, Civil & Structural Engineering, Geology, Mining, Training, Computers etc.	1989	1989	Bimonthly

Contd.

Contd.

S No.	Institute	Database Name	Subject Covered	Starting Year	Time Span	Updation
	M-10, South Extension–II New Delhi–49					
25	National Informatics Centre CGO Complex, Lodi Road, New Delhi–3	Books, Journals	Computer, Information Technology, Software, Hardware etc.	1988	1988	Daily
26	National Council of Education, Research and Training New Delhi–16	Books Education,	Psychology, Reference books, relating to school subjects, Text books, Socio-economic data, Supplementary reading materials for school.	1993	1993	Daily
27	National Institute of Immunology, Shahid Jeet Singh Marg, New Delhi–67	K P Singh and Menu. Biotechnology Patents	Immunology, Biotechnology, Genetics Microbiology, Reproductive Biology, Vaccines, Pharmaceuticals & Cell Culture Hormones, Cancer.	1982	1982	Quarterly
28	National Institute of Public Finance and Policy, 18/2, Satsang Vihar Marg, Institutional Area, New Delhi–67	NICAT (Books) NLIS (Journal)	Public Finance, Policy, Economics etc.	1989	1984	Monthly
29	National Medical Library Ansari Nagar, Ring Road, New Delhi–29	NML Book Catalogue other CD datgabase:	Medical Science, Health Care, Medical Education and Allied Subjects.	1989	1989	Daily

Contd.

Contd.

S No.	Institute	Database Name	Subject Covered	Starting Year	Time Span	Updation
30	National Physical Laboratory, Dr. K.S. Krishan Road, New Delhi–12	Library, Acquisition Database - LAD, Journal, Subscription Kardex	Physical Science, Physics, Superconductivity & Cryogenics, Electronics, Solid State Physics, Instrumentation, Analytical Cehmistry, Radio & Space Physics, Electronics & Engg. materials.	1989	1988	Bimonthly
31	National Social Science Documentation Centre, (ICSSR), 35, Ferozshah Road, New Delhi	Research Project Report in NASSDOC CD - database in Social Science, POPLINE, ERIC	Social Science and other related subjects.	1989	1979	Daily
32	Planning Commission Library, Yojana Bhawan, New Delhi	LIBRARY Commission	All Subjects related to Planning	1988	1960	Daily
33 a	Publication & Information Directorate (PID) CSIR, Hill Side Road, New Delhi–12	Database on Indian Raw Materials Indian Origin.	All aspects of economic plants, minerals and animal products of	-	1948	-
b	Publication & Information Directorate (PID) CSIR, Hill Side Road, New Delhi–12	Medicinal & Aromatic Plants Abstracts - MAPA	World wide literature on all aspect medicinal and aromatic plants, Agronomy, Botany, Ethnomedicine, Uninical, Pharmacological, Antimycrobial, Phytochemical Studies and Utilisation.	-	1979	Bimonthly

Contd.

Contd.

S No.	Institute	Database Name	Subject Covered	Starting Year	Time Span	Updation
34 a	Tata Energy Research Institute, 7, Jor Bagh New Delhi–3	Abstract in selected Solar Energy Technology - ASSET	Solar, Hydrogen, Biomass and Geo-thermal Bio-conversion Wind Energy	1987	1987	Monthly
b	Tata Energy Research Institute, 7, Jor Bagh New Delhi–3	Global Warming Database - GLOBWARM	Global Warming & Climatic Changes	1989	1989	Monthly
c	Tata Energy Research Institute, 7, Jor Bagh New Delhi–3	Indian Energy Literature - INDEI	New and Renewable Sources of Energy, Indian Oriented Energy Information Energy Environment, Biotechnology Forestry, Biodiversity, Agriculture.	1985	1985	Quarterly
35	Water Technology Centre (IARI) New Delhi–12	Rainfall, Evapothans-piration	Water Management, Soil & Water Conservation Engg., Agronomy, Soil Science, Water Technology.	1978	1970	Not fixed

For searching purposes institutes may use different methods for different databases, if they have more than one database. In this study 9 institutes have developed more then one databases, 25 databases use boolian logic term while 10 use thesaurus.

Annual growth of databases is also very important which is shown in the table. A summary table has been prapared as given below which shows that only 11 have annual growth of more than 2000. Similarly 12 have growth less than 500. For other the databases annual growth ranges from 500–2000.

500 or less	12
500–1000	7
1000–1500	5
1500–2000	4
2000–above	11
Not available	5
Total	44

6 Service Profile

The ultimate purpose of database is to provide service to the clientels in their field of specialization. The number of users ranges between 20 to 200 in most cases. Only 4 databases have more than 200 clientels. 22 databases have less than 100 clientels. In 18 databases the number of clientels range between 100–200.

Upto 25	2
26–50	9
50–75	2
75–100	9
100–200	13
200–500	2
Not Available	7
Total	44

The response of service time is immediate or within a day in 14 database. It may take 1 week time in 12 databases. 11 have not responded to this question. 7 databases provide service in more than 1 week period.

In 12 databases the service is provided free to its members while in other 32 cases it is priced service.

The geographical spread of databases is international in case of 18 databases 17 have only National spread. 9 have local spread only.

7 Conclusion

1 The libraries are not able to convert retrospective bibliographic data due to lack of staff and funds.
2 The hardware updation is a major problem. Due to present set up, it is difficult to persuade to purchase newer hardwares. Though the scenario is changing but with less pace.
3 Software selection is not common in all libraries. Converting of databases from one software to another create problems.
4 Libraries do not use common operating system which also hinders work.
5 Most of the libraries do not interchange the data for one reason or the other. Though Delnet is in operation now, still more libraries need to be covered under network programmes.

8 Suggestions

1 Libraries must update hardware with high speed configuration for speedy work & data transmission.
2 Common and Standard Softwares should be adopted.
3 Retrospective conversion should be given priority.
4 The manpower training should be given utmost priority. The syllabi should change accordingly at the earliest.
5 Libraries must adopt common and multi user operating system.
6 Common classification & catalogue code should be adopted.
7 ILA, IASLIC, IFLA, FID should take steps for uniform pattern of bibliographic database management and networking.

TABLE 4: DOCUMENT PROFILE

S No.	Institute	Document Indexed	Classification Scheme	Cataloguing/ Indexing	Searching Method	Annual Growth	Total No. of Record
1	Associated Chambers of Commerce and Insutry of India (Association), 17, Parliament Street, New Delhi–1	Books, Monographs, Proceedings, Conference Papers, Research Reports, Patents	DDC	CCF/PRECIS	Boolean logic Thesaurus linked	300	2050
2	Bio Informatics Centre, Jawaharlal Nehru University, New Delhi	CD-Roms databases	-	-	-	5000	100000
3	Bio-Informatics Centre (IARI), Pusa, New Delhi –12	Research data from various ICAR Institutes	Coding	-	-	450	7500 80000 (Agris)
4	Bureau of Indian Standards 9, Bahadur Shah Zafar Marg, New Delhi–2	Standards	UDC	-	By Counting and Class	20,000	2,05,000
5	Central Water Commission, Library & Information Bureau, Proceedings etc., Journal R.K. Puram, New Delhi –66	Books, Journals, Research Reports, Monographs, Articles	UDC	Indexing by Uncontrolled term	Boolean logic term	1,00,000 West Block,	0,00,000 Wing 7,
6	Council of Scientific & Industrial Research , Anusandhan Bhavan, Rafi Marg, New Delhi–1	Books, Monograph, Journal Articles, Research Reports, Conference Proceedings, Policy Papers etc.	UDC	AACR-2/Sears list of Subject Heading	Thesaurus linked	1500	12000

Contd.

Contd.

S No.	Institute	Document Indexed	Classification Scheme	Cataloguing/ Indexing	Searching Method	Annual Growth	Total No. of Record
7	Dayal Singh Evening College, Lodi Road, New Delhi–3	Books	DDC	AACR-2	Boolean logic Term/Thesaurus linked	800	8000
8 a	Defence Scientific Information and Documentation Centre (DESIDOC). Metcalfe House, New Delhi - 54.	Books, Monographs, Proceedings, Theses, Journals, Journal Articles, Preprints, Conference Papers, Research Reports, Patents and Standards	-	Indexing by Controlled terms i.e. TEST Thesaurus of Engineering and Scientific Terms	Boolean logic Term, thesaures linked	350	6,000
b	DESIDOC, New Delhi - 54	Books, Monographs, Proceedings, Theses, Journals, Journal Articles Preprints, Conference Papers, Research Reports, Patents and Standards	UDC	Indexing by Controlled terms i.e. TEST Thesaurus of Engineering and Scientific Terms (ARCR.2)	Boolean logic Term, thesaurus linked	2500	35000
9	Delhi Library Network (DELNET) 40, Max Muller Marg, New Delhi	Books, Journalls, Indian specialists	-	By keyword	Boolean logic Term and Keywords	- -	168253 2064
10	Department of Environment Paryavaran Bhavan, CGO Complex, Lodhi Road, New Delhi–3	Journals, Journal Articles, Proceedings, Conference Papers and Research Reports.	-	Indexing by Author subject and Keywords	Boolean logic term	1200	11200

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S No.	Institute	Document Indexed	Classification Scheme	Cataloguing/ Indexing	Searching Method	Annual Growth	Total No. of Record
11 a	Department of Science & Technology, National Management Information System, Technology Bhavan, New Delhi–1	Equipments	Based on CSIO a Directory of Scientific Instruments and Components Manufactured in India-1985	-	Preidentify Keys	50	525
b	DST, New Delhi	Books, Brochures, Folders, Monographs, Proceedings, Conference Papers and Research Reports	Coding in based on Thesaurus of Scientific & Engineering Terms	Indexing is based on Keywords	Boolean logic Terms, Thesurus	400	4500
c	DST, New Delhi	Books, Journals, Research Reports and Patents	Coding in based on Thesaurus of Scientific & Engineering Terms	Indexing is based on Keywords	Preidentify Keywords	2000	20000
12	Directorate General of Health Service, NLM, Ansari Nagar, Ring Road, New Delhi–29	Monographs, Proceedings, Journals, Journal Articles, Research Reports and WHO Reports	DDC	MESH	By Keywords and Author	1500	10000
13	Distributed Information Sub Centre, Beuito Juare Road, New Delhi–21	Directory, Theses, Books, Journal Articles	Coding	-	Boolean logic Term	2000	10000

Contd.

Contd.

S No.	Institute	Document Indexed	Classification Scheme	Cataloguing/ Indexing	Searching Method	Annual Growth	Total No. of Record
14	District Rehabilitation Centre, IPH Complex, 4, Vishnu Digamber Marg, New Delhi–2	Organisations/Institutes addresses working for the Professionals addresses working for handicapped, handicapped, Organisations receiving grants under various Schemes of Ministry of Welfare	-	-	-	- - -	2000 3000 500
15	ICMR-NIC Centre for Biomedical Information, A-Block, CGO Complex, Lodi Road, New Delhi–3	Books, Monographs, Proceedings, Theses, Journals, Journal Articles, Preprints, Conference Papers and Research Reports	Subject analysis	MESH (Medical Subject Heading)	Boolean logic Term	2000	31000
16	Indian Agricultural Research Institute, Library, Pusa, New Delhi–12	Books, Monographs, Proceedings, Theses, Journal Articles, Conference Papers, Research Reports and Others	UDC	CCF	Boolean logic Term	4000	50000
17	Indian Agricultural Statistics Research Institute, Library Avenue, New Delhi–12	Books, Journal Articles, Theses, Statistical Reports & Tables	UDC	CCF	Boolean logic Term/Thesaurus linked	400	3500
18 a	Indian Council of Agricultural Research, Agricultural Research Information Centre, Krishi Anusandhan Bhavan, Pusa, New Delhi–12	Research Projects proposal/ Research Reports	AGRIS/ CARIS of FAO	Controlled Term	Boolean logic Term, Thesaurus linked	900	13500

Contd.

Contd.

S No.	Institute	Document Indexed	Classification Scheme	Cataloguing/ Indexing	Searching Method	Annual Growth	Total No. of Record
b	ICAR, ARIC, New Delhi	Books, Monographs, Proceedings, Theses, Journal Articles, Conference Papers, Research Reports and Others	AGRIS/ CARIS of FAO	Controlled Term	Boolean logic Term, Thesaurus linked	3500	75000
19	Indian Institute of Mass Communication, Aruna Asaf Ali Road, New Delhi	Books, Journal Articles, Conference Papers	CC	AACR-2	Boolean logic Term, Thesaurus linked	700	7000
20	Indian Institute of Technology, New Delhi–12	Books, Monographs, Proceedings, Journal Articles, Research Reports, Patents etc.	UDC	AACR-2 Term	Boolean logic	5000	105000
21 a	Indian National Scientific Documentation Centre (INSDOIC), 14, Satsang Vihar Marg, New Delhi - 67	Conference, Proceedings of National and International Conferences acquired by NSL	-	Controlled Term	Boolean logic Term	100	2100
b	INSDOC, New Delhi–67	Bibliographic details of Indian S & T Periodical	-	Controlled Term	Boolean logic Term	90	2080
c	INSDOC, New Delhi– 67	38000 Science & Technology Serials held on over 845 libraries all over India	-	Controlled Term	Boolean logic Term	26000	380000

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S No.	Institute	Document Indexed	Classification Scheme	Cataloguing/ Indexing	Searching Method	Annual Growth	Total No. of Record
22	Indian Statical Institute, Institutional Area, New Delhi	Books, Journal Articles, Research Reports	DDC	CCF	Boolean logic Term, Thesaurus linked	400	7500
23	Minerals & Metals Trading Corporation of India Ltd., Scopoc Complex, New Delhi–3	Books, Journal Articles, Research Reports	-	CCF	Boolean logic Term	500	23000
24	National Council for Cement & Building Materials (NCCBM) M-10, South Extension-II New Delhi–49	Books, Journal Articles, Conference papers	Indigenously developed	Controlled Term	Boolean logic Term	3100	65000
25	National Informatics Centre CGO Complex, Lodi Road, New Delhi–3	Books, Journals, Journal Articles, Proceedings etc.	UDC	MARC, ISO 2709	Boolean logic Term	1000	8000
26	National Council of Education Researchand Training New Delhi–16	Books, Monographs, Proceedings, Research Reports, Text books and Supplementary Reading Materials	DDC	CCF/PRECIS /LC	Boolean logic Term/Thesaurus linked	1000	2200
25	National Institute of Immunology, Shahid Jeet Singh Marg, New Delhi–67	Books, Proceedings, Journal Articles, Research Reports, Patents, Biotechnology Abstract	UDC Coding	AACR-2	Boolean logic Term, Thesaurus linked	500 400	5500 4200

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S No.	Institute	Document Indexed	Classification Scheme	Cataloguing/ Indexing	Searching Method	Annual Growth	Total No. of Record
28	National Institute of Public Finance and Policy, 18/2, Satsang Vihar Marg, Institutional Area, New Delhi–67	Books, Monographs, Proceedings, Journal Articles Research Reports, Patents etc.	DDC	AACR-2	Boolean logic Term Thesaurus linked	1000 3500	6500 32000
29	National Medical Library, Ansari Nagar, Ring Road, New Delhi–29	Books, Journals, Journal Articles, Monographs, Research Reports etc.	DDC	AACR2/MESH (Medical Subject Heading)	Booleam logic term	2000	12000
30	National Physical Laboratory, Dr. K.S. Krishnan Road, New Delhi–12	Books, Monograph, Proceedings, Journal Articles, Conference Papers, Research Reports, Patents etc.	UDC	CCF	Boolean logic Term	500	4500
31	National Social Science Documentation Centre (ICSSR) 35, Firoj Shah Road, New Delhi	Research Reports	Coding	AACR-2, LC subject heading	Subject heading by keywords	-	2500
32	Planning Commission Library, Yojana Bhavan, New Delhi	Books, Proceedings, Journal Articles, Conference Papers, Research Reports	UDC	CCF	Boolean logic Term, OPAC	10000	150000
33 a	Publication & Information Directorate (PID), CSIR, Hill Side Road, New Delhi–12	1000 Journals, Books, Conference Proceedings Patents	-	57 Botanical advances and common names	End user direct	12000	560000

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S No.	Institute	Document Indexed	Classification Scheme	Cataloguing/ Indexing	Searching Method	Annual Growth	Total No. of Record
b	PID, New Delhi–12	750 Journals, Books, Reports, Patents and other relevant material	-	-	-	4000	55000
34 a	Tata Energy Research Institute, 7, Jor Bagh, New Delhi - 3	Books, Monographs, Proceedings, Theses, Journals, Journal Articles, Pre-prints, Conference papers and Research Reports.	-	Controlled Term	Boolean logic Term, Thesaurus linked	800	6500
b	TERI, New Delhi–3	Books, Monographs Proceedings, Theses Journals, Journal Articles, Pre-prints, Conference papers and Research Reports.	-	Controlled Term	Boolean logic Term, Thesaurus linked	250	2050
c	TERI, New Delhi–3	Books, Monographs, Proceedings, Theses Journals, Journal Articles, Pre-prints, Conference papers and Research Reports.	-	Controlled Term	Boolean logic Term, Thesaurus linked	400	4000
		Books, Monographs, Proceedings, Theses Journals, Journal Articles, Pre-prints, Conference papers and Research Reports.	-	Controlled Term	Boolean logic Term, Thesaurus linked	600	2800

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S. No.	Institute	Document Indexed	Classification Scheme	Cataloguing/ Indexing	Searching Method	Annual Growth	Total No. of Record
35.	Water Technology Centre (IARI), New Delhi-12	Boks, Journal Articles, Weather data, Statistics	Coding	AACR-2	By Keywords	-	-

TABLE 5: SERVICE PROFILE

S No.	Institute	Service Product	Service Rendered	Orientation	Geographical Spread	Clints Study	User Time	Response
1	Associated Chambers of Commerce and Industry of India (Association), 17, Parliament Street, New Delhi–1	Reference Service, E-mail, Fax	Free	Business & Industry	International	25	-	One hour
2	Bio Informatics Centre Jawaharlal Nehru University, New Delhi	Reference Service, E-mail, CAS/SDI, Fax, Floppy	Priced	Research	International	20	Regular	-
3	Bio Informatics Centre, (IARI), Pusa, New Delhi–12	E-mail, Fax, Online search through NICNET	Priced	Research	International	40	Regular	-
4	Bureau of Indian Standards 9, Bahadur Shah Zafar Marg, New Delhi - 2	Print Products, Bibliography on specific subjects is monthly bulletin Standards Worldower Monthly Additions	Priced	Research & Industry	International	30	No	-
5	Central Water Commission Library & AInf. Bureau, West Block, Wing-7, R.K. Puram, New Delhi–66	Print Product, Bibliographic Services	Free Priced	Research	National	75	Irregular	-
6	Council of Scientific & Industrial Research, Anusandhan Bhavan, Rafi Marg, New Delhi–1	Reference Service, CAS/SDI on demand	Priced	Research	International	35	Regular	Immediate

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S No.	Institute	Service Product	Service Rendered	Orientation	Geographical Spread	Clints Study	User Time	Response
7	Dayal Singh Evening Colloege, Lodi Road, New Delhi–3	Reference Service, E-mail	Free	Education	Local	100	Regular	Immediate
8 a	Defence Scientific Information and Documentation Centre (DESIDOC), Metacalfe House, New Delhi–54	Print Product is TRANS-INDEX (Annual)	Free Priced	Research	International	200 (Resticted DRDO Scientist)	Irregular	One week
b	DESIDOC, New Delhi–54	Print Products are Accession List and Catalogue Centres, Online Products are display of Catalogue Cards (AACR-II) on Screen, Subject Bibliographics Reference Service, Photocopy, CAS/SDI	Free Priced	Research	International	200 (Resticted DRDO Scientist)	Irregular	One week
9	Delhi Library Network, (DELNET), 40, Max Mueller Marg, New Delhi	E-mail, Online services, Inter Library Loan, Training Programmes, Referal Service, Access to National & International Database through National Informatics Centre. Resource sharing etc.	Priced	Networking	National	-	-	Depends
10	Department of Environment Paryavaran Bhavan, CGO Complex, Lodi Road, New Delhi–3	Print Product is Paryavaran Abstracts	Priced	Research & Industry	International	-	No	One week

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S No.	Institute	Service Product	Service Rendered	Orientation	Geographical Spread	Clints Study	User Time	Response
11 a	Department of Science & Technology, National Management Information System, Technology Bhavan, New Delhi–1	Equipment Information	Free	Research	National	-	No	Minimum
b	DST, New Delhi–1	Print Product is Directory of Publications	Free	Research	National	100	No	Minimum
c	DST, New Delhi–1	Print Products	Free	Industry	National	100	No	Minimum
12	Directorate General of Health Service, NLM, Ansari Nagar, Ring Road, New Delhi–29	Print Products. Chetna (CAS), Priced AIDS DOC (Documentation on AIDS)		-	International	40	-	One day
13	Distributed Information Sub Centre, Beuito Juare Road, New Delhi–1	Reference Service, E-mail, Fax	Priced	Research	Local	40/	Irregular	-
14	District Rehabilitation Centre, IPH Complex, 4, Vishnu Digamber Marg, New Delhi–2	Directory Publishes	Free	Welfare	National	-	-	-
15	ICMR-NIC Centre for Biomedical Information A-Block, CGO Complex, Lodi Road, New Delhi–3	Print Products, Reference Service, CAS/SDI, Fax, E-mail, Floppy	Priced	Research	National	100	-	2 hours

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S No.	Institute	Service Product	Service Rendered	Orientation	Geographical Spread	Clints Study	User Time	Response
16	Indian Agricultural Research Institute. Library, Pusa, New Delhi–12	Reference Service, E-mail, Print Product, Photocopy, CAS	Priced	Research	National	300	Irregular	One week
17	Indian Agricultural Statistics Research Institute, Library Avenue, New Delhi–12	Reference Service, E-mail, Floppy based, CAS/SDI	Priced	Research	National	50	Regular	3 days
18 a	Indian Council of Agricultural Research, Agricultural Research Information Centre, Krishi Anusandhan Bhavan, Pusa, New Delhi–12	Floppy, Online Products are Directories	Free (Registered users)	Research	National	200	Irregular	One month
b	ICAR, ARIC, New Delhi–12	Online Products are AGRIS, Print Products AGRIMDEX, Floppy	Free (Reg. users)	Research	National	200	Irregular	One month
19	Indian Institute of Mass Communication, Aruna Asaf Ali Road, New Delhi	Reference Service, E-mail, CAS/SDI	Free	Research	National	200	Irregular	One week
20	Indian Institute of Technology, New Delhi–16	Reference Service, E-mail, Audio Visual Conference, Photocopy	Priced	Research & Industry	Local	500	No	Minimum

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S No.	Institute	Service Product	Service Rendered	Orientation	Geographical Spread	Clints Study	User Time	Response
21 a	Indian National Scientific Documentation Centre (INSDOC), 14, Satsang Vihar Marg, New Delhi–67	Bibliometric Services, Reference Service, E-mail of SIRNET, Document Copy Supply CAPS (Contents, Abstract and Photocopies Service), Assignment of ISSN, Reprography, Access to Indigenous databases of INSDOC, Translation from 18 foreign languages, Global Information Within hours, Training on Inf. Science and Comp. App. in Lib. and Information Activities etc. CAS/SDI	Priced	Research, Business & Industry	International	-	-	Depends
b	INSDOC, New Delhi–67	- do -	- do -	- do -	- do -	-	-	Depends
c	INSDOC, New Delhi–67	- do -	- do -	- do -	- do -	-	-	Depends
22	Indian Statistical Institute, Institutional Area, New Delhi	Reference Service, E-mail, CAS/SDI, Fax, Floppy based, Photocopy	Priced	Research	Local	150	Regular	One week
23	Minerals & Metals Trading Corporation of India Ltd., Scope Complex, New Delhi–3	Reference Service, Photocopy Service	Priced	Business	Local	60	Irregular	-

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S No.	Institute	Service Product	Service Rendered	Orientation	Geographical Spread	Clints Study	User Time	Response
24	National Council for Cement & Building Materials, (NCCBM) M-10, South Extension-II New Delhi–12	Reference Service, Photocopy File Server is linked through LAN for access of main database	Free Restri-ted	Research & Industry	International	150	-	-
25	National Informatics Centre, CGO Complex, Lodi Road, New Delhi–3	Reference Service, E-mail, CAS/SDI, Floppy Product, Print Product	Priced	Education	International	100	Regular	-
26	National Council of Edun., Research and Training New Delhi–16	Reference Service, E-mail, CAS/SDI	Priced	Education	Local	200	No	One week
27	National Institute of Immunology, Shahid Jeet Singh Marg, New Delhi–67	Reference, Service, Floppy, Patent Awareness Services, Patent Procedures and Directory of Keywords	Free (Restric-ted)	Research	Local International	100	Regular	One week
28	National Institute of Public Finance and Policy, 18/2, Satsang Vihar Marg, Institutional Area, New Delhi–67	Reference Service, E-mail, CAS/SDI	Priced	Research	National	40	No	-
29	National Medical Library, Ansari Nagar, Ring Road, New Delhi–29	Print Product, Reference Service	Priced	Research	National	-	No	One week

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S No.	Institute	Service Product	Service Rendered	Orientation	Geographical Spread	Clints Study	User Time	Response
30	National Physical Laboratory, Dr K.S. Krishnan Road, New Delhi–12	Reference Service, E-mail, CAS/SDI, Floppy, Print Products are Current Journal lists and Acquistion Processing Reports.	Free (Restricted	Research & Development	International	90	Regular	Minimum
31	National Social Science Documentation Centre (ICSSR), 35 Firozshah Road, New Delhi	Reference service, E-mail, CAS Floppy based etc.		Priced	Research	Inter--national	-	Depends
32	Planning Commission Library, Yojanaw Bhavan, New Delhi	Reference Service, CAS/SDI, Online Product	Priced	Planning	Local	40	Regular	Minimum
33 a	Publication & Information Directorate (*PID*), CSIR, Hill Side Road, New Delhi–12	Bibliographic Services, Reference Services	Priced	Publication	National	100	No	One week
b	PID, New Delhi–12	Medicinal & Aromatic Plants Abstracts, Floppy/Disk based	Priced	Publication	International	150	No	One week
34 a	Tata Energy Research Institute, 7, Jor Bagh, New Delhi–3	Print Products are Energy Abstract, ASSET, Reference Service, E-mail, CAS/SDI Photocopy etc.	Priced	Research & Industry	International	300	-	Minimum

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S No.	Institute	Service Product	Service Rendered	Orientation	Geographical Spread	Clints Study	User Time	Response
b	TERI, New Delhi–3	Print Products are Energy Abstract, ASSET, Reference Service, E-mail, CAS/SDI Photocopy etc.	Priced	Research & Industry	National	200	-	Minimum
c	TERI, New Delhi–3	Print Products are Energy Abstract, ASSET, Reference Service, E-mail, CAS/SDI Photocopy etc.	Priced	Research & Industry	National	300	-	Minimum
35	Water Technology Centre, (IARI), Pusa, New Delhi - 12	Restricted only for Scientists Weather data	Free (Restri-cted users)	Research	Local	50	-	-

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Impact of IT on Library Services

S L SANGAM AND GANGA BYADAGI

ABSTRACT

This paper describes the Impact of Information Technology on Library services and products. It starts with basic concept of IT, its meaning, definitions, developments and dimensions. Identifies its need in the Libraries. Discusses its impact on library services and products. States the importance of Library Automation, its advantages and limitations.

1 INTRODUCTION

The information technology as a combination of computer and telecommunications techniques which makes possible new systems and products to help people at work, in education, and at home. It is thus, all about the application of a wide variety of electronic technologies to the information handling activities that are central to the operation of any organisation. Today we are living in an information society. Information has become the lifeblood of complex industrial societies and is growing in importance day by day. Rapid changes in technology and communication have raised the need for acquiring new skills and knowledge in present day work environment. Therefore, we are experiencing now what may be termed as the 'push of technology' and its impact on information handling. When we look back the notable achievements of this century, we can identify certain landmarks, which became the passwords of respective periods. Telecommunication and computers are the two such buzzwords of the 20th century. The advent of computers,

the advancement in telecommunication and storage and display technologies have opened up new possibilities in dealing with problems arising from collecting, organizing and disseminating a vast amount of information which is the result of information explosion.

The primary impact of IT is that it enables the management to have better access to information wherever it is available. This helps them to take right decisions at the most appropriate time. The IT also implies the management to be fair and frank with the employees because they too can have access to information. It has helped countries to overcome the spatio-temporal barriers. Countries are becoming closer resulting in the globalisation of various phenomena. This paper restricts to problems and prospects of adoption, application and updating of IT in modernising the library services and products.

2 Information Technology

The term IT is recent and comprehensive term. The term 'Information Technology' in English, 'Informatique' in French and 'informatika' in Russian encompass the notation of information handling. In its strictest sense, IT is a new science of collecting, storing, processing and transmitting information.[1]

The word 'Information Technology' is a combination of two words. One is 'Information' and the other is 'Technology'. Information means knowledge, it can be a bit or a para or a page. In addition, dictionary definition of technology is the systematic application of scientific and other organized knowledge, skills to practical tasks by the use of computers and communication.

IT is a generic term used to denote all activities connected with computer based processing, storage and transfer of information. The word 'documentation' and 'information science' are considered synonymous to IT. It includes computers, electronic media, satellite, telecommunications and reprography. Therefore IT is convergence of computers, telecommunication and information. IT is tools and applications support through which or by means of which information is transferred, recorded, edited, stored, manipulated and disseminated to distances. IT is science of information handling, particularly using computers to support the communication of knowledge in technical, economic and social fields. Thus IT is various means of obtaining, storing and transferring information, using computers, telecommunication and microelectronic. It could affect society, organizations and people in ways other than making jobs more interesting in improving productivity, etc.

IT can be regarded as a major economic factor in the development of post-industrial society: the production and sale of IT goods have revitalized some sections of economy and to a small extent, replaced some of the losses, brought about by the decline in manufacturing. IT is also an enabling technology. Since it can contribute to economic growth and development by reducing costs, improving and/or extending services, strengthening competitive advantages.

In short IT is the use of computing power: typified by the ability of machines to contain and handle very large amounts of information within comparatively small physical space coupled with ability to extend these reasons apparently indefinitely through a variety of communication devices.

3 Development of Information Technology

The postindustrial period has brought considerable advances and innovations in technology. Because of this, many new interdisciplinary fields have emerged. Information technology is one of them. IT means application of various technologies such as computer, telecommunications, fiber optics, lasers, reprographics and micrographics for effective information handling.[2]

One has been in the techniques used to record and store data, another has been in the techniques used to analyse data, and third has been in the techniques used to communicate information. Today there is convergence of these technologies and much modern equipment carries out all three tasks. So we tend to forget that the techniques used to communicate information in past were entirely traditional. One can consider the development of technology for recording and storing data, for analyzing and then communicating. All three have gone through well-defined stages of development.

3.1 The Technology of Recording and Storing Data

The development of this technology has been determined by the storage media used at various times in history.

(a) Clay Tablets
(b) Paper
(c) Punched Cards
(d) Electronic Media

During Babylonian civilization (3000–1000 BC) man used to record his transcriptions laws and other information on clay tablets which had

many limitations. After the ages paper was invented by Egyptians, manufactured from the leaves of rushes and it was light in weight. The medium was followed by paper and ink, which was invented most probably in AD 105.

Paper provided better and durable writing medium than the earlier fragile ones. The other most important landmark in the history of recorded knowledge was the invention of movable type by Gutenberg in AD 1438. These developments were originally based on manual methods, on mechanical methods, and in more recent times on electromechanical methods. Manual devices are still widely used in the office and they form part of today's IT. Mechanical methods are based on machines that have moving parts but which are not powered by electricity. eg Mechanical printing press, Typewriter. In recent times electronic motors have been applied to office machines, further increasing the speed of data recording and processing. These were expensive, bulky not noisy and were a development of earlier mechanical calculating machines.

The next major development in recording media was punched card in 19th century and stored data as a pattern of holes punched in a card. Each card holds one record, which might be the record of a sales transaction, a purchase transaction or stores record etc. This equipment was very large and very expensive.

After computer came on the scene in 1940s, resembled punched card equipment in its size and cost, and to some extent in the way it worked. Computers were first used commercially in the mid-1950s but their size and cost put them out of the reach of all but the largest organizations. It was not until the introduction of chips in 1960s that the computers became smaller, cheaper and more reliable and available to a wider range of business. Computerization of various library housekeeping systems has led to offering of additional services and functions. Within an organization, it has significant impact on communication and cooperation between branches and departments eliminating duplication in record creation, filing and storage and makes it easier to establish and monitor responsibility for specific record management.

Afterwards the documents were produced in reduced form i.e. Microform due to their more storage capacity. Microfilm, Microfiche, Microcard, Micro print card were used to store the information, which were in the form of documents.

Now optical or laser discs are used for storing video images and can hold digital data by converting to analog data i.e., CD-ROM. It provides a new medium for the mass production and distribution of information.

3.2 The technology of Analyzing Data

After recording the data, analyzing data, both are calculating and comparing. Calculation means primary adding, subtracting, multiplying and dividing. Comparing means determining whether one item or data is greater than or less than another and it is often carried out with a view to storing data into order.

Main development took place when Abacus was used in Ancient Greece and in Egypt. In 1600s, mechanical calculator came into light invented by Blaise Pascal (1646) tended to invent slide rule etc. Charles Babbage in 19th century designed punched card to enter and store data. He called it analytical engine, Electronic computers have improved generation to generation and micro-miniaturization was involved packing miniature components. Now computers are used in wide range for analyzing any type of data used in all fields of life.

3.3 The Technology of Communicating Data

In earlier days, any message or news was communicated to any place with the help of messenger. Messenger was used to collect the message and message was passed on to the address. This system gave birth for postal service. Postal service was made available to communicate for longer distances. In due course telephone was established and used to transfer the information from one place to other. Telephone system grew in rapid pace that intercontinental communication was made possible. Now the optical fiber is used for clear and disturbance-free communication. Satellite communication is possible in these days.

The convergence of computers and telecommunications improved the technology by means of communicating, data storage and data transfer. Electronic Mail, electronic journal, Videotext, Teletext, Fax document delivery, On-line search and networking are made possible due to new facilities for rapid and cheap transmission of information.

With the help of Videotext, Teletext, Electronic mail and Fax, the whole world is turned to be global village. Thus, the use of telecommunications in conjunction with the computers has made it possible to process information and to transmit to any location instantaneously.

4 Need for Information Technology

There has been an explosive growth in the volume of information lending to the emergence of information society. Because of knowledge explosion, users have been confronted with the problems of searching and retrieving the required information in right time.

The storage and maintenance of huge information on paper documents have become extremely costly, time consuming and labour intensive. Printing itself is one of the costliest options was available for disseminating information.

Organized information well communicated has a great value. Communication is the soul of information. However, the communication process of information has become very difficult because of the factor like complicated nature of information, scattering of information, location of information and the geographical and language barriers along with the information explosion. However, the present society, which requires pinpointed, exhaustive and expeditious information at the right time to the right person, exerts great pressure on the information centers. Therefore, to keep the pace with the information explosion and information society information centers have to use the modern technologies.

Use of technology provides better needs of transmission of data or messages in the form of written or records, electronic, audio or video signals by using wires, cables and telecommunication-techniques. Technology plays a vital role in information handling due to developments such as reduction in computing time, capabilities of resource sharing, use of TV as ready-made information screen, telecommunication and satellite communication facilities etc.

The need for excellence in the management of current information service had never been more urgent that it is today, with the exponential growth of information a vast change had come in the role and responsibility of the librarians to manage information dissemination. Due to rising cost and proliferation technology and science, continuous efforts are required at all levels to keep their professional knowledge up to date, the present day librarians have to keep themselves well informed about contemporary progress made in the field of information technology within and outside the country.

If IT is not going to be used, then society becomes handicapped, because the socio-economic development of a nation depends upon the availability of adequate infrastructure to access the modern information, which is essential ingredient in day today decision making process, necessary for some of the following reasons.

- Advantages like speed, accuracy and reliability in the process of information due to introduction of IT.
- The vast published literature in keeping abreast of the know-how and the development of IT.
- Due to escalation of prices of periodicals and books, no library can afford to acquire all the publications. This necessitates an active

resource sharing among libraries. This is successful only through networking. To participate in the network, computerization of libraries is a prerequisite. For this reason also, the librarians are tending towards involvement in IT.

- Literature in almost all the fields is increasing tremendously in multidimensional way. It is posing a major problem to have bibliographic control on the basis of manual operations. This is only possible through computer application.
- Information seeking behavior of the users is also changing. To cater the needs of the users storage capacities of information as well as retrieval techniques should be applied to supply them with modern information.
- Making the right information available to the right person at the right time, in the right form at the right cost, in the right place, to take the right action is the aim of any modern library service.

Along with these needs the following additional reasons for the need of IT are as follows:

- Availability of the information in machine-readable form.
- Multi-use of machine-readable records.
- Need to provide better service, on wider scale by adopting on-line storage & retrieval techniques.
- A machine-readable bibliographic data can be used by many users for any number of times for various purposes.
- IT offers a new dimension to share resources among the libraries by creating library networks.
- Space problem can be solved by using microform facilities.

5 Essential requirements of IT

For the effective functioning of libraries, the following requisites are essential in respect of IT.

- Sufficient funds for the establishment of Computer systems and purchase of CD-ROM etc.
- Manpower development to attend to IT.
- Motivation of manpower to adjust to the changing environments.
- Net working facilities and co-operation with other libraries and databases.
- User education programs to be designed to educate the user about computerized databases, on-line searches, user friendly systems.

6 Impact of Information Technology on Libraries

In the every walk of our day today life we are finding the use of technologies and libraries are not exception for that. The single force that has brought revolutionary changes in functioning of libraries is IT. The introduction and application of these modern means have elevated and modern day library to a very high pedestal, improving and altering its image, functions and service to revolutionary extent and with great efficiency and effectiveness.

IT had virtually immense potential for a variety of applications in libraries. IT helps libraries in creating databases of their collections and making them available for easy access to users inside as well as outside through networks.

IT enables libraries to provide most efficient and specialized information services. It has been fairly established that efficient information support and effective communication in an organization are closely associated with high performance, productivity and innovation.

Computers can be used in performing most of the repetitive works of library in a desired number of times speedily and economically without fatigue and wastage of time.

Most of the operations within library are inter-related, inter dependent and mutually supportive for the overall mission of library. Use of IT applications to interface and integrate each function with the other saves lot of staff time as the same data used not be entered at every stage.

The IT is applied in four ways in libraries,

1 Library Automation.
2 Information storage and Retrieval.
3 Office Automation.
4 Resource sharing network.

6.1 Library Automation

Automation has helped libraries improving library operations and accelerating their working. Now the computers are being used in the areas like acquisition, technical processing, circulation control and serial control.

The computer acquisition system has eased the burden for reorder checking of duplicate purchase orders and follow-up action can also taken automatically. IT has speeded up the accession, processing work by elimination a large amount of repetative and time-consuming work. Machine-readable cataloguing is easy to manipulate as it can be searched on-line and from which varieties of outputs are available. On-line bibliographic databases have significant effect on collection development.

The lengthy and time consumable procedures of conventional circulation system are taken by the technological devices like computers, barcode scanners and its software helps in performing these operations quickly and easily and thus saving the time of users and staff. IT helps in charging and discharging of documents, reservation of documents, sending reminders, collection of overdue, maintenance of various records.

Computers help in periodical subscription and subsequent monitoring of the receipts of individual issues. It helps in maintaining record of budget sanctioned and amount expended for different categories of serials.

In the process of ILL service, IT has influenced very much. By using the modern IT devices like Computers, Fax, E-mail, etc. the LICs can easily search the on-line public access catalogues (OPAC) of other libraries for a particular document and sends the requests for ILL and get the document in a short time.

Reference service is influenced by the IT than any other services of the library and ICs. The new IT has reduced the response time for reference query. The major reference sources are readily available in Optical Discs as well as On-line databases.

6.2 Information Storage and Retrieval

After quite acquisition and processing of documents through computerized system, the focus is to retrieve and disseminate the required information. On line information retrieval is one of the speediest and the most effective means of getting the required information. The main advantages of using online information retrieval are;

- Specific queries with reference to information requirement can be searched with great speed.
- A large volume of information can be searched rapidly and accurately.
- It is possible to search databases to which the Library Information Center does not subscribe. This is of great advantage as very few Libraries/Information Centers have the financial resources to have all the databases they need, which are very costly.
- Many searches easily done on online would be extremely difficult to do manually.
- One can search and get the required information online in a matter of minutes what would take perhaps many hours or days by the manual method.

Off-line: Use of computers made it possible to produce retrospective bibliographic indexes on various subjects and project profiles, when such data was available in cumulative form for some year and possible to review the historical development of any subject in a few seconds.

6.3 Office Automation

Computers in the form of word processors can be utilized effectively for office automation. Word processor makes typing, storing and editing jobs easier. Electronic mailing can reduce lot of effort in office work.

The application of computers in the library also enables to reduce time wasted on non-productive routine work and to improve the quality of the work. Every library and information center now considers the speed and efficiency as a major criterion of better functioning of its information retrieval system for fast dissemination of information to its users.

6.4 Resource Sharing Networks

The libraries are also using computers for resource sharing. It can be a part of local library network or part of large joint program, now widely known as 'Resource Sharing Networks'. Libraries having computerized their working and services can be linked with each other through a suitable telecommunication network system. The system enables the participating library to obtain material from each others collection in the form of list of books, indexes and abstracts of required article, facsimile copies of required pages or documents, charts, figures, graphs, drawings by using computer terminals attached to a large or very large network system and data bases coupled with visual display units (VDUs) and attached with printing facility. Information can be scanned first on the screen, and if required, relevant information can be obtained in the print out form.

IT facilitates the Library and information centers in providing the Literature Search Service by searching various information sources in print or non print form within the library, outside the library or at national or international level, in a short time with accuracy. CAS and SDI services have become easy and it can be provided without causing any delay by using the new IT.

Thus, IT is showing its impact on the time, accuracy, efficiency and effectiveness of the various library and information services. Due to advantages of IT devices, it has become inevitable to adopt such technologies by the LICs.

7 Advantages of Information Technology

A variety of advantages can be derived by the appropriate use of IT. IT advantages can refer to anything useful produced with the assistance of technology which allows to complete more tasks with greater accuracy and better quality in less time and for lower costs. It could be higher productivity, better quality or it might be less tangible like ensuring users to have better image of the library, improved response time or improving staff morale and motivation. In certain nature of jobs, hours of manual work are possible for completion within minutes through IT. Perhaps, there may not be any area of operation or service where you cannot apply IT and get benefits in the following ways.

- IT helps to avoid duplication of effort and work in library operations
- IT facilitates cooperation and resource sharing through library networks.
- IT helps to introduce new services and improve existing services.
- IT allows integration of various library operations.
- IT executes repetitive nature of works.
- IT facilitates faster information communication.
- IT helps to increase the quality and range of services.
- IT increases morale and motivation of library staff.
- IT facilitates easy and wider access to all kinds of information sources.
- IT helps to increase efficiency and effectiveness in library operations.
- IT ultimately helps to save time, space, energy and resources.
- IT helps to improve productivity and image of the library.

8 Limitations of IT

While computers can be found in most large libraries or many small ones, traditional library operations have not been substantially altered. The speed, manner and success with which libraries will utilize new systems are uncertain and depend on solutions to operational and philosophical problems. Some of the factors responsible for lopsided applications of new IT can be summed up as:[3]

Attitude: Librarians reacted negatively to any system, which altered the existing order of Library. Librarians attitude about new technology use requires re-examination and reformation for the successful application of technologies.

Economic: Financial constraints, which prevent librarians from thinking about new emerging demands of users, are real particularly for third world countries.

User Charges: The introduction of modern technology on-line bibliographic information retrieval systems and their associated out of pocket cost has raised the issue of user fee.

Lack of Trained Staff: In countries of like India, there is distinct lack of trained staff to handle the new systems. It definitely hampers the utilization of modern means to great extent.

9 Conclusion

As the above discussion suggests, information technology is to play an important role in the work of the society and library and information centers. The success of a library depends to a large extent, on the effective organization of the house keeping activities. Automated library system offers convenient more flexible and comprehensive storage and retrieval of information than manual system. Future libraries need to adopt a more particularly structure, as impact of information technology can not be contained within one section of its service. In the years ahead, the quality of library and information service will be largely determined by librarians skills and imagination bringing into balance the needs, priorities, technology and funding. Growing information coupled with the changing life styles and demands of clienteles offers a wide array of challenges to libraries.

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Information Marketing and Consultancy Services in the 21st Century

SHOBHA SHARMA

ABSTRACT

Narrates the explosion of knowledge and role of libraries in shaping its Nation. Describes importance of information marketing in 21st century. Emphasizes on sale of products i.e., bibliography, indexing, abstracting etc., Discusses how information centres are working in India. Shows essential features of an information Retrieval System and Marketing of Information. Concludes with few suggestions to be done as a coherent whole in the correct dialectical process.

1 INTRODUCTION

In this rapidly changing, highly interdependent and fiercely competitive world, the libraries are going to play a dominating role and we have to accept its challenges and ride with the wave. Like many other countries and regions of the world, India is also experiencing profound change in its scientific, industrial and cultural life as a result of the computer and related information technologies.

The former Union Education Minister KC Pant proposed changes in education policy for taking the country into 21st century. It includes the goals of universalisation of education and the removal of illiteracy, the development of scientific temper and responsibilities towards technological changes. Libraries are the social institutions. Their growth is interconnected with the political, educational and economic changes in the society. The state of libraries in a country reflects status of its cultural attainment in relation to other developed and developing nations.

The most important asset in a developing society are its human resources as a whole. Reading of good books certainly stimulates the development of intellectual resources. Here comes the role of libraries in making available the recorded knowledge/information to the members of society for their intellectual development and human progress. Human existence has been synonymous and similar to the process of evaluation and march on the path of progress.

The shockwaves of industrial revolution changed human lives and the course of history, as profoundly as the agricultural revolution which held sway for nearly 300 years, is now pulsating the seed of a new civilisation aptly described as the information society. Since Independence, India has had a solid stock record of proven scientific – achievement in several areas.

The concept of marketing information service came into existence in the United States hardly twenty five years ago because it is looked upon these days as a very popular profession in which a good portion of working population is engaged. This profession has been considered in this 21st century as an important profession like any other established profession i.e. medicine etc. This concept became popular in European countries too. To meet the growing demands, the offices of important services like indexes, data bases, abstracts etc. all are located in the United States.

India became the world's sixth nation of having manufactured its own indigenously built satellite and use the same for dissemination of information.

Nowadays, India is more than self sufficient in food production. It has also managed to develop information technology. It is being pushed forward by a well organised and ambitious body of scientists, technicians, industrialists and supporting staff who are firmly intending to establish the country as a major force in the region and prepare it for 21st century. The libraries are passing through an exciting phase of transformation under the impact of information technology.

The machine readable databases, online retrieval, microforms, amazing storage capacities of CD-Rom disks, etc. are some of the key contributions which have had their impact on library services. The impact of information technology in libraries and information centres is not very encouraging in India so far. The services provided by the libraries especially in the universities and colleges are of traditional type. Library services does not mean only circulation or reference service. What is actually needed is that current awareness service, SDI service, contents page service, translation service, bibliographical service etc. should be

provided by the library to the faculty members and researchers. Moreover, the library services in India should be user-oriented.

This change gives new ways to store information in forms of magnetic storage, microforms, video-disk, new facilities for rapid transmission over long distances and new capacities for manipulation of data on computers.

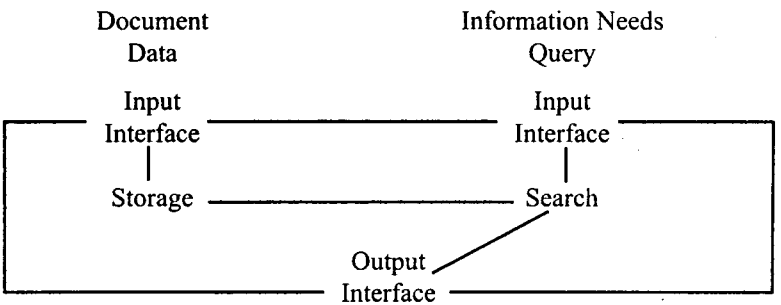
It is very clear that information technology has a great impact on libraries. Lancaster had predicted 'we are already close to the day in which great science library could exists in a space less than 10 feet square'. Marketing is a major force for any society. Philip Kotler, a well-known marketing scholar and writer defines marketing as 'that human activity directed at satisfying needs and wants through exchange processes'.

Marketing of information in some Indian universities, colleges and other organization is in a very sorry state. Peter Drucker writes 'the aim of marketing is to make selling superfluous'.

Marketing can understand customer's needs, its services can satisfy user's needs and helps in development of information and communication flow. It delivers dissemination of services and after sale gives satisfaction to the users. So knowledge is sold by this process to its customers i.e. users.

A new style of library functioning is therefore perceived. All library functions are performed on computers, the card catalogues replaced by database, more retrieval from line services, greater clientele, better effective and efficient services, there will be a total face lifting. In the coming years there is likely to be a more demanding and much more knowledgeable body of users. They would be more conscious.

The information retrieval deals with the representation, storage, organisation and accessing of information item. The main features of computerised information retrieval system are shown in figure as under:



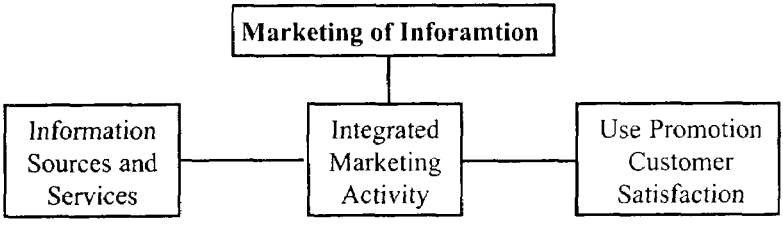
Retrieval Information

2 Essential features of an Information Retrieval System

Computer networking is coming to the aid of librarians as well as users. They have to provide information on how to use collections by tape recordings and voice synthesizers. It seems that stacks and issue counters will be handled by robots, the use of computers in some scientific and technical libraries of some organisations such as BHEL, INSDOC, BARC, DRTC, NAL, SENDOC, NISSAT, SAIL, ONGC, TISCO, UGC etc. has made a big impact in information transfer and document delivery system in India.

But Enright is correct in his saying that how little attention has been devoted to the library by those interested in educational technology, possibly stemming from a concentration on teaching and failure to appreciate the role of the libraries in relation to learning.

Marketing of information is s set of activity undertaken by information sector by which information sources and services are channeled to the potential users, thereby maximizing the utilization of the existing sources and information and also user satisfaction. Just like other consumer products, information has to be marketed as explained by the diagram given as under:



Today, users in library need dimensional information. So, persons in library should have specialisations. Users needs should be assessed by asking them to fill in the questionnaire, and on that basis library services like bibliographic, documentation, indexing and abstracting periodicals, etc. should be organized. Because the writers and users who may be scientists, technologists or social scientists taking interest in preparing abstracts need instructions about their preparations.

There is need in India to ponder over the following points by the administrators:

- It will be in the national interest to take up the development of libraries on priority basis in order to prevent the loss of human resources.

- Illiteracy should be totally eradicated by creating reading habits.
- Sufficient budget should be given for development of libraries like gigantic projects in national plan.
- In India there is lack of motivation in reading due to prevailing social, economic and psychological structure of traditional agrarian society.
- In spite of the life long efforts of Dr S R Ranganathan, the doyen of librarianship in India, uniform library laws could not be placed on statute book throughout the country.
- In urban and rural areas, libraries should be associated with continuing education and adult education programmes.
- The efficiency and competence of staff should be considered. They should be given proper facilities and environment for their work and development.
- Librarians should be given incentives, such as leave facilities to improve their academic and professional qualifications, to attend seminars (national-international), monetary fund for workshops, apprentice programmes for modern technology such as computers etc. and promotion facilities plus salaries at par with teaching community also. So the basis of the concept of profession in the changing context during 21st century must drill the concept of the responsibility for actively devising and planning, designing and creating, maintaining and managing, evaluating and adopting the information systems and services provided these contribute to client requirement In order to achieve this in 21st century in true sense, the universal goal of the profession should be : every user his/her information. As the library is turning into a multimedia resource and learning centre, it is essential to adopt strategies for marketing its information products and services.

All that needs to be done for 21st century is to have correct perspective about the proposed national education and library and information science to be viewed singly as well as a coherent whole in the correct dialectical process.

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Information Marketing in University Libraries in India: Problems and Perspectives

AMRITPAL KAUR

ABSTRACT

The paper emphasizes the need for adoption of marketing approach by the university libraries to augment their financial resources and exploit new information technology to provide better information support to the users. Discusses the marketing concept and its activities and how these activities can be successfully applied in the marketing of information in university libraries. Also throws light on the problems in implementing marketing concept to library and information services. Concludes that the marketing policy of the libraries needs careful planning, structuring, execution and evaluation with regular review.

1 INTRODUCTION

Marketing of information implies transference of information to the perspective or potential user/customer for a consideration. The marketing of information in the university libraries happens to be a recent phenomenon. Just as a mother while feeding a child has no ulterior consideration excepting that of the well being of the child, the same way, the UGC and state governments have been supporting the universities as their cradle children, the stimulation of research activity being their primary concern. But this enabled the university libraries to provide the required information support to the users in a half-hearted and non-specialized way which, in turn, made the gathering of information for the scholar rather intricate and cumbersome and often left him/her in a wilderness.

Just as mothers in the past had no specialized knowledge about child

care and inspite of all their earnestness, had to depend upon their common sense standards which often proved very deceptive, the university libraries depended uptil now upon common sense standards for the acquiring of information and the transference of the same to the users. Their efforts in this direction can at best be described as casual or immature as well as amateur. The result is that information services provided by the libraries have not proved very beneficial to the scholars. The libraries have failed to provide the required information support to the users because the services provided by them are often not user-oriented or need based. The reason for this sad state is that users are not involved in the design of services and they are not made aware of the potentialities of information services and how these services can benefit them in their pursuits. The result is that whatever services are available, remain either unutilized or underutilized. However, this state of affairs can be activated by adopting suitable marketing strategy.

2 The Marketing Concept

Marketing means working with markets to actualize potential exchanges for the purpose of satisfying human needs and wants.[1] It is the process of planning and executing the conception, pricing, promotion and distribution of goods, services and ideas to create exchanges with target groups that satisfy customers and organisational objectives.[2] This calls for various activities in marketing. These are:

- Market Research and Customers' Analysis
- Development of Products and Services
- Pricing
- Distribution
- Promotion
- Evaluation of Products and Services

All the above activities of marketing as applied to other industrial sectors are equally applicable in the area of information services and products. Whether it is for profit or non-profit sector, methods remain the same while the policy varies.

3 Information Marketing in University Libraries in India

The concept of information marketing can be said to be still in a state of infancy in university libraries. Factors which characterize the difficulties of information marketing are:

(a) Lack of proper assessment of requirements, wants and needs of the users.
(b) Casual approach in supplying information to the potential users;
(c) Lack of perception of how much information services and products can contribute to boost research and development activity,
(d) Lack of perception of the economic aspect of buying information on the part of the user of information.

In the university environment, it still sounds strange to think of information as a marketable commodity. In the university, the main objective is the growth of knowledge and stimulation of research while in a market, the main objective is profit making.

But to accelerate the pace of research and development, it looks imperative to find a confluence point of the academic and business approach to strike a balance between the two, so that the users can get the needy information for a payment and without wasting much of their precious time.

The following discussion focusses on how the market concept is applicable in the area of information services and products in university libraries.

3.1 Market Research and Users'/Customers' Analysis

Users of university libraries are becoming increasingly demanding these days. Now they expect a wide choice, speedy delivery, easy access and a range of services such as 'access to an Online Public Access Catalogue, electronic information systems—including both bibliographic and full text services and microfilming facilities as well as more comprehensive and sophisticated information services provided by subject specialists, such as current awareness, in-depth enquiry and research services, and information skills programmes'[3] besides the traditional ones. In response to users' demands and to support teaching and research programmes effectively, the university libraries are required to provide all these services. But before introducing any service, the libraries should have a much better understanding of users' needs and have closer liaison with them and a more proactive approach to identify the precise requirements of both groups and individuals, actual and potential users. For this, these have to undertake the programmes of market research. These programmes should be concentrated around the users/customers and their information

seeking behaviour. Users' study/users' need surveys should be conducted regularly to identify who the users/customers are, the services they want, their expectations from the library and the benefit they are seeking. All this will help in determining how well the needs and expectations of the users are met with by the existing products and services and how these can be met with more effectively by improving the existing ones or by developing the new ones.

3.2 Development of Products and Services

The products of the university libraries may range from books, periodicals to electronic documents and services from traditional ones like circulation, inter library loan, reference service to access to international databases, online searches and CD-ROM searches. Whatever the products and services of the library may be, these should be customer-oriented rather than product or service-oriented. The model of 'One-size fits all' has to be transformed into 'customized services' model.[4] While designing the new products and services or redesigning the old ones, the librarians must keep in mind the users and their informational requirements, the existing infrastructural facilities available for the creation of products and services, technology to be used, library's strengths and weaknesses in terms of resources, personnel and areas of specialist expertise.

3.3 Pricing

Pricing is one of the important aspect of marketing. It is in pricing area that libraries differ from industries. Whether the information services and products in university libraries should be priced or not is a debatable issue. There is still a widespread expectation that information services should be free. It is often argued that since university libraries are supported by the UGC, state governments, parent bodies, why should the end user be asked to pay?

But at present, the situation is fast changing. The privatization of education, budgetary cutbacks by the UGC and state governments, emphasis on accountability and self-sufficiency in relation to resources call forth the university libraries to generate their own resources and become indispensable sources of information and services.

Moreover, the university libraries, at present have to use highly sophisticated gadgets of modern technology such as word processors, computers and telecommunication networks for information generation,

processing and transmission and thereby acquire cost factor which is sometimes very high. The building of database itself is a very costly affair. Information, therefore, is no longer a free service if one wants instant, comprehensive, up-to-date and world-wide coverage of information.

Another plea for charging information products/services is that 'customers value what they pay for, and pay for what they value'.[5] One approach to charging information services, therefore, is to establish services as being of significant value to the customers. Some of the information services such as photocopying, microfilming, inter-library loan in university libraries are rendered for some fee and many of the libraries have also started charging for specialized services such as computerized literature searches, Internet browsing, e-mail e.g. British Council Library, New Delhi charges Rs 50/- per half an hour for browsing Internet and Rs 5/- per page for printing. Punjab University library charges Rs 24/- per hour for Internet browsing and Rs 2/- per incoming or outgoing message through e-mail (arrangement is through a private contractor) and the users do not mind paying for the services they value for their studies and research purposes. The results of the users' survey[6] conducted by the author also indicate that about 80 per cent of the users are willing to pay for the specialized services.

Now the question arises how much price a library should charge for the services. Should the motive be profit making or to realise only the actual cost? However, much depends upon the pricing policy adopted by the library. The pricing policy[7] may differ for various services and from segment to segment as under:

- Cost recovery, by which the libraries cover only budgeted costs
- Commercial pricing, when the libraries make a profit.
- Premium pricing, for a service which is in demand or of such high quality that the libraries are justified in asking customers to pay more.

3.4 Distribution

Distribution pertains to dissemination of information through various channels. Traditionally, the users have to come to the library personally to receive or use the information, but the advent of information technology in university libraries especially the computer, telecommunications and networking have altered the picture altogether. Now the users can have access to remote sources of information. Electronic Bulletin Boards and electronic documents offer new scope for distribution of information.

In university libraries, all the communication medias such as print, radio, television, computer, telecommunications, videos can be employed for distribution of information. However, the choice of channels of communication and information will depend on the receiver of information and the facilities available in the library. From marketing point of view, university libraries should go for computer based information storage and retrieval as it provides a better flexibility in access to information.

3.5 Promotion

Promotion involves mechanism by which the target groups are informed about the resources available, services and products offered by the library. It is essentially 'the library reaching out to its customers, the humanisation of the market plan.'[8] In university libraries, various methods can be used for promoting information services such as publicity through brochures, pamphlets, journals, guides, handbooks, public media, direct mail, demonstrations, exhibitions at conferences/seminars. Whatever method the library should adopt for publicizing the resources, it should give a consistent overall picture of the library, its positioning and what it offers.

These days electronic media can play an important role in promoting library services. Intranets in particular can be a valuable tool both for promotion and service delivery in university libraries. Newsletters, announcement of events or acquisitions as well as Current Awareness Bulletins can all be put on Intranet and full use of electronic media can reinforce library's positioning among the people who use and understand state of the art electronic resources. The libraries can have their own home-page on the Internet. This can be a very powerful tool in attracting customers.

User education is considered to be an important promotional method. User education programmes should be organized regularly to make the users aware of the services and products offered by the library.

Perhaps the most effective way which the libraries can adopt is through staff who should be courteous, efficient and possessing the necessary knowledge and skills to deliver the goods.

3.6 Evaluation of Products and Services

It is necessary to evaluate the effectiveness of the marketing programmes to decide the continuance/renovation/discontinuance of the products and

services. The effectiveness of the products and services must be evaluated in relation to organizations' objectives, internal strengths and weaknesses and customers' satisfaction and demand. If any product or service is in no longer in demand or is difficult to provide with the available resources or costs too much to maintain in a competitive market; then such product or service should be dropped. Dropping redundant product or service is as important as introducing new product or service to meet the demands of the customers/users. Regular users' surveys enable the university libraries to review how well each service matches with customers' needs and expectations and plan the action required to correct any discrepancies.

4 Conclusion

Market approach to information services and products is an endeavour to accelerate the services to provide the researchers and scholars with the required information support. The budget cutbacks and the advent of sophisticated technology in the university libraries have opened up the vistas for marketing information products and services. If the libraries fail to catchhold of the opportunities, the scene will be captured by the commercial vendors.

At present more than 90 per cent of the cost of products and services of the university libraries is met by the UGC and the respective state governments but these financial bodies are considering of withdrawing/curtailing financial support to the universities for they want the universities to generate their own resources. The libraries have to prepare themselves for meeting such an eventuality when the grant they get at this time would be withdrawn in toto or in part. Without sufficient financial support, the university libraries won't be in a position to exploit the new information technology for the benefit of the users and will be left with no alternative but to charge for the services they provide and at the same time, make their products and services more and more marketable. They must show the determination to act fast to meet any emerging situation and must also orientate the users to pay for the products and services they already provide or intend to provide in the near future.

The users, we know, do not mind paying for the services if they are useful and provided at reasonable cost. They already pay willingly for such services as reprography, microfilming, inter library loan, computerized literature searches, internet browsing and e-mail. They are now becoming more and more demanding. They now expect a wide choice, speedy delivery, easy access and a range of services. Therefore, the

marketing policy of the libraries needs 'careful planning, structuring, execution and evaluation with regular review'.[9]

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Information Marketing

D K SHARMA

ABSTRACT

First Dr S.R. Ranganathan helped books to come out of locked almirahs and furthering his efforts now in the era a liberalization it is our moral duty to liberalize the information from the information containers to the needy people.

In a era of changing environment where resources for the libraries are becoming scarce day by day, the concept of information marketing is the most important for library and information professionals.

1 INTRODUCTION

The escalating cost of library infrastructure, books and periodicals, rapid change in information technology and decreasing budgets are forcing the library and information centres to sell their products and services.

If we do cost-benefit analysis of libraries, we will find that most of the library resources are not utilized properly for one reason and other. On the other side most of the executive can not take quick and right decision due to lack of proper information and development in their subject and they waste lot of energy to gather single piece of information. If the library and information professionals take initiative to provide information to the needy people apart from their routine work, then they will not only earn income for their institutions but also help their profession and to themselves of doing creative work.

The information available in the library should not be confined to a particular organization. It should be made available to the needy people at the right time to make optimum use of it. Moreover, the information

not use at the right time becomes obsolete very soon. So as the custodian of such information it is our duty to help to free flow of information to the users.

The field of information marketing has tremendous opportunities. It is not possible for each and every industry and business organization to have its own information house because of high cost of periodicals, books of Indian and foreign authors and cost of recruiting trained professionals. But the traditional libraries can take care of such industries/ organizations by providing documentation lists , CAS and other services to the industry to keep them abreast about the latest development in their field and enable them to take right decision at the right time. They can also do studies or compile information for them which may provide necessary feed back for taking right decisions.

Due to rapid use of Internet information explosion is taking place. For every query, hundreds of references are produced and it is not possible for the executives to go through each and every article to find the right information but the library and information professionals who have expertise to identify and specify their needs more accurately and cogently can filter such information for use of the executives at nominal charges.

Special libraries can also provide consultancy services on their subjects. They can maintain database of particular industry and allow membership of their libraries to the industrialists and business organizations to consult database of the library. The libraries can also provide SDI services by opening folder for each industry and putting photocopies of publications and other relevant material as per the requirement of the organizations. Articles relevant to their industries can also be sent directly to the distant clients at their e-mail addresses. It will also help to save lot of foreign currency which individual industry spend on purchase of foreign periodicals and books and thus ultimately help to make optimum use of nation's resources besides earning money from such consultancy services.

The questions which now arises are:

(a) How to provide the information to the needy people ?
(b) How to identify the person who needs it ?
(c) Who will bear the cost of dissemination of such information ? and
(d) Whether the top management of libraries will allow marketing of such Information.

The information can be provided to the users by E-mail, fax, courier

services and telephone for which library will have to create data Dbase of information available in their libraries and from other sources and such data Dbases can be connected to the Internet. Obviously an information service can't be operated without a sound infrastructure, excellent collection, physical premises and the best information technology and none of this can happen nor be of any use without well trained, market oriented motivated staff. Since it will require lot of infrastructure and funds and therefore, the information cannot be provided to the users free of cost and ultimately the users will have to bear the cost.

As regards service to the poor people who can't afford to pay huge cost of information technology, it is suggested that provision of subsidy should be made for such users while fixing the price of the product/ services.

Library and information scientist should take initiative and prepare a project report which can be submitted to the top management to provide services of library resources to the institutions and industries in their fields. In this way they can earn extra revenue to face challenge of modern technology and can provide respect to their library and profession.

The essential elements of information marketing are:

(a) Identifying the needs of existing and prospective clients.
(b) Product/services
(c) Price
(d) Presentation/compilation
(f) Marketing
(g) Accuracy/efficiency

2 Identifying The Needs of Existing and Potential Clients

To find out the needs of the users the following methods can be applied depending on the nature of service.

- Personal interview of user
- Sending questionaire to the users
- Survey
- Conference
- Exhibition

3 Products/Services

The Library professional are already providing services such as CAS, SDI, compilation of bibliography, providing extracts of documents,

indexing, abstracting etc., to their users and are quite conversant with the techniques of it.

The traditional libraries are providing these services direct to the users in the form of photocopy or typed list of bibliography and are mostly sent to the distant users by post but when we think of marketing of these services then our clientele will be large and may be at distant places. To ensure effective distribution of such products or service we will have to supply information on floppy, CD-ROM, E-mail, etc., so that they can be used easily.

4 Accuracy/Efficiency

In order to have marketing edge over other competitors, information center will have to take care of accuracy and efficiency. The information not reached at right time will be of no use. Therefore, information center will have to adhere to the time frame stipulated by the client. The information center will also have to maintain a high quality and after sale service of the products.

5 Presentation/Compilation

Required information should be compiled and arranged in suitable manner. It should also be presented in a beautiful format. The covering page should have details of compiler, source of information and period upto which it has been covered.

6 Marketing

In all the above steps, library professional are already well versed and does not require much training but in field of marketing of information, they lack experience and skill. They need to be trained in this field.

Marketing requires presentation of the product and services to the prospective clientele. Marketing is different from selling. The marketing concept is customer oriented. It emphasizes on the satisfaction derived from selling rather than just selling a product. The focus should be on identifying and satisfying wants rather than on creating product and just selling them.

7 Role of Library Association/Research Center in Information Marketing

The library association can conduct seminars and conferences to make atmosphere for information marketing. They can also invite specialist of marketing to train the library professionals.

7.1 Advertising

The product should be advertised properly depending upon the clientele. Advertisement play a very vital role in success of launching of any product and service. If information about the launching a product/service does not reach to the prospective user then the very purpose of the product/service would be defeated. Advertising could be done through banners to the existing users but to attract new customers help of internet, electronic media, conference, exhibition etc. could be taken.

7.2 Promotion

The Customers should be persuaded to buy the product/service. They should be informed that how our knowledge of information resources and subject expertise can enhance their search for information. They should also be informed how we can identify and specify their needs more accurately and cogently.

7.3 Pricing

The term 'Price' means the exchange value of a product or services expressed in terms of money. The product/service should be priced suitably depending on competitive situation of the market. The price of the product should be such that the user should be able to pay willingly.

As the service of the library is so far being provided free of cost, therefore, it will be difficult to motivate people to pay for such services unless and until some new value is added to the product. In such a situation in the beginning cost based pricing could be taken and which can be increased gradually depending on the response of the users.

8 Corporate Body

Besides marketing the information from traditional libraries and information centres, the job could be taken by the combination of retired and young professionals on a large scale by forming a commercial firm or corporate body. Resources for which can be collected by issuing shares and debentures to the people.

Since it will be formed under the supervision of experienced library professional, therefore such firms will have edge over the other competitor in the market.

For once, we have the opportunity to be ahead in the game of information marketing, to shape our future instead of trying to play catch up.

If we don't act, we will not only witness the gradual decrease in the profession but will also see commercial firms entering into the library and information functions to fill the vacuum.

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Information Technology Based Services for Social Science Researchers in University Libraries

KAMLESH VINAYAK

ABSTRACT

States and analyses the role of university libraries in supporting research programme in selected disciplines of social sciences in universities. The importance of library resource-sharing, networking modernisation and application information technology based services have been highighted.

1 INTRODUCTION

Multidisciplinary and interdisciplinary research and consequent growth of knowledge have resulted into literature explosion and information explosion. This has created the need for relevant information as an essential input for research in general and social science research in particular in the universities in the country. Further, in rapidly changing economic situation a crucial problem facing librarians, who are supposed to provide relevant information, to researchers the generator of huge amount of information. The researcher cannot afford to waste his valuable time to scan through the literature to find required information. In this respect the library, therefore, has an important role to play in the acquisition, processing and dissemination of information to its users especially researchers. Hence, the demand for well developed and well organised libraries with IT based services has become a necessity.

This can only be done if the library is able to handle and disseminate information effectively. This depends to an extent on how efficiently and rapidly the university libraries are able to integrate new information technology methods and devices into the mainstream of library and information systems and services.

There are number of subfields within information technology which directly affect library and information services as computers, reprographics, micrographics and developments in storage media, telecommunications and audio-visual media. The use of computers and other gadgets of information technology have now greatly changed the face of libraries, information systems and services in the country. These are becoming popular with the libraries and information centres not only for housekeeping functions but also for recording, analysing and retrieving information, and also for their networking.

The use of reprograhics, micrographics and other media such as magnetic tapes, microforms and CD-ROMs have brought a radical change in publishing and library and information services. These developments are very useful in saving space and cost and represent a new era in information transfer. The libraries have realised the importance of audio-visual materials such as films, audio cassettes, video-cassettes and video-tapes in providing effective services to its users. Development in telecommunications have further provided immense potential for services to be rendered by the libraries and information centres in the country.

The role of the library can be defined within the framework of the university's mission and a library development programme can be taken up accordingly.

2 The Library Programme

Research activity constitutes one of the major function of a university. Most of the fundamental research is carried out in the universities. The researcher in the university for carrying out research programmes have to depend heavily on libraries which in turn have enhanced their importance in the university set up. New dimensions to their importance and vital role in research activities of their parent organisations have got more prominence because of the fact that in the present day world there has been a phenomenal growth in knowledge and literature in almost all disciplines of study. It has been, therefore, rightly said that a library in a university is "its heart and soul, directly so as regards to its research work, and indirectly as regards its educational work, which derives its life from research work. Training and research is mainly a question of learning how to use the tools and in the absence of tools no worthwhile research can be carried out. Scientific research needs a library as well as a laboratory while for research in the Humanities and social sciences, library serves the both, the library and laboratory in one.

With an increase in research activity at the university, institutional

and governmental level and subsequent demand for more and more information and the need for generation of information has gained considerable momentum which has resulted into the increase in research manpower. All these inputs into the research process have resulted into more and more demand and thus the system can be conceived as an unending spiral.

For physical facilities, library services and resources will be required. Again resources will be required for continuous maintenance and development, and for co-ordination and co-operation of library services within the university and with libraries and other information agencies outside at local level if not on national level.

3 Educational Function of The Library

The fundamental role of library is to provide support for teaching and research, it should serve as a dynamic instrument of education in encouraging students, researchers and faculty members, to use its trèasures of knowledge. In this context library use becomes method of teaching, librarian serves as a teacher in guiding the student in the ways of investigation and research and library activity serves as teaching and research needs of the faculty. The research programmes of the university include various research projects, working papers, research reports, articles in periodicals, chapters in books, books and monographs written by faculty members and dissertations which may be written for attainment of M.A., M.Phil. and Ph.D. degree which constitute a bulk of research output each year. Delhi University Library System and Jawahar Lal Nehru University's Library have been studied as a sample. The systematic up-to-date record of the research output except for dissertations and theses is not available with departments, schools and centres of the social science faculties of the two universities in all the subjects in social sciences. Further dissertations written by researchers working for M.A. and M.Phil. degree are undertaken with a view to learn research methodology. Hence, their demand on the libraries are of limited nature and are predictable, therefore, have not been included for citation study for this paper.

4 Objectives and Methodology of The Study

In order to find out the role of university library in supporting social science research a sample of Delhi University and JNU Libraries has been studied. Various aspects of library facilities and services including organisation, administration, collection adequacy, staff assistance and

other physical facilities provided to users were examined. Services rendered by these two libraries to the researchers and faculty members were identified. Role played by these libraries as guides, interpreters and information agencies in assisting social science research programme of their faculties was assessed.

Various methods of evaluating services and collection of library in relation to its role in the attainment of desired goals are in vogue. According to Peet (1982) "bibliographic references appearing in faculty publications be taken as indicators of those items added to a library's collections have received "research" use and those which have not be excluded. Different studies have applied different indicators to assess and evaluate collection usage. Cambell[3] applied three indicators, viz: (i) internal use (inhouse library use); (ii) citation analysis; and (iii) inter-library loan.

In order to achieve the objective set forth the indicators used are (i) In-house library use study, (ii) perceived use study, (iii) Photocopy record study, (iv) Citations study, and (v) Seeking users opinions through questionnaire and also through examining records to ensure the collection of maximum data necessary to satisfy all parameters, to help in empirical study of the library usage. The social science disciplines under study identified are history, economics, political science, and sociology in the two universities. In order to have the representative data of the population random sampling technique has been followed. A sizeable group of users, a total of 80% of which 325 (78.5%) in DU and 400 (75.8%) in JNU were considered of which 159 (38.8%) responses in DU and 198 (37.5%) responses in JNU were received, and have been analysed.

5 Data Analyses

5.1 Inhouse Library Use

Actually daily use was measured by examining the consultations made by the users within the library. During 1989 and 1990 six weeks period was spread over to different terms with a view to have a representative data. Whole day library use was observed in order to know the peak and slack hours of use. Periodicals left on the tables were considered as periodicals used. Frequency of each use of a particular periodical was recorded and rank list was prepared.

5.1.1 Findings

It has been found that 130 periodicals in DULS (all units of DULS taken together) were frequently used inside the library. Maximum number of

use recorded was 72 for *Economic and Political weekly* and maximum recorded use was to *Annals*. The rank number varied from 1 to 40 for 130 titles. Analysis revealed that 45 periodical titles satisfied 60.6% of the users needs. 27 periodical titles satisfied 34.1% of the users needs forming the first range of significant periodicals with 1213 number of uses made. Further second range of periodicals were used 1179 times satisfying the need of 33.3% user needs. Again periodicals ranging in the third group i.e. lesser used periodicals numbering 72 were used 1165 times, satisfying 32.8%, 45 periodicals were identified as they satisfied 50.6% of the total number of users. These are most useful titles which a university library must acquire.

Similarly 74 periodicals were identified as significant for users. Most heavily used titles in JNUL were 23 titles satisfying 51.40% of users needs. In the second range Group of periodicals frequently used 27 titles were identified which satisfied 37.3% of the users and again 24 titles satisfied 11.3% of the users in JNUL. First range titles are most significant periodicals which ought to be acquired by the library and incase budgetary provision permitted the second group of 27 titles and their back files be procured.

5.2 Inter-Library Loan

It is not possible for any single library to acquire each and every piece of information published even in a particular area of any discipline. It needs to borrow material from other libraries in order to meet the demands of its user community. Since social scientists depend more on books than periodicals, the importance of this kind of material becomes great. Bibliographical details of documents requested was recorded, 92 periodicals were borrowed from DUL and 126 periodicals were borrowed from JNUL during this period of one year. It has been observed that DUL has provision for inter-library loan system only within its various units, which restricts the researchers to whatever collection DULS and its unit have. Whereas in JNUL, books from other libraries in Delhi have been borrowed for users on demand.

5.3 Photocopying Records

The photocopying records maintained by the offices of the two university libraries viz., DUL and JNUL during the period 1980 to 1990 were examined and same were consolidated and journals were ranked by frequency of photocopy transactions. The data so collected gave a figure of 2602 photocopy requests made on DUL and 3342 requests made on

JNUL during 1980 to 1990. A ranked list of periodicals was analysed and weak areas of collection were identified and the extent of the researchers' dependence on their own library resources was examined.

5.3.1 Findings

The data collected on photocopy requests of periodicals in social sciences in DUL was analysed according to the year of publication of periodicals requested for photocopy. It was observed that total of 2,602 photocopy requests were made from 1911 to 1990. The breakup of requests for photocopy were between 1911 to 1960 were 169. During 1961 to 1970 the requests for photocopy made were 266 and during 1971 to 1980 the requests for photocopy made were 629 and between 1981 to 1985. The requests made by researchers for photocopy were 630 times and during 1986 to 1990 the requests made were 575.

In JNUL its was found that total number of requests for photocopy of periodicals were 3322 during the years between 1929 to 1990 of which the periodicals published between 1922 to 1960 were demanded 89. During 1961 to 1970, the requests were made 200. During 1971 to 1980 requests were made 619 and again the requests for periodicals made during 1981 to 1985 were 927. During 1986 to 1990 requests made for photocopy were 1487. The heavily used periodicals requested were 1487 which are considered to be significant for a university library.

5.4 Citation Analyse

Source materials examined: These were physically examined. All the footnotes, citations and bibliographies appended at the end of the these is were studied on 5" x 3" cards.

The quality of service provided and the users satisfaction depends a great deal on the kind of collection made available to them. But, the quality of collection is extremely difficult to define and measure. However, the most used method to measure the quality is the use frequency of citations to determine the most used item viz. books and periodicals to meet the requirements of the users in general and researchers in particular. The 'most used' items discovered are thus considered to be most valuable ones. Citations used in the thesis submitted and available in Social Science disciplines in Delhi University Library and JNUL were collected, analysed and compared. The significant periodical titles identified according to citations used are: *Proceedings of Indian History Congress*' with 284 citations count 'Studies in History', 'Journal of Economics' and 'Economic History and 'Social History of the orient',

'Mainstream', 'Economic History Review' are viewed by the users an significant for research use in JNUL, 'China Quarterly, Economic and Political weekly', Journal of Political Science, 'Past and Present', 'Journal of Political Science', 'Past and present', 'Journal of Asiatic Society', 'Asian Survey', 'Indian Historical review are other significant titles.

These were viewed as important by the users. In users views certain Journals which are significant and heavily cited as well as viewed by the researchers were not being subscribed by JNUL and DUL, e.g.. 'Teaching History', 'Studies in History' were not available in JNUL 'Indian Economic and Social History Review; and 'China Quarterly' were not subscribed by either of the libraries are few examples where users have to depend on other libraries.

In History out of 73 periodicals cited only 44 were being subscribed by DUL and 60 were available in JNUL Both the libraries are not adequate in their periodical collection on the basis of citation counts. It can help in getting speedy information to the researchers through networking and using internet facilities if provided by the University libraries.

62 titles as listed were checked with holding lists of the two university libraries under review. It has found that only 2 out of 62 i.e. 4.8% of the periodicals in Economics in DULS (RTL) and one title in JNUL constituting 1.6% of the titles were not being subscribed by JNUL indicating that the collection in DUL as well as in JNUL is strong. JNUL seems to be better equipped than DUL as far as periodical collection in Economics is concerned. In Political Science, the two variables viz citations use and user's views when compared, it was observed that 55 periodicals were identified as heavily used in Political Science in DUL and JNUL. However, All India Reporter' which has been cited very heavily in the thesis does not occupy any place in the rank list prepared on the basis of users' views. This means variables are independent from each other. 'Economic and Political weekly', Journal of Indian Law Institute', 'Indian Journals of Public Administration', 'Indian Journals of Political Science', 'Political Review', are few examples of heavily cited periodicals.

From the theses available with DUL, 41 periodicals have been identified as significant, 'All India Reporter', 'New Age weekly have been heavily cited in the these, in DUL ranked as first and second respectively not been cited in the theses in JNUL have also not been viewed as important by researchers in JNUL survey. 'Economic and Political weekly' has been ranked as no. 3 in DUL and first in JNUL. In DUL and JNUL it has been rated this at number 3 in DUL and number

one in JNUL by the users in their responsposes. 'Indian Journal of Public Administration' has been ranked as number 4 in DUL and number 3 in JNUL and according to users views has been rated as first in DUL and sixth in JNUL, 'Mainstream' has been ranked number 5 in DUL but it has not been cited nor has it been rated at any rank of importance by the users in JNUL. However, 27 periodical titles cited in DUL have not been cited in JNUL. 18 titles have been cited and viewed as important by users in both DUL and JNUL. 40 periodicals cited have not been rated as important by either of the users of the two university libraries in political science.

While analysing the data on periodicals cited in theses in Sociology in DUL and JNUL comparative rank list of significant periodicals identified on the basis of citations use and users' views revealed that 'Contributions to Indian sociology' has been viewed as number one by users in DUL as well as in JNUL and 'Economic and Political weekly' occupies first rank in citations in both the university libraries and second rank according to users' views in both university libraries is 'Social Research' which occupies equal rank, both in DULS and JNULs. According to users views 'Sociological Bulletin' occupies equal rank based on users' views and citations, in DULS. 'Social Scientists' and 'Social Research' occupy the same rank according to the 'Citations use and users' views in DULS. These periodicals are of significance and are useful for any university library to have.

It has been found that out of 71 periodicals cited in the theses and viewed by the users of sociology 18 titles in DULS and 9 titles in JNUL indicating that 25 percent of the requirements of the users in DULS and 12.5% in JNUL were not satisfied with the collection in Sociology. Over-all it can be said that in DULS and JNUL periodicals collection in Sociology is strong and is satisfying 75% in DULS and 87.5% in JNUL users' needs. Information Technology if introduced in these libraries would improve services and make them more effective.

5.5 Lending Service

Most frequently provided services by DUL and JNUL besides lending is inter-library loan which is extended to researchers and faculty members in JNUL but in DUL. The service is provided mainly to faculty members on demand.

5.5.1 Loan Record Data Analysed

That total number of Inter-library loan requests made in social sciences

by DUL was only 14 ranked as number one. Total number of titles requested were 43. Two of the titles were requested 14 times and 8 times respectively. 3 titles were requested three times and 5 titles were requested 5 times and 10 titles were requested only twice and 23 titles were requested only once. In all most all cases back files of periodicals were requested. All the 43 titles requested from other libraries can be considered as significant of which back files should be procured.

In JNUL total number of requests made in social sciences during 1980 - 1990 were 126 of which 24 were back-files of one title, 128, 6 requests were for four periodical title back-files, 12, 6, 8 requests were for four other periodicals. Requests made on inter-library loan for one periodical title and its back-files were 24 and 12 , 8 and 6 requests were made for four other periodicals. It was found that Inter-library loan facilities was mainly for periodicals in both the university libraries. The periodical in demand should be procured by the university library.

5.6 Reference Service

Reference section is a central point of a university library. Users in DUL and JNUL are not much satisfied with the services provided by these libraries, though the reference desk is there to help the researchers to locate sources in the library but no help is provided in locating or getting the information. Computers can be of a great help in information search if data is stored and other search facilities and available researchers by the library.

5.7 Bibliographical Services

Reference section is entrusted with the task of preparation of bibliographes, indexing, documentation lists, abstracts of relevant articles in current periodicals, etc. The data collected from the two university libraries reveals that at present these facilities are scarecely being provided in DUL and JNUL. Documentation list of 43 selected titles received in Ratan Tata Library and south Campus Library of DULS is brought out by their respective libraries arrivals in South Campus library and JNUL bring out a documentation list 'Suchika'. Current Awareness Service is not provided by these libraries. JNUL is bringing out a monthly bibliography 'DEVINSA'. JNUL acts as a focal point for development of SAARC Countries Cooperative Network for south East Asia and also brings out half yearly ~DEVINSA' abstract. But no such service is being provided by DUL.

6 Adequacy of Services Provided by DULS and JNUL

Most of the services provided are Reference Service in DULS satisfying 54% of the Users and 46% of the users are not satisfied. In JNUL 80.7% of the users are satisfied with reference service provided by the library.

Literature Search Service in DULS has been rated as poor, satisfying only the need of 19.5% of the users, 49% of the users were not even aware of is existence. However, in JNUL this service satisfies 49.9% of the users and 36% of the users were not even aware of this kind of service being provided by JNUL.

With regards bibliographical services in DULS 19.9% of the users have rated this service as good and in JNUL 39.2% of the users have rated this service as good.

7 Information Technology Applications

The researchers and the faculty members are more interested in retrospective searching and most of the materials available is machine readable data based abroad. On line/networks can be used for providing instant access to the information contained in the networks. This data is available through CD-ROM technology which can store volumes of data in one disc. It becomes imperative for university libraries to use latest techniques of information technology. Consideration of time factor and efficiency of services and adquancy of collection has to be on the top priority. On-line retrieval, CD-ROM data bases, microforms etc., are the answers. It is essential for any university library to organise efficient computerised databases and use of E-mail, telex or communication systems for transmission of information retrieval from the databases and creating efficient computer networking systems.

Besides physical facilities technical services have an important role to play. This involves adopting means and method that would ensure organization of material and information handling and presenting in a manner that would stimulate and increase the use of resources of the library and the latest information with the help of electronic media made available to them in the library. This is a major component of the library in bringing a regular liaison between the user and the documents or information necessary for study and research.

This is done by providing services such as lending or cirulation including inter-library loan, documentation, bibliographical, document delivery service, reprographic, translation, reference service including user education and orientation programmes. Current Awarness (CAS),

Abstracting and Indexing, Selective Dissemination of Information (SDI), Newspaper Clipping, Preparation of review and state of art reports including progress reports/advances in research reports in specific subjects etc. from far and wide places.

7.1 Library as A Channel

There are nearly 250 universities or university type institutions in the country. The libraries of these universities have been extending services to their users. Books, Journals, reports and other media are used as the system for communication. The concept of a university library today is to examine and make selection of publications for use primarily to assist university' research programme. To achieve this objective it works as an instrument of communication and as a storage unit. K.L.McGrarry4 rightly puts it that the library exists because the urge of social man to communicate. When he calls it as a cultural agency, it works as an instrument of communication and as a storage unit. He puts it as:

Library	Librarian	Enquirer
as	as	as
Information Store	Mediator	Client

7.2 Resource Sharing

There is a need for libraries to review their acquisition policies. The collection which is less used or not used be identified periodically by using survey method. Books which are not being used even once during the year be taken out of the collection. This rules does not apply on rare books and references books or special collection which are less used. Same is the case of periodicals also. Libraries are spending 70% of their budget on subscription of periodicals as is being done in DUL and JNUL. Today with shrinking budgetary provision and financial constraints and increasing cost of periodical subscription the libraries are not able to meet even 50% if their users demand. It is advisable to drop the titles which are satisfying 10% por 20% of users needs. The study reveals that Amercian Historical Review, Cambridge Journal of Economics, Canadian Journal of Economics, Demography, History and Theory, Journals of Social Issues, orbis are few examples which satisfy only 20% of the users needs. Instead it is high time that the librarians rise to the occasion and adopt information technologies to assist their users needs. If not all at least a cluster of libraries situated in a particular region or

zone be formed to enter into networking of resource sharing among these libraries. This will also help in cutting down unwanted expenditure incurred by all the participating libraries in this network of resource-sharing.

8 INFLIBNET

INFLIBNET is a computer communication network of libraries and bibliographical information centres. It was a major national effort during the eight Plan (1990-1995) period to improve capability in information transfer and access, that provide support to scholarship, learning and research and academic pursuits on the part of participating institutions and CSIR, DRDO, ICMR, ICSSR, AICTE, ICHR, DAE, DOT, DOE and Indira Gandhi National Center for Arts etc. It includes social sciences. It is a versatile integrated library and information system, operates at different levels-national, regional sectors and local. At local level the users can be served mainly at colleges, departments university and R&D institutions, INFLIBNET programme has been set up with the following objectives:

i) To modernise libraries/information centres of academic institution and the country;
ii) To establish bibliographic standards for information transfer at national and international levels;
iii) To facilitate pooling, sharing and optimisation of library/information resource;
iv) To organise library services at affordable cost and maximize benefits; and
v) To provide speedy, efficient and fault free services to the end users.

A detailed manual of standards and formats, providing guidelines for data entering with illustrative examples, has been prepared and distributed to 100 university libraries having computer infrastructure and trained manpower in their libraries. It will definitely change the efficiency of information handling and presenting it to its users in the academic libraries in India.

9 NISS

Efforts towards setting up national social science information system on lines of NISSAT are vigorosuluy being made through ICSSR (NASSDOC) and Center for Industrial Technology and Development (EENDIT). There is however, a need for a National Policy which would guide the

various institutions in pooling resources into an independent and centralised organised body of social sciences.

Government as well as library associations and professional societies and the university libraries should join hand together to undertake training of manpower, in-service training facilities be provided, to update the knowledge in different fields of research and development in social sciences by proper utilisation of information and library collection.

10 Conclusion

The library professionals of the university are working hard to provide satisfactory services to their despite many limitations. It is hoped that introduction of modern technology in the form of automation, computer-networks and internet facilities the university libraries will be able to provide better services at low cost in the new millennium.

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Management and Marketing of Information Service in the Next Millennium

MANISHA SAKSENA

ABSTRACT

It is easily acceptable in the present age that information is a marketable commodity or entity. So whatever rules and trends applicable to other commodities for marketing, same can applied be to information. It is uncontroversial that though it is a marketable commodity it needs special treatment and extra care. It will be discussed in this article how information differs from the other commodities. But when we identified it as a commodity it becomes essential to understand the characteristics or important features of information as: public good traits, indivisibility, inherent uncertainty and risk in transition. Like other commodity, information gets produced as a result of activities and events that take place in everyday life. Growing recognition of its role as a vital input to the economic, cultural and sociological progress of humanity, is causing more and more attention to be paid to methods of information access and uses resulting in the developing of an industry on its own right.

Information products and services like any other commodity are demanded in the market and the demand is affected by factors like, price, preferences, income, expectations, populations, seasons, technology and price of other goods. Information is demanded only when there is value or utility to the consumer. The supply of information products and services depends, on the price of the product, the cost involved in its production and the technology used. In the present scenario information is much pampered by the IT tools. There is wide scope for information to be marketed and managed by IT biassed tools like Internet, electronic media like CD-ROMs, VCDs, etc. In fact it receives more welcome from customer compared to traditional patterns of marketing and management. Information sources and services are better managed by modern information

storage devices and retrieval tools. Library software is user friendly and is convenient to use by the layman. It is equally and similarly convenient for the information salesman and information manager. Libraries information centres, function as the distribution channels for product and services. The concept of 'marketing of information product and services' is of recent origin.

1 Introduction

It can be said that the prevalent time is the crucial time to accept and adopt any new concept. As we all are at quick march towards the 21st century, it is our prime duty to equip ourselves with all arms. We are living in the scientific age and the 21st century will be hi- tech age. In this regard it is worthwhile to state that to live in information age it is vital importance to be well informed. As we need food to live and survive, information is also required to live intelligently and competitively. To live healthy and fit we need to eat proper nutritious food to satisfy our physical appetite, and for our knowledge and information hunger we always starve for updated information which can enable one to survive in the new era. As information is becoming lifeblood for everybody it has its competitive advantage and because of competitive advantages, information is falling under the category of saleable and marketable commodity. Because it is common market strategy that goods which are very much in demand and fast in supply are most desirable products to produce, for higher profits and larger turnovers. It is the case with information too. So when we consider information as a product it is essential to market this product and for it to set the marketing strategies for this product.

Information as a product is characterized by attributes like public good indivisibility, compressibility substitutability etc. All these traits of information create problems in market development for information. Like all commodities information is also supposed to be produced, priced, marketed, labeled, packaged, patented, and supplied. The mode of information production is different, there, is no typical factory and plant for its production, it gets produced as a result of activities, events and communication of everyday life. Information is an elusive commodity. Not only it is difficult to define but it appears in various guises in different places. The main point that emerges out of its definitions is that it consists of classified and interpreted data that are used for decision making. It is needed for variety of purpose, contributing to decision making and problem solving. Thus we can put information as a product of different cadre. It is required to be marketed and properly managed. To understand the management and marketing of information the basic idea of marketing and management should be cleared both in general and

specific context. The first and foremost clarification is that marketing does not mean selling. Philip Kotler a known authority in the field of marketing defines it as "the analysis, planning, implementation and control of the carefully formulated programs designed to bring about voluntary exchanges of values with target markets for the purpose of achieving organizational objectives. It relies heavily on designing the organizations offering in terms of the largest market needs and desire on using effective pricing communication and distribution to inform, motivate and service the markets." According to the definition, exchange is the most important or central concept of marketing. Marketing includes selling, advertising, physical distribution, sales promotion etc. Marketing comprises a set of tools called marketing mix. i.e. product design, pricing, communication and distribution. Information is now getting economic importance as a marketable commodity. It can be exchanged in the market in the form information products and services.

Management of information and information sources is another challenging task. The significance of this task is to manage and maintain the information and information sources irrespective of its form. It is very difficult to manage the traditional information sources and tools. Technological tools are easier to manage and maintain. This task is made easier by conversion of manuscripts in the CD-ROM and other electronic forms. The management of information sources is dependent on its form and structure. The other factor of management of information sources and system is its utility. The accumulation and repackaging is the main task of information management.

2 Information as a Product

When it is determined to declare information as a product, it is essential to prove it. There are four traits of information, which helps to convience any body with the arguments of its characterization as a product. These four features are (1) Public good characteristics (2) Indivisibility (3) Non depletability and (4) Inhernet uncertainty and risk in transition.

2.1 Characteristics

2.1.1 Public Good

Information as a product may be owned by more than one person and it is difficult to exclude non-payers from the benefits of consuming and processing. In this sense it is public good. The demarcation line between public and private good is very thin but it is obvious that many available information product and services have some traits of public good. Most

of the stock of valuable information is produced or financed by government which makes it difficult to privatize information. However there have been attempts to privatize information in some form or other, for instance the patents copy right etc. the public good characteristic can not be denied.

2.1.2 Indivisibility

When it is proved that information is public welfare commodity and its utility is collective. It can be stated aptly that there is no use of information product if it is divided in parts.

2.1.3 Non Depletability

Information can never be spent completely and consumed. It means to say once provided or delivered that information product and services remains with the user and seller. For example if I inform some body about the number of books in a library, the information delivered is passed on to him/her and the same product is still with me also. So it is the non-depletability instinct of information.

2.1.4 Inherenet Uncertainty and Risk In transaction

It is difficult to ascertain the demand of information product in the market. When it can not determine, it becomes a risk for generator of information, whether to put it in the market or not and on the other hand once brought to the market it is a matter of confusion for retailer to purchase it or not. This sort of uncertainty lasts until it is consumed by consumer.

These are the main personality instincts of information to put it in frame of public good. These are other characteristics of information: shareability, compressibility and substitutability. These typical qualities of information are challenges of market.

It is equally important to visualize what constitutes information as a product . It is helpful to quote Marc Porart 'Information is a collection of many heterogeneous goods and services together comprise an activity in the economy' Information as a product is thus represented by the product, services, systems and communication channels which carry information.

There are there categories of information products (1) Primary (2) Secondary and (3) Tertiary. Primary information is original information and the document which records and dominate or communicate it are known as primary documents. Information derived from the primary documents is called secondary information and document, which con-

tains this type of information, is called secondary documents. Finally the tertiary documents directs and facilitates to the secondary documents since last one decade there has been exponential growth in the document publication, and information. For the purpose of providing access to each and every published and non-published information, the effective and efficient information services are required to extend. Information service may be basically of bibliographical type like current awareness services, selective dissemination services, indexing, abstracting services, and literature searching, where the information seeker is directed to primary and secondary documents.

The hypothesis for information as a product is closely connected to the concept of economic exchange and information is exchanged through information product and services. Information is considered to be one of the basic resources for development and hence considered to be an essential tradable commodity.

3 Definition of Marketing Management

Marketing is a management discipline and equally it is a part of management and organizational philosophy, which reflects in attitudes and approaches across the whole organization. Librarians and information professionals are people in business. They know how need to operate as business directors and managers if the starting point for the discipline of marketing management lies in human needs and wants then librarians and information professionals are heading for success.

"Marketing is the management process which identifies, anticipates and supplies customer requirements efficiently and profitably" (Chartered Institute of Marketing U.K.)

Inevitably such a definition in order to be brief sums up very large ideas in a few words. So it is worth looking at the key words in the definition.

3.1 Identityfying

It is marketing function to find out, who are the customers and potential customers and what are their needs which the product or services can satisfy.

3.2 Anticipating

It is a marketing responsibility to examine and monitor trends so that the services are not overtaken by events and do not go on providing the same service year in and year out regardless, of how the users' needs, working methods and environment may have changed

3.3 Satisfying

Marketing is about putting customer and their needs at the centre of all aspects of the structuring of all its operation and delivery to meet these need are at the heart of real marketing.

3.4 Profitably

Clearly formal marketing disciplines have been developed in a commercial environment, where profit is the most obvious measure of success. Profit arises when customer buy and go on buying the product at a price advantageous to the supplier. Ultimately this is the return, which the investor gets for his investment in the business.

When we talk of marketing of information products and services, the question of fixing prices crops up owing to the attributes of information like public good characteristics, non-depletability, indivisibility etc. which we discussed earlier and it becomes difficult to fix its value. The concept of marketing of information products and services is gradually gaining ground. This is not only taking place in the developed countries but also in the developing nations. In India, INSDOC has made some progress in this direction.

4 Variables

The uncontrollable variables affecting the library and information servicer and its markets are complex and dynamic. In the wider macro-environment content, they are the forces which operate the political, economic, social and cultural and technological contexts. They are known as marketing jargons as PESTs. There are other variables too, which demand monitoring by all librarians and information professionals. These are demographic factors trends and the everlasting, burden of relevant legislation. Post industrial society with the emphasis on service economy and leisure environment has brought new demands for information services and library provisions.

As new business set up opportunities for providing commercial business information are self evident but the public librarian might like to consider providing on the spot education and leisure materials for the employee. Mobile libraries visit rural areas, and they may visit business parks and industrial estates too? In areas where unemployment is high the public library will need to expand its community services role and provide more services attuned to the needs of unemployed. Demographic trends affect all libraries. In the education sectors school, college and university libraries are feeling the knock on affect of falling birth

rates. Public Libraries will need not be preparing for a much-enlarged older population in the next twenty years and moreover for what are likely to be very much changed needs for the sector of the population. Economic trends and Social trends are inextricably linked with demographic trends. Housing associations are revitalizing run-down city centre areas to provide homes for the expanding single independent persons. New housing developments in outskirts of town and cities attract young married couples. The public libraries will need to reassess the location of their branches and their opening hours to serve the needs of these changing patterns of population.

Climatic monitoring will be an essential part of the jobs for the information officer in industry where his or her company is dependent on raw materials.

In a cultural context community leaders can advice on behavior patterns which affect the delivery of information and library services. It may be that a great provision of own language or dual languages texts would be useful, but very often initial step is to provide a comfortable, welcoming meeting place where gradually, real needs can be in a supportive group atmosphere.

5 Indian Scenario

India being the old civilization in the world takes educating and informing as its ethical task. In days of yore there was no fees for education. It was very much up to the will of an intelligent person to extend their knowledge to illiterates and deprived people. Britishers have brought the concept of priced education and privatization of education. Same is the case with concept of library and information services. The image of library is also innovated and gradually the marketing of library and information has also come to India. In its inception this concept was neglected by many of the public libraries. To them information should be provided free of cost. But in the changing scene when an institution or any research organizations has to seek any information from the foreign country, it has to pay. When an institution or research organization is earning a lot or has given something valuable to humanity then why shouldn't it pay for the information purchased.

Library services in Indian context are more traditional and less innovative in the current age. Librarians and information professionals should understand that there is something more than merely issue and return of books. Services should be user-oriented. Whenever new services are launched user should be taken into confidence. Marketing is the

major source of business and major source of better living standard in the society. Marketing boosts up the sale in the appropriate and effective way. The concept of marketing in the context of library and information services can be under stood as:

- Market research and analysis
- Segmentation of clientele
- Development of product services
- Cost sand pricing
- Promotion
- User education
- Dissemination
- Evaluation of products and services
  - *Market Segmentation:* Identification of actual and potential markets within institution.
  - *Consumer Analysis:* Determination of needs and preferences, information collection
  - *Market Positioning:* Piloting client groups and information services, policy making.
  - *Marketing Programmer:* Determination of optimum mix of product price, delivery mode, promotion, planning customization, co-ordination.
  - *Market Audit:* Evaluation of plan and implementation information gathering, quantification, making judgments and reporting.

In India academic libraries are lagging behind in marketing of services. The most highlighted reason for such negligence is;

- Ignorance with the concept;
- Lack of policy (of national, marketing, user, product distribution tarif, services etc.;
- Lack of studies and surveys; and
- Unreliable market research.

Apart from all these factors in India no library science school is imparting basic guidance to the students regarding information marketing. On the other hand working employees in India in this profession are less enthusiastic about new concepts. It can be firmly started that the due status be given to marketing concept by Indian libraries and scholar.

Information collection, information transfer and service are essential in libraries and information centres. Sources should be created in order to run the infrastructure. To have user-oriented production, certain

guidelines will be useful to the producers as well as to users. Information services are required by elite users as well as users in general. An identification of the users, however is the right step and better services can be provided if need is determined. India has already set up National centres of information in science and technology, medicine, agriculture, defence, nuclear science, patents standards, small industries, social sciences etc. These centres provide information at national level. These and other centres like National Aeronautical Library, Central Leather Research Institute. National Metallurgical Laboratory are also providing latest available information. These institutions also provide information on demand. Therefore it can paid that the concept of marketing exists in India. In India the academic libraries particularly of universities have been providing information more or less in traditional manner. Orientation programmes, additions list, exhibition, display new books, circulation of contents pages of journals, current awareness services, access to database of different subjects are other means of supplying information. In universities information, which is supplied to the students and teachers, is free of cost.

6 Marketing tools

The elements of marketing mix from the core marketing management involving the market and potential users. In order to serve market more effectively, the manager must identify the relationship of each element with the other so as to find ways to reach more people. The prime tools for marketing are (1) Product (2) Place (3) Promotion & (4) Price. These four Ps of marketing are enunciated by Professor Jerome Mc Carthy. In the nineties Philip Kotler has introduced new concept of four Cs, user paradigm to replace four Ps which is seller's paradigm. It will be useful for the librarian and information professional to examine both closely. The strategic changes and approaches implied by Kotler's four Cs will be a more readily acceptable mix to many librarians and information professionals. Product becomes value to the client, price becomes cost of the customer and includes time and energy cost. Place is taken as convenience of customer and promotion becomes communication. It is job of library and information manager to visualize how might these become useful to their profession. The consideration and interaction of product, price, place and promotion provides a valuable structure working towards asset of strategies. When this is coupled with substantial, market information and used against background of careful analysis of the macro environment than marketing objectives are more likely to be achieved.

7 Product

Product design consists of decision relating to the kind of product or services. The organization offers to a target group to satisfy its existing needs or wants. Sources of new products or services idea can come from either staff or users. Libraries and information centres have variety of products and services to offer to their patrons. It can not be forgotten that any product has definite life cycle in which it enjoys a healthy popularity followed by decline. Information organizations usually do not withdraw from the market the product what have outlived their demands. Besides this weeding, too is neglected, by maintaining weak product/services. Librarian delays or prevent users from getting full satisfaction out of their resources. A sound marketing strategy would be to review periodically the vitality of each product/services and withdraw those for which there is no demand.

8 Place

Usually changed to Distribution as a heading, for libraries and information services 'place' suits admirably since it refers to where and how a service is made available. That availability may be via a telecommunication network rather than a geographical location. Service point of access coverage variety of possibilities and potential as well as current practices in the information world. The educational institutions, which have perhaps a main campus library, plus department libraries are likely to have campus computer network to facilitate access. The variety of opening hours and types of availability of service is of wide range. Many university libraries, for example, rely on student or auxiliary help to maintain at least an access service during the late evening hours or weekends. The public library experience of branch network is invaluable in identifying how, when and where service may be more effectively serve users. Particularly in terms of reduced budgets, the positive sides of evaluating availability in conjunction with user need can often high light much needed change in terms of redistribution of services, opening hours and other methods of providing service to the users.

Too often a physical base is seen to be of prime importance when in fact most potential users will be constrained by their situation or working practices from personal visits. Limiting service hours to those when professional information personnel are available again hamper user potential where the organization is operating on a twenty four hours basis as is often the case 'we never close' may not be practicable in terms of

availability of professional staff, but the situation needs to be assessed to see how on line, electronic mail, auxiliary staff or user education, say CD-ROM use may effectively compensate. Telephone answering machines, even decent sized and prominent letter box's will reduce user's frustrations, especially if it is made absolutely/clear when the service will be in full operation.

An examination of the physical structure inside should also be made with an objective eye to judge what early impressions are being made. The use of appropriate materials and colors can do much to enhance perception and all buildings have to be painted and furniture replaced. It is important that careful consideration, is given to, what Philip Kotler calls 'atmospherics'.

9 Price

When information is being considered and sold as a commodity, the question of fixing price crops up. A chief characteristics of information is the uncertainty in fixing value etc. with the rapid advances in information technology.

Though the access to and timeliness of information has increased, the price to be paid for such accesses has increased manifold. It also costs when information is gathered, arranged and repackaged. Thus the pricing policy can be profit making, break-even or non-profit or subsidized for long time and the success of any services in libraries could be measured by the benefits by the recipients.

Price discrimination strategies are practiced widely. Special groups such as children, students, old-age pensioners, and the unemployed are often offered reduced price and libraries could reduce standard charges for them. The increase in the services would be more than any shortfall caused by the reduction.

10 Promotion

Librarian should develop good communication skills and public relation skill. Because with good communications skill they can push forward in the marketing job. The librarians and information professionals will have specific objective for particular communications programmes objective with regard to building and maintaining the perception of highly regarded quality organization. Marketing objective approach would utilize the empty spaces either to display or prompt the library product, like display of new arrivals or sale of old useful and valuable books at

discount rate. Libraries and information centre also promote their activities by planning 'new' items or by advertising. Publicity is also done by staff members during meetings, conferences, seminars or symposia. In financially crippled information organizations, publicity is usually the main promotional tool, yet few bother to avail the opportunities available.

There are other promotional tools and activities, which can build up good market for services that is the good relationship, advertising, dire marketing, publications sales force, press conference & press releases, physical presentation etc.

11 Role of IT & Networking

With the advent of information and communication technology, the job of marketing has become easier and effective. In the context of library and information it becomes more effective because library is a service industry in which it is easier to implement latest IT tools. The library services in the coming century will prominently dependent on information technologies. As India, a developing nation, is on mission to equip its people with latest information uses IT tools in library for information access, marketing of information products and services. These are made more effective with aid of different electronic sources of communication.

In order to control and price of information products and services, libraries have entered into cooperative congress and developed networking in local areas to trainsmit information at high speed. They also need to connect data devices such as computers, terminals, printers and other peripherals in order to exchange, text, numeric and graphic information. It is likely that LAN will be used in different types of libraries. Academic libraries for example often operate with split sites and multi story buildings. Here LANs can be used to support sharing of disc storage and other expensive central facilities such as printers. LAN may be a means of making of workstation for an OPAC available in a variety of different location, Public libraries are widely scattered in location. Special libraries and other information managers are likely to have the opportunity to exploit LAN that convers the whole organization. Here the LAN can be used as a means of more direct contact with users as an avenue for offering a wider variety of services.

Videotext provides information to the users from databases stored on powerful computer, and interactive access to existing computerized databases. Current application can be divided into two main categories,

community information and bibliographic information. Teletext is a non interactive form of videotext and as such is a system designed for the general public and mass communication. Libraries are using the E-mail to investigate the potential of this facility. As libraries install computer network, between their various points electronic mail and software could assist in the exchange of or access to management information.

Information marketing is possible through electronic journals. Electronic communication, network can be used for writing, submitting and referring papers and in other activities. As a developing nation, India is also in the race of information highway. Internet is becoming an effective media for information marketing. Internet has narrowed down the distances between and among countries. Various web sites and different search engines put the information products and services on their home pages, which can be accessed by wide range or users. This way the price of information is utilized as well as marketed.

12 Optimism for Future

We are just few steps away to enter the 21st century and are surrounded by various challenges and different dangers to face. But when we have understood and convinced the significance of marketing of information products and services it has become easier to survive in such tough time. India has become independent in both building and launching of satellites. It can be said that this is all because of learned scientists and researchers, firmly intending to establish the country as a major force and to enable India to be move to 21st Century.

As we are at a transition period changes, conversion of sources into electronic form, the impact of IT is significant. As major part of Indian community is still not aware of the IT tools, so first it is the responsibility of libraries and information centres to promote the IT tools like various CD-ROMS, internet awareness, videotexts etc., and eventually it will come to the point of marketing our products through these tools. When people find these tools convenient to try their hand, they will use these tools themselves and promote the service products. So it is two-fold benefit. In the 21st century it will not remain any challenge to make people convinced of IT tools because that job is on the verge of finish and the only thing remains is to brush up the information that can be done through good marketing strategies built up by libraries. In 21st century four walls of building will not remain a constraint for the product to reach the customer and customer to product. On-line shopping concept

has arrived in India and on the other hand on line market has come earlier to this. Same is the case with library and information products. The only difference is that information itself is intangible. In the case of information even to promote information tools is also a kind of information itself, so if one informs a user about the capacity of CD-ROM, its feasibility of use, its mobility etc. at one hand he/she is promoting the CD-ROM as a device and on the other hand he/she can promote particular service through CD-ROM. So, in the near future people will themselves ask electronic tools for information. This difference has come in the OUTLOOK to view the 21st century.

13 Conclusion

When information is becoming a source of income and to increase the income the information can be taken as a saleable product. Other commodity exhausts after purchase but information has multifold utility and it never finishes, so its profits are multifold. On the other hand professional marketing approaches will help in achieving maximum utilization of information services, products and generate more and more revenue for this purpose. It is the job of librarians and information managers to opt for this new buzz word of information products. Marketing needs to be added in everyday activities of libraries and so that activities can be established and maintained. This will increase and enhance the utility and credibility of products. This can be done with various promotional activities and for this purpose separate staff can be recruited and trained. Electronic tools are the main sources for marketing information sources and products because of the peculiar traits of information as indivisibility, non dependability and risky transition. This is proved that if information is a commodity all the policy for pricing, profit, marketing and its audit can be implemented on it. The only difference is in its handling because it is an intangible product.

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Marketing Library and Information Service: Some Thoughts

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Abstract

Marketing of library and information service is a recent development in our country. The present paper discusses How various concepts of marketing are applicable to L&I service. The paper describes 'Marketing Mix' - Product, Place,. Price and Promotion in the light of L&I service. It suggests measures to promote marketing of library and information services in India, method of designing services and products and measure to evaluate the services and user satisfaction. There is a need to place the library successfully in its environment and with highly skilled professionals and modern data base systems to face the challenges from other organisation.

1 Introduction

The recognition of information as a commodity or organizational resource is not very new in the developed countries. Though the situation is different in a developing country like ours. In India now people are gradually becoming conscious that information is not only the raw material for prosperity and growth of society but also an important commodity for industry and commerce. The traditional function of the library as a repository for the printed world is no longer valid, a new sector is emerging - 'the information industry'. Information is an expensive commodity. The selection, acquisition, processing and dissemination of information are labour intensive and cost oriented activities. Libraries and information centres should utilise adequately the information they have, to realise the investment made on them.

2 Marketing

According to the *Encyclopaedia Britannica* definition of marketing is as follows 'Marketing in its most general definition is the directing of the flow of goods and services from producers to consumers or users. It is not confined to any particular type of economy, since goods must be marketed in all economies, societies except perhaps the most primitive. Nor is marketing a function only of profit oriented business; even such service institutions as hospitals, schools, and museums engage in some form of marketing'. So when in response to a request for information a librarian satisfies a user—the request could be for a journal article, bibliography or abstracts, a flow of service from producer to user occur. When a library professional meets each request of his user with his resources—a sale takes place. Though the concept behind selling of an ice cream or a car is different from marketing information. Ice cream and car are products, where as a library offers service. P. Kotler's view of marketing is'. . . the analysis, planning, implementation and control of carefully formulated programmes designed to bring about voluntary exchange of values with largest markets for the purpose of achieving organizational objectives. Marketing involves the organization in studying the target markets' needs and desires, designing appropriate products and services and on using effective pricing, communications and distribution to inform, motivate and service the markets'.

3 Key Elements of A Marketing Action Plan

Marketing action plan has four 'P's which is known as 'Marketing Mix'.

- Product;
- Price;
- Place; and
- Promotion.

3.1 Product

In case of library and information centre product means 'service' which meets the customer's need satisfactorily. To achieve it ie. user satisfaction, following actions may be considered:

3.1.1 Designing of Services and Products

The type of library/information centre and the user's need decide the designing of services and products and their types. The library/information professional should understand not only the specific requirement of

the clientele but also of the form in which one or more items of information would satisfy their needs.

The need assessment provides additional information for the development of the designing plan. It is important to try to survey the needs of both users and potential users of the library. Surveys of this kind can provide useful information, although they are comparatively expensive and need careful planning to provide valid and useful results. If surveys are not planned properly, incorrect information may be obtained which could result on the implementation of a service totally unsuitable for the real needs of the user community. Once the need has been assessed, the librarian may initiate services designed to meet various kinds of information on requirements of the users. The services may be as follows:

- compilation of bibliographies;
- current awareness service;
- selective dissemination of information service;
- abstracting service;
- reference service;
- literature search service;
- reprographic service; and
- translation service,various online services.

3.1.2 Monitoring and Measuring User Satisfaction with the Services Provided, Feeding Back and Acting on the Resultant Information:

Once the services and products have been developed it should be tested whether it is really effective or not. Library/information professionals should see whether its content is up-to-date and specific, language is simple and the service is easily accessible. According to Orr,' The ultimate criterion for assessing the quality of a service is its capability for meeting the user needs it is intending to serve and the value of a service must ultimately be judged in terms of the beneficial effects accruing from its use as viewed by those who sustain the costs'. No services or products are permanent in the market. Periodical analysis and renovation of service is a prerequisite of effective marketing. Special libraries and libraries of private organisation provide information which assists in the internal function. Their measure of performance will be linked to how successful the organisation is in achieving its objectives. Their outcomes are found in the added values to knowledge and information within the organization which help to make it successful against its competitors. In case of public libraries, their measures and performance are linked to the creation of an informed society, long-run public welfare etc.

3.2 Price

One of the important and difficult aspects of marketing mix is Pricing. User expects that the library services will be free. Paying for information is comparatively a new phenomenon. Though every service/product has a cost, but it may not be priced. In case of library/information service pricing policy depends on the policy of the organization. The government of any country is the largest generator and processor of the information. Most libraries in our country are supported by the government who uses the taxes received from the public, then it may be argued that why should the end user be asked to pay. If we consider information as a social resource then it is governments' responsibility to make it free. Though in our country libraries like USIS and British Council charge a fee for their services and users are willing to pay for it. The private sectors in information business and intermediaries like information vendor, broker, consultant etc charge for their services. The debate over the pricing issue is difficult to solve.

3.3 Place

To ensure the library/information centre's future survival, it is necessary to scan its external and internal environment. The major and important task is to place the library in its environment in such a way that it can overcome the difficulties of economic restraints, challenges from other organizations. Strategic planning and marketing skills will be needed to identify the key groups to which services should be aimed and the way in which service will be supplied. After placing the library in its environment it is necessary to identify the user needs. In order to develop effective marketing plan library professional must be aware of their market- that is, their present and potential users. To identify their needs it is important to understand the environment in which they are working, the problems they are facing. It will be helpful not only for present service but also for future needs.

3.4 Promotion

After designing the service/product and identifying the user needs the library/information personnel should promote their services in order to present an efficient and capable image of their work. They have to see not only the identifiable needs but also they have to be ready to provide for any future needs. This is a much more difficult task. Lack of library culture among literate people makes it more difficult. They are not aware of the resources and services of a rich library. They are not wholly to be blamed for this. The present educational system right from the school

levels is lecture oriented and examination centred, which does not help to develop the library culture. So every library professional, especially in the case of public library, has to emphasise on the sophisticated public relation exercise which is an essential component of marketing. To make the users/potential users aware of the library service following steps can be taken:

i create awareness of the library;
ii create awareness of its offerings and expertise;
iii talking to existing users, find out why they use the library;
iv talking to people who do not use the library and why;
v using mass media ie. radio, television, newspaper, periodical and journals;
vi provide additional services to special groups within community, such as, children, senior citizens, disabled and
vii arrange talks, seminars, debates, cultural shows etc.

Besides, the 'Marketing Mix', Kotler, Fitzroy & Shaw also suggest some steps for strategic marketing analysis which is as following:

- environmental analysis;
- market definition;
- market segmentation;
- needs assessment;
- image analysis;
- consumer behavior; and
- consumer satisfaction assessment.

For successful marketing plan, analysis of the library's strength and weakness in terms of human resources is important. Library personnel are library's most expensive and valuable resource. Successful planning and management of human resources increase personal satisfaction which ultimately results in improving performance on the job and quality of service. They can overcome difficulties more efficiently. Collectively, these outcomes will lead to increased library/information centre's efficiency. To obtain it, proper training programme, proper working environment for personnel must be ensured. The concept of competition is common in marketing though in library service it is different from a food product or garment industry. If information technology and its' service are considered as an industry one should prepare for competition. Competition is beneficial to all organizations as it usually result in increased and improved output between the competing groups. In order to survive successfully in the competition, libraries have to be more innovative. They should continuously analyse the needs of their users and potential

users in order to provide the most appropriate service. They have to be aware of the alternative information sources, other libraries—services they offer, the areas where these services can be improved. Users will use one library, if their service will help them achieve not only what they want but also if it is different from other libraries in a way which appeals to them.

4 Conclusion

New trends in information technology have changed the image of the library and information profession the world over. There are immense possibilities to improve the information services in developing countries like India. It is high time that we thought of marketing of library and information service in our country. Information as a resource is in demand. If LIS professional can provide right kind of information packages promptly and regularly the demand will increase. A continous system to analyse the needs of their users and potential users will be conducive in equipping the libraries to achieve its objective. To prepare for marketing the information a much more professionalised input is required which can be both capital and professional intensive project. But marketing information is fast becoming the in thing, so we better gear up.

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Marketing of Information in Select CSIR Libraries and Information Centres of Northern India: An Assessment

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Abstract

Marketing seems to be one of the 'hottest' topic in the profession of librarianship today. But, in spite of being so, there is much resistance in the library and information services field to the use of 'marketing' approach to management. Marketing, as a concept and as a practice, is still considered alien to many library and information science personnel. This paper has discussed a study of marketing in retrospect and prospect in select CSIR libraries and information centres of northern India. It has been attempted to understand and assess the attitudes and marketing practices of libraries towards different aspects of marketing. An analysis of user's feedback has also been made to determine the extent to which the principles of marketing are put into actual practice in these libraries. Among other findings, the study reveals that librarians have positive attitude about the marketing concept. Lack of manpower and financial support have been perceived as the major constraints in applying the concepts of marketing in practice. Recommendations for improving the marketing of library and information services and strategies for implementing these recommendations have been put forth for better future prospects of libraries and information centres. It has been emphasized here that marketing is a strategy, philosophy and way of life for a successful library and information centre.

1 Introduction

1.1 A Retrospect of Indian Marketing Scene

The marketing of information products and services has been a popular topic in the library profession in recent years. But, few subject generates

as much controversy in the library and information services profession as the concept of marketing. A great deal has been and is being written about 'marketing library services' and 'charging information services' yet often there appears little to connect these accounts, apart from a genuine desire to provide a good service and an equal inclination to use the latest buzz words. There is still much resistance in the library and information services field to the use of 'marketing' approach to management. In spite of an incredible increase in the number of marketing and public relations, workshops, seminars and conferences during the last several years, most libraries are still not doing much about it. The information product and services are like customer product and services in many respect. But, there is a reluctance on the part of librarians to employ marketing principles in libraries. Marketing as a concept and as a practice, still seems alien to many library and information personnel. Within the profession, there is a residual feeling that marketing is somehow inappropriate for a public service institution such as library. Some librarians still hold this view and see no room for such practice in a not-for-profit profession like librarianship.

Library market research has concentrated largely on users of the service. However, not much has been done to investigate the attitudes and perceptions of the service providers—the librarians and his/ her staff on the usefulness, relevance and utility of employing marketing principles and techniques in the library environment. Similarly, there has been much advice in the professional literature on how to develop marketing practice in libraries and information centres. However, comparatively little attention has been paid to the extent to which marketing is being put into actual practice, and the constraints and opportunities experienced by librarians in applying theoretical principles. Keeping the above scenario in mind, a study was undertaken to assess and evaluate the marketing concept in practice, especially the '4Ps' of ''marketing mix', i.e. Product, Price, Place and Promotion in select CSIR libraries and information centres of northern India. A typical marketing mix consists of *product* or *service* offerings at a *price*, targeting a customer segment in certain *place* and a set of modalities to reach the target customer, and *promotion* to tell the potential customers about the availability of the offering. It is in this background that the present study seems to be relevant and meaningful in the fast-changing 'high tech' information environment of libraries and information centres.

2 Objectives

The objectives of the present study are:

- To understand the attitudes of librarians towards different aspects of marketing especially the '4 Ps' i.e. Product, Price, Place and Promotion;
- To examine the resources and facilities of the libraries in relation to marketing;
- To gather information about the products and services with their charging patterns, which are tailored to meet the exact needs and demands of the users;
- To determine the extent to which the principles of marketing are put into actual practice in the libraries; and
- To identify and collect information about the libraries in the prime areas where improvement will have most impact on its marketing activities.

3 Methodology and Scope

For collection of data, a survey was undertaken in select twelve CSIR libraries and information centres of northern India. The survey is restricted to a few select CSIR libraries of Lucknow, Dehradun, Delhi and Roorkee, which are as follows:

Lucknow

i) Central Drug Research Institute (CDRI)
ii) Central Institute of Medicinal and Aromatic Plants (CIMAP)
iii) Industrial Toxicological Research Centre (ITRC)
iv) National Botanical Research Institute (NBRI)

Dehradun

v) Indian Institute of Petroleum (IIP)

Delhi

vi) Centre for Biochemical Technology (CBT)
vii) Central Road Research Institute (CRRI)
viii) Indian National Scientific Documentation Centre (INSDOC)
ix) National Institute of Science Communication (NISCOM)
x) National Institute of Science Technology and Development Studies (NISTADS)
xi) National Physical Laboratory (NPL)

Roorkee

xii) Central Building Research Institute (CBRI)

Three kind of questionnaires, two meant for librarians and one for the users, were distributed for collection of data. In each library, the sample size is different i.e. one librarian and about 3–5 users from each library were selected as subjects for study. Personal visits were made to majority of the institutes for collection of data. An analysis of user's feedback was also carried out to assess the marketing activities of libraries, as marketing is basically an attitude towards user satisfaction.

4 Analysis and Discussion

The collected data were further analysed and discussed. The concerned tables have been shown in the annexures.

4.1 Librarian's Attitudes Towards Marketing

Need for Marketing: Table 1 shows how the librarians responded to the statements related to the 'need for marketing'. It is apparent from the table that a majority of librarians either strongly agree or agree with all the statements, except for statement 2 for which 25 per cent librarians have indicated that they strongly disagree with that. The overall responses of librarians confirm that they strongly feel the need for adopting marketing approaches in the era of global competitiveness and economic recession.

Marketing Planning: Table 2 shows the responses of librarians to the statement related to 'Marketing Planning'. The data presented in table 2 show that a majority of librarians are positive about the concept of 'Marketing Planning', except for statement 6 for which there is a negative response. Most of the librarians either disagree or strongly disagree (66.66 per cent) with the statement. The substantial number of neutral responses for statement 8 confirms that there is a lack of exposure on the concept of marketing among librarians. Many librarians have indicated that they either strongly agree (SA) or agree (A) with statements 1, 2, 3, 4, 7 and 9.

First P of Marketing Mix—'Product': Table 3 illustrates how the librarians responded to the statements related to the first P of the Marketing Mix, 'Product'. It consists of one negative (no. 5) and eight positive statements. Statement 5, 'Library's all information products/services should be available to all . . . .' Received 8 positive and 3 negative responses. It indicates that even though librarians are more positive about introducing new products/services and doing evaluation to determine their usefulness, there is some reluctance to employ the concept of 'marketing segmentation'.

Second P of Marketing Mix—'Price': Table 4 shows the responses of librarians to the statements related to the second P of the Marketing Mix, 'Price'. It is apparent that there are mixed and split responses for the statements no. 4, 5 and 8. Statement no. 1, 'The rising cost of IT. . . . .' received the most positive and highest strongly agree (SA) responses. Even though, none of the respondents disagreed with statement 1. There were a substantial number of mixed 'not sure' (NS) and 'agree' responses for statements 7 and 8 respectively. This clearly indicates that though librarians accept that they can not continue to offer their services/products free of cost, yet they are reluctant or not positive about introducing charges for information services/products.

There were as many as 75 per cent librarians who agreed with the statement, 'It is not easy to assess the direct and indirect cost involved in the development of information product/services'. In order to overcome this barrier, the profession needs to take some conscious decisions regarding arranging several workshops/seminars/training courses on this area and introducing the marketing concept in the curricula of library schools. Unless and until the library profession takes some initiatives on these lines, there won't be any drastic change on this front.

Third P of Marketing Mix—'Place': Table 5 shows how the librarians responded to the statement related to the third P of the Marketing Mix, 'Place'. It consists of four positive statements. It is apparent from the table that a majority of librarians have indicated that they agree with all the four positive statements. It is interesting to note that none of the librarian responded negatively to these statement.

Fourth P of Marketing Mix—'Promotion': Table 6 shows the responses of librarians to the statements related to the fourth P of the Marketing Mix, 'Promotion'. It consists of one negative (no. 3) and eight positive statements. Statement 4 and 5 confirm that all librarians feel the necessity and importance of user-orientation programme but at the same time, majority of them also admit that conducting user-orientation programme has been a neglected activity in libraries. The table indicates that librarians are positive about the concept of 'promotion'. Here too, there are hardly any substantial negative responses to all the nine statements.

Such a clear-cut positive responses to the statements related to the third and fourth Ps of marketing mix, 'Place' and 'Promotion' are due to the fact that librarians have been traditionally practicing these two methods for many decades without knowing that they are practicing marketing concepts.

A review of data in tables 1 to 6 reveals that librarians hold positive attitudes about different aspects of marketing. (Kindly see the annexures).

4.2 Marketing Activities of Libraries

Marketing Planning: Table 7 shows that only a few libraries have a letter head, a mission statement, a marketing plan and separate funds and staff for marketing related activities. Only 4 (33.33 per cent) of the libraries have separate funds and staff for marketing related activities. It is interesting to note that only 2 libraries (16.66 per cent) have the provision for charging fees from the external clientele.

Resources/Facilities (Place Component): Table 8 indicates the availability of basic and advanced facilities (infrastructure) in the different libraries. Analysis of the data shows that only 3 libraries (25 per cent) have advance facilities such as full automation of in-house functions, LAN and DTP whereas 9 libraries (75 per cent) are not having these facilities. The table shows that libraries are very slow in adopting newer technology, especially in the area of automation, networking and other areas related to service delivery and channel of distribution. There is an urgent need for libraries to be in the forefront of adopting the newer technology and further to be more concerned about delivering services in the right format, at the right time and at the right place.

Information Products/Services and Their Charging Patterns (Product Component): Table 9 indicates the availability of various information products/services and their changing patterns provided by the libraries or information division/section of the respective institutes. It is apparent from the table that a substantial number of libraries/information divisions have introduced charges mainly for photocopying, bibliographies, on-line, CD-ROM, abstracting and indexing services. Other services are either not available or being offered mostly free of cost. The table also shows that even though a good number of libraries are well equipped with advanced facilities such as on-line, CD-ROM and Internet etc., yet there is some reluctance on their part to charge for such services in spite of having an impressive client base.

Charging Pattern (Price Component): Table 10 indicates that 75 per cent of the libraries offer their services free of cost. It is apparent from the table that only one library (8.33 per cent) charges nominal cost whereas actual cost is being charged by also one library (8.33 per cent). The table also shows that only one library (8.33 per cent) viz. INSDOC is charging its services and products on profit basis.

This table highlights the confusion prevailing among librarians about whether to charge or not to charge for the services/products provided by the libraries. There is also not consensus on the criteria of fixing charges for the services/products rendered by the libraries. It

seems that the 'Fee Vs Free' controversy will continue in the profession and the debate among the librarians on this issue has not been yet resolved.

Promotional Activities (Promotion Component): To test the extent of promotional activities performed in libraries, respondents were given 13 statements. The analysis of the data presented in table 11 shows that:

- Promotional activities related to statements no. 1, 2, 3, 5, 9 and 10 were often performed and activities related to statement no. 4 and 12 were never performed among many libraries.
- In majority of the libraries, user-surveys (no. 8) are conducted rarely.

4.3 User's Comments on Marketing Activities of Libraries

Marketing is basically an attitude towards user-satisfaction. Hence, it was felt necessary to get the user's feedback on the issues related to marketing activities in order to gauge the effectiveness of marketing efforts carried out by libraries. From the analysis of user's feedback of all the libraries, as shown in table 12, some common points have emerged from the user's comments on the marketing related activities of libraries, which are summarised as below :

Product: Users responses confirm that they are not involved in the selection process of library collection development, as they should be. They also felt that they are not actively involved in designing the services and products of the library. But at the same time, they intimate that there is a library committee (consisting of staff members of various divisions) which decides the services to be rendered, books to be purchased, facilities to be provided, journals to be procured etc. for users. The users were found almost satisfied with the quality of information services/products delivered by their respective libraries.

Price: The users responses show that there is a very low willingness among them to pay for the information products and services delivered by the libraries. Though they are in favour of paying for the specialised/ advanced information services/products such as on-line, CD-ROM and photocopying etc. in other libraries, but they are reluctant to pay for the services/products rendered by their own libraries except photocopying.

Place

- On the time taken by the libraries to acquire the documents of request of the users, 50 per cent felt satisfied while some felt it was reasonably well and others thought that at times it took long for acquiring the documents.

- More than 50 per cent of the users are found to be satisfied with the reading environment of books, reference matarials, periodicals and photocopying services. But in case of newspaper and magazines, most of them are not much satisfied with the reading environment; and a lot of improvement is needed to increase the efficiency of photocopying services.
- Though most of the users are satisfied with the accessibility of different reading materials such as books, periodicals, reference, on-line, CD-ROMs, etc., but at the same time they were also not found to be happy with above.
- Almost all the users are not satisfied with the opening hours of their libraries.
- Majority of the users are more or less found satisfied with the responsiveness of library staff.

Promotion: Most of the users were found satisfied with the way intimation of arrival/purchase of documents of their request by their respective libraries. They said that the arrival of the documents are intimated by regular contacts with them and also through displays, by which they are almost satisfied. Sometimes, they were informed over telephone and by means of notice on the notice board.

5 Findings and Recommendations

5.1 Findings

On the basis of data collected and its analysis, the following findings have emerged:

- Librarians have positive attitudes about the marketing of library's information services and products.
- Even though librarians are more positive about introducing new information services/products and doing evaluation to determine their usefulness. There are some reservations on the concept of 'market segmentation'.
- Only a few libraries have a marketing plan and separate funds and staff for marketing related activities.
- Though librarians favour the involvement of users in the selection of learning resources and further in designing of information services/products, yet in practice, they do not involve them actively in these processes.
- There are mixed and split responses for the majority of the statements related to the price component of the marketing mix,

which highlight the confusion prevailing among librarians about whether to charge or not to charge for the services/products provided by the library. They have also not any compromise regarding the criteria for costing various services/products. It seems that the 'Fee Vs Free' controversy and the debate about it among the librarians has not yet settled down.

- Only a few libraries are in the forefront in introducing charges for their services. Many libraries have introduced charges only for photocopying, on-line and CD-ROM services, while other services are mostly offered free of cost.
- Majority of libraries are very slow in adopting newer technologies, especially in the area of automation of in-house functions, networking and other areas related to service delivery and channel of distribution.
- Even though in majority of the libraries, the users are satisfied with the accessibility and quality of different learning resources, but they are not happy with them.
- Almost all the users are not satisfied with the opening hours of their libraries. There is a general opinion that the opening hours should be increased.
- Promotion is the only element of the marketing mix employed to a significant extent in libraries. But, user surveys are conducted rarely in majority of libraries.
- Though promotional element of marketing has been eagerly taken up by librarians, however, there is less evidence of the systematic and planned use of marketing in service design, pricing and delivery.

As a whole, the findings reveal that librarians have positive attitude about the marketing of library and information services. However, many librarians perceive many barriers to apply the concept of marketing in libraries. They are: (a) lack of knowledge, skill and exposure to the concepts of marketing among librarians; (b) lack of manpower and financial support; and (c) misconception about the concepts of marketing.

5.2 Recommendations for Future Prospects

Based on the above findings, following recommendations are put forth for improving the marketing practices for the better future prospects of libraries and information centres:

- Each library must have an identical and strategic marketing plan

for its products and services with a mission to serve its parent organisation. This plan must state what the library is and where one wants the library to go. The recognition of competition and the establishment of marketing strategies are crucial to the library's success in the information age.

- There is a need for involving the users in the selection procedure of various learning resources to enhance the use of library. Though this practice is being followed by a few libraries actively, other should also follow this.
- The library sector may need to consider the provision of easy access to its products and services through the development of efficient and sophisticated user-friendly information retrieval systems. Further, they need to add value to information in terms of ease of access, quality of service and speed of delivery.
- It is suggested that the reading room for all the learning resources, viz. books, periodicals, newspapers, reference, microforms, CD-ROMs, on-line and internet services be made more comfortable, spacious with proper seating and lighting arrangement.
- There is a general feeling among the users that the opening hours of the libraries should be increased. This matter should be given serious considerations, as it is an important issue. The libraries are for use, and to ensure optimum use of the library resources and to satisfy the users, it is strongly recommended to keep the library open according to the requirements of the users (duration and opening hours).
- The users should be involved in the designing of the library and information products and services. There should be a continuos feedback mechanism (user surveys) to get to know the responses of the users. Then further action should be taken accordingly.
- Most libraries do not have separate marketing personnel. Thought should be given to establish formal marketing positions to handle marketing related activities. To give it meaning and momentum, a full time professional is recommended to look after marketing activities in the library. We must consider setting up a separate 'marketing unit' or 'marketing division/department' as part of the library or information centre.
- Libraries should be constantly on the alert to maintain and improve the quality and range of their services/ products and to match it to the changing user requirements. It is important for

librarians to bear in mind that a satisfied user always remains the best marketing agent for libraries.

- The pricing issue needs to be given more serious consideration, despite the continuing unease of many librarians at charging for services and products. Only a few libraries charge the actual cost for their services. Services such as On-line, CD-ROM, CAS, SDI, abstracting, indexing, translation, E-mail, and Internet browsing absorb substantial amount of funds in terms of manpower and equipments. Hence, the efforts must be made to educate the users and convince them that they have to pay for such services also availed by them as they pay for their photocopying facilities in libraries, to sustain such a costly services. It must be stressed however, that charges for services and products should suit to the pocket of the users, so that they could respond favourably.
- There is a need for libraries to extend their client base by opening-up their learning resources to external clientele. It will help to maximise the use of library resources manifold. Further, the libraries can also generate extra revenue by introducing charges for external clientele.
- Library and information personnel have paucity of expertise and exposure on the concept of marketing. To help them understand and utilise the concepts of modern marketing techniques, continuing education seminars, workshops and training programmes should be arranged frequently, so that they could be more responsive to client needs.
- As a part of promotional efforts, the libraries must keep a suggestion box, and a question-and-answer notebook which are answered daily to ensure a quick response to current issues. Complaints must be cherished, because they give priceless guidance on how to improve services and reach more users ever better; compliments are nice, but they generally don't help to improve services.

6 Epilogue

If marketing is a new concept to library, don't be put off by 'we have tried it before', 'we haven't got the staff to do it', it's so radical—this will never win a share of the market or the financial cream cake. The answer is in the planning and the fact that we (and our team) are leading from the front. As customers of many other goods and services in their lives, they now expect a wide choice, speedy delivery, easy access and a range of

competitive prices in information products and services. We have to achieve success by positively differentiating our services and offerings from the competitors' using our professional and marketing skills to satisfy the customers need better.

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TABLE 1: ATTITUDES ABOUT NEED FOR MARKETING

QUESTIONS	LIBRARIES												N = 12 (100 %)		
	CBRI	CBT	CDRI	CIMAP	CRRI	IIP	INSDOC	ITRC	NBRI	NPL	NISCOM	NISTADS	Response	No	%age
1. Users are often unfortunately ignorant about variousinformation products/ services available to them in library.	D*	NR*	A*	A	A	A	A	A	A	A	D	SA*	SA	1	08.33
													A	8	66.66
													D	2	16.66
													NR	1	8.33
2. We believe that we know the users needs and demands about the information products/ services, but don't try whole-heartedly to measure and satisfy thatfeeling.	A	NR	A	A	SA	NS*	SD*	A	A	SD	A	SD	SA	1	8.33
													A	6	50.00
													SD	3	25.00
													NS	1	8.33
													NR	1	8.33
3. Planning and implementing a marketing programme in practice provides the library manager an opportunity to assess the quality and usage of the information services/ products.	SA	NR	SA	A	SA	D	SA	SA	A	NS	A	A	SA	5	41.66
													A*	4	33.33
													D	1	8.44
													NS	1	8.33
													NR	1	8.33
4. Marketing programme helps the librarians to justify the cost involved in the generation of information products/services of the library.	SA	NR	A	A	SA	A	SA	SA	A	NS	D	NS	SA	4	33.33
													A	4	33.33
													D	1	8.33
													NS	2	16.66
													NR	1	8.33
5. The process of marketing planning helps us to identify the obsolete information products/ services of the library	SA	NR	A	A	NS	D	SA	A	A	NS	D	SD	SA	2	16.66
													A	4	33.33
													D	2	16.66
													SD	1	8.33
													NS	2	16.33
													NR	3	8.33
6. Increasing resource constraints and shrinking library budgets have forced the librarians to employ marketing techniques in their operation.	SA	NR	A	A	A	A	A	A	A	A	A	A	SA	1	8.33
													A	10	83.33
													NR	1	8.33
7. The 'Electronic Information Age' and global competition have made the concept of marketing as essential for libraries as for other profit-making organisations.	SA	NR	A	A	A	SA	SA	SA	A	A	A	A	SA	4	33.33
													A	7	58.33
													NR	1	8.33

TABLE 2: ATTITUDES ABOUT MARKETING PLANNING

QUESTIONS	LIBRARIES												N = 12 (100 %)		
	CBRI	CBT	CDRI	CIMAP	CRRI	IIP	INSDOC	ITRC	NBRI	NPL	NISCOM	NISTADS	Response	No	%age
1. Every library must have a mission statement.	A	NR	A	A	SA	A	SA	A	A	A	A	A	SA	2	16.66
													A	9	75.00
													NR	1	8.33
2. The marketing programme of library will not be successful, if it lacks continuos persistence and motivated team-work.	A	NR	A	A	A	A	SA	A	A	SA	A	SA	SA	3	25.00
													A	8	66.66
													NR	1	8.33
3. No decision can be made regarding the delivery of librarys information products/ services to users, without a rigorous assessment of the internal and external environments, in which it functions.	NS	NR	A	A	A	NS	SA	A	A	SA	A	NS	SA	2	16.66
													A	6	50.00
													NS	3	25.00
													NR	1	8.33
4. Planning and implementing a marketing programme is an indispensable activity of the library, as essential as cataloguing and classification.	A	NR	A	A	A	SA	SA	A	A	A	D	SA	SA	3	25.00
													A	7	58.33
													D	1	8.33
													NR	1	8.33
5. The mission statement of the library must reflect the mission and goals of its parent organisation.	A	NR	SA	A	A	A	SA	SA	A	A	A	A	SA	3	25.00
													A	8	66.66
													NR	1	8.33
6. It is not imperative to consult and involve all library staff in planning and goal setting process of library.	D	NR	D	D	SD	NS	SD	D	NS	SD	SD	A	A	1	8.33
													D	4	33.33
													SD	4	33.33
													NS	2	16.66
													NR	1	8.33
7. It is ideal to designate a full time professional to look after the marketing activities.	SA	NR	SA	A	A	A	SA	SA	A	SA	D	D	SA	5	41.66
													A	4	33.33
													D	2	16.66
													NR	1	8.33

Contd.

TABLE 2: ATTITUDES ABOUT MARKETING PLANNING (CONTD.)

QUESTIONS	LIBRARIES												N = 12 (100 %)		
	CBRI	CBT	CDRI	CIMAP	CRRI	IIP	INSDOC	ITRC	NBRI	NPL	NISCOM	NISTADS	Response	No	%age
8. Several libraries conduct marketing programme all of sudden instead of organising marketing programme in a coherent manner.	NS	NR	D	NS	D	D	D	NS	NS	NS	D	NS	D	5	41.66
													NS	6	50.00
													NR	1	8.33
9. The library must have an identical marketing plan for each information product/ services and user-group.	A	NR	A	A	A	A	SA	SA	A	A	A	SA	SA	3	25.00
													A	8	66.66
													NR	1	8.33
10. Statement of mission guide the library to move in the right direction and facilitate the choice of roads by which to reach the destination	A	NR	A	A	NS	NS	SA	A	A	SA	A	SA	SA	3	25.00
													A	6	50.00
													NS	2	16.66
													NR	1	8.33
11. The mission statement of library should be one that can be monitored and measured from time to time by taking user's feedback	A	NR	A	A	A	A	A	A	A	A	A	A	A	11	91.66
													NR	1	8.33
12. A marketing programme should be able to anticipate any significant change or development in the library's information products/ services.	SA	NR	A	A	A	A	A	A	A	A	A	A	SA	1	8.33
													A	10	83.33
													NR	1	8.33
13. Information needs assessment tools, such as focus groups, users feedback, and personal interview should be conducted periodically.	A	NR	SA	A	A	A	SA	SA	A	A	A	SA	SA	4	33.33
													A	7	58.33
													NR	1	8.33
14. Immediate feedback of users is essential to assess the quality of information product/ services, so that necessary adjustments could be made to meet users expectations.	SA	NR	A	A	A	SA	SA	A	A	A	A	A	SA	3	25.00
													A	8	66.66
													NR	1	8.33

* A—Agree * SA—Strongly Agree * D—Disagree *SD—Strongly Disagree * NS—Not Sure * NR—No Response.

TABLE 3: ATTITUDES ABOUT THE FIRST 'P' OF THE MARKETING MIX 'PRODUCT'

QUESTIONS	LIBRARIES												N = 12 (100 %)		
	CBRI	CBT	CDRI	CIMAP	CRRI	IIP	INSDOC	ITRC	NBRI	NPL	NISCOM	NISTADS	Response	No	%age
1. The success of all marketing planning and promotional efforts depends directly upon the quality and excellence of the product/services, which are designed/delivered.	A	NR	A	A	SA	A	SA	A	A	A	NS	SA	SA	3	25.00
													A	7	58.00
													NS	1	8.33
													NR	1	8.33
2. If an information product/service is not tailored to meet the clients expectations, then nothing including giving the product away free will sell the product.	A	NR	SA	A	NS	A	SA	SA	A	SA	A	SA	SA	5	41.66
													A	5	41.66
													NS	1	8.33
													NR	1	8.33
3. The users involvement is necessary in the designing process of any new information product/ services, which are targeted for them.	A	NR	SA	A	SA	A	SA	SA	SA	A	A	A	SA	5	41.66
													A	6	50.00
													NR	1	8.33
4. Library's all information product/ services have different life-cycle which they grow, mature and eventually decline in utility.	A	NR	A	A	A	A	A	A	NS	NS	A	SA	SA	1	8.33
													A	8	66.66
													NS	2	16.66
													NR	1	8.33
5. Library's all information product/ services should be available to all categories of users and not only to a particular category.	A	NR	A	A	A	A	D	A	A	D	A	D	A	8	66.66
													D	3	25.00
													NR	1	8.33
6. Libraries must constantly introduce new information product and services according to changing needs and demands of its users, so that they could not become obsolete.	A	NR	A	A	A	SA	SA	A	A	A	A	SA	SA	3	25.00
													A	8	66.66
													NR	1	8.33

Contd.

TABLE 3: ATTITUDES ABOUT THE FIRST 'P' OF THE MARKETING MIX 'PRODUCT'(CONTD.)

QUESTIONS	LIBRARIES												N = 12 (100 %)		
	CBRI	CBT	CDRI	CIMAP	CRRI	IIP	INSDOC	ITRC	NBRI	NPL	NISCOM	NISTADS	Response	No	%age
7. What matters most in the increasing use of library is the user's perception about the library and its product/services.	A	NR	SA	SA	A	A	SA	SA	SA	SA	A	A	SA A NR	6 5 1	50.00 41.66 8.33
8. The continuos assessment of library's information product/ services is necessary to determine whether they need to be continued, modified or withdrawn.	A	NR	A	A	A	SA	SA	SA	A	A	A	SA	SA A NR	4 7 1	33.33 58.33 8.33
9. It is necessary to sustain traditional services by promoting or changing them in such a way that they could attract users.	A	NR	A	A	A	A	A	A	A	NS	A	A	A NS NR	10 1 1	83.33 8.33 8.33

TABLE 4: ATTITUDES ABOUT THE SECOND 'P' OF THE MARKETING MIX–'PRICE'

QUESTIONS	LIBRARIES												N = 12 (100 %)		
	CBRI	CBT	CDRI	CIMAP	CRRI	IIP	INSDOC	ITRC	NBRI	NPL	NISCOM	NISTADS	Response	No	%age
1. The rising cost of IT has made it difficult for libraries to provide its product/services free of cost.	SA	NR	SA	A	SA	SA	SA	SA	A	SA	A	A	SA	8	66.66
													A	3	25.00
													NR	1	8.33
2. It is not easy to assess the direct and indirect cost involved in the development of information product/ services.	A	NR	A	A	A	D	SA	A	A	A	D	SA	SA	2	16.66
													A	-7	58.33
													D	2	16.66
													NR	1	8.33
3. Libraries have no right to deny access to information product/services to users as long as it is practical to offer them on a cost-recovery basis.	SA	NR	A	A	A	A	SD	SA	A	SD	D	SA	SA	3	25.00
													A	5	41.66
													D	1	8.33
													SD	2	16.66
													NR	1	8.33
4. All users should be charged equally irrespective of being internal or external.	SD	NR	D	D	SD	D	SD	D	D	SD	SD	SD	D	5	41.66
													SD	6	50.00
													NR	1	8.33
5. Charging fees for any information products/services discourages the library use.	A	NR	A	A	D	A	SD	D	A	D	A	SD	A	6	50.00
													D	3	25.00
													SD	2	16.66
													NR	1	8.33
6. To change only nominal cost will motivate the users to use our products/services repeatedly.	SA	NR	A	A	A	A	A	A	A	A	D	SD	SA	1	8.33
													A	8	66.66
													D	1	8.33
													SD	1	8.33
													NR	1	8.33
7. Changing fees for library information products/ services discourages non-serious users.	A	NR	A	A	A	D	SA	A	A	A	A	D	SA	1	8.33
													A	8	66.66
													D	2	16.66
													NR	1	8.33

Contd.

TABLE 4: ATTITUDES ABOUT THE SECOND 'P' OF THE MARKETING MIX–'PRICE' (CONTD.)

QUESTIONS	LIBRARIES												N = 12 (100 %)		
	CBRI	CBT	CDRI	CIMAP	CRRI	IIP	INSDOC	ITRC	NBRI	NPL	NISCOM	NISTADS	Response	No	%age
8. It is imperative that fees should remain negligible/symbolic, as everyone has right to get equal, unrestricted access to information.	SA	NR	A	A	A	NS	D	D	A	NS	D	D	SA	1	8.33
													A	4	33.33
													D	4	33.33
													NS	2	16.66
													NR	1	8.33

TABLE 5: ATTITUDES ABOUT THE THIRD 'P' OF THE MARKETING MIX–'PLACE'

QUESTIONS	LIBRARIES												N = 12 (100 %)		
	CBRI	CBT	CDRI	CIMAP	CRRI	IIP	INSDOC	ITRC	NBRI	NPL	NISCOM	NISTADS	Response	No	%age
1. If access to library's information products and services is not user-friendly i.e., it presents an emotional problem to the users; then the usage will be decreased alarmingly.	SA	NR	A	A	A	D	SA	A	A	A	A	D	SA	2	16.66
													A	7	58.33
													D	2	16.66
													NR	1	8.33
2. The unprecedented/revolutionary advancements in IT have raised user's expectations manifold regarding the access to information in terms of both quality of service and speed of delivery.	SA	NR	SA	SA	SA	A	SA	SA	SA	SA	A	SA	SA	9	75.00
													A	2	16.66
													NR	1	8.33
3. Excellent professional response and organised environment in the library will attract and increase manifold usage in the library.	SA	NR	A	A	SA	A	SA	SA	A	A	A	A	SA	4	33.33
													A	7	58.33
													NR	1	8.33
4. Information explosion and rapid advancements in IT are placing a strong demand for innovation in channels of information distribution.	SA	NR	SA	A	A	A	SA	SA	SA	A	A	SA	SA	6	50.00
													A	5	41.66
													NR	1	8.33

TABLE 6: ATTITUDES ABOUT THE FOURTH 'P' OF THE MARKETING MIX–'PROMOTION'

QUESTIONS	LIBRARIES												N = 12 (100 %)		
	CBRI	CBT	CDRI	CIMAP	CRRI	IIP	INSDOC	ITRC	NBRI	NPL	NISCOM	NISTADS	Response	No	%age
1. It is necessary to inform users about the utility and benefits of information product/services of library, when their usage is missing.	SA	NR	A	A	SA	A	SA	SA	A	NS	A	NS	SA	4	33.33
													A	5	41.66
													NS	2	16.33
													NR	1	8.33
2. The most effective way to promote information products/services of any library is through personal, courteous, efficient and well informed library staff.	SA	NR	A	A	SA	A	SA	SA	A	A	A	A	SA	4	33.33
													A	7	58.33
													NR	1	8.33
3. Library's product and services are so up-to the mark that there is no need of any marketing and promotional activity.	NS	NR	D	D	NS	SD	SD	SD	SD	SD	SD	NS	D	2	16.33
													SD	6	50.00
													NS	3	25.00
													NR	1	8.33
4. Conducting user-orientation programme is an important activity of libraries for promotion of its products/services.	SA	NR	A	A	A	A	A	A	A	A	A	A	SA	1	8.33
													A	10	83.33
													NR	1	8.33
5. Conducting user-oriented programme has been a neglected activity in libraries.	D	NR	A	A	SD	A	A	A	A	A	A	SA	SA	1	8.33
													A	8	66.66
													D	1	8.33
													SD	1	8.33
													NR	1	8.33
6. To convince the users about a new information product/services is generally a slow process. Effective promotional efforts will definitely reduce the period.	A	NR	A	A	A	NS	A	A	A	A	A	A	SA	1	8.33
													A	9	66.66
													NS	1	8.33
													NR	1	8.33

Contd.

TABLE 6: ATTITUDES ABOUT THE FOURTH 'P' OF THE MARKETING MIX–'PROMOTION' (CONTD.)

QUESTIONS	LIBRARIES												N = 12 (100 %)		
	CBRI	CBT	CDRI	CIMAP	CRRI	IIP	INSDOC	ITRC	NBRI	NPL	NISCOM	NISTADS	Response	No	%age
7. Sinage, symbols, handouts, and library brochures help to promote the use of library.	A	NR	A	A	A	A	SA	SA	A	A	A	A	SA	2	16.66
													A	9	75.00
													NR	1	8.33
8. Publicity and personal contact are indispensable tools to create awareness and interest among the users about the available information products/ services of library.	SA	NR	A	SA	A	NS	A	SA	A	A	A	A	SA	3	25.00
													A	7	58.33
													NS	1	8.33
													NR	1	8.33
9. Interest is the most effective and potent tool, now a days, for the promotion of library's product/ services.	SA	NR	A	SA	SA	A	SA	SA	SA	SA	SA	A	SA	8	66.66
													A	3	25.00
													NR	1	8.33

TABLE 7: SOME MARKETING RELATED ACTIVITIES

Library/ Inf. Division	Logo	*LH	*MS	*MP	Fund for Mkt.	*Mkt. Pers.	*Ann.Rep.	*Bull./News	*EM
CBRI	N*	N	N	N	N	N	Y*	Y	N
CBT	N	N	N	N	N	N	N	N	N
CDRI	N	N	Y	N	N	N	Y	Y	N
CIMAP	N	N	Y	N	N	N	Y	Y	N
CRRI	N	N	Y	Y	Y	Y	Y	Y	Y
IIP	N	N	Y	N	Y	Y	Y	Y	Y
INSDOC	N	Y	Y	Y	Y	Y	Y	Y	Y
ITRC	N	Y	Y	N	N	N	Y	Y	N
NBRI	N	N	Y	N	N	N	Y	Y	N
NPL	N	N	Y	Y	Y	Y	Y	Y	N
NISCOM	N	N	Y	N	N	N	N	Y	N
NISTADS	N	N	N	N	N	N	N	Y	N
N=12 (100%)	N-12(100)	Y-2 (16.66%) N-10 (83.33)	Y-9 (75.0) N-3 (25.0)	Y-3 (25.0) N-9 (75.0)	Y-4 (33.33) N-8 (66.66)	Y-4(33.33) N-8(66.66)	Y-9(75.00) N-3(25.00)	Y-11(91.66) N-1(8.33)	Y-3(25.00) N-9(75.00)

*LH - Letter Head
*MS - Mission Statement
*MP - Marketing Plan
*Mkt.Pers. - Marketing Personnel
*Ann.Rep. - Annual Report
*Bull./News - Bulletin/ Newsletter
*EM - External Membership
Y* - Yes
*N - No

TABLE 8: AVAILABILITY OF RESOURCES/FACILITIES

Library	TV	VCR	AV Unit	Xerox	Microfilm	Microfische	OPAC	Full Automation	LAN	DTP
CBRI	*A	A	NA	A	NA	NA	A	NA	NA	NA
CBT	*NA	NA	NA	A	NA	NA	A	NA	NA	NA
CDRI	A	A	A	A	A	A	NA	NA	NA	NA
CIMAP	NA	NA	NA	A	NA	NA	NA	NA	NA	NA
CRRI	A	A	A	A	A	A	NA	NA	NA	A
IIP	A	A	NA	A	A	A	A	NA	A	A
INSDOC	A	A	A	A	A	A	A	A	A	A
ITRC	A	A	NA	A	A	A	NA	NA	NA	NA
NBRI	NA	NA	NA	A	A	NA	NA	NA	NA	NA
NPL	A	A	A	A	A	A	A	A	A	NA
NISCOM	NA	NA	NA	A	NA	NA	NA	NA	NA	NA
NISTADS	A	A	NA	A	A	NA	A	A	NA	NA
N=12 (100%)	A-8 (66.66%) NA-4 (33.33%)	A-8 (66.66%) NA-4 (33.33%)	A-4 (33.33%) NA-8 (66.66%)	A-12 (100%) NA-0	A-8 (66.66%) NA-45 (33.33%)	A-6 (50.00%) NA-6 (50.00%)	A-6 (50%) NA-6 (50%)	A-3 (25%) NA-9 (75%)	A-3 (25%) NA-9 (75%)	A-3 (25%) NA-9 (75%)

* A - Available *NA - Not Available

TABLE 9: AVAILABILITY OF VARIOUS INFORMATION PRODUCTS/SERVICES AND THEIR CHARGING PATTERN

Library	Photo copy	Biblio-graphy	Press Clipping	ILL	Lib. Member	New Arrival List	Ref. Serv.	On-Line	CD-ROM	CAS	SDI	Abstra cting	Index-ing	E-mail	Internet	Transla-tion
CBRI	*C	F*	F	F	F	F	F	F	F	F	F	NA	F	F	F	NA
CBT	F	NA*	NA	F	F	F	F	NA	NA	F	NA	NA	NA	F	NA	NA
CDRI	C	C	F	F	F	F	F	F	F	F	F	NA	NA	F	F	C
CIMAP	C	C	F	F	F	F	F	F	F	F	F	NA	NA	F	F	C
CRRI	C	C	NA	F	C	F	C	C	C	F	C	C	NA	F	F	NA
IIP	C	NA	F	F	F	F	F	NA	NA	F	NA	NA	NA	F	F	NA
INSDOC	C	C	F	C	C	F	C	C	C	C	C	C	C	C	C	C
ITRC	C	C	F	F	F	F	F	F	F	F	NA	C	C	F	F	NA
NBRI	C	C	NA	F	F	F	F	NA	NA	F	NA	C	C	F	NA	NA
NPL	C	C	F	F	C	F	F	C	C	F	C	C	C	F	F	NA
NISCOM	C	C	NA	F	F	F	F	C	C	C	C	C	C	F	C	NA
NISTADS	F	C	NA	F	F	F	F	C	C	F	NA	C	NA	F	F	NA
N=12 (100%)	F-2 (16.66) C-10 (83.3)	F-1 (8.33) C-9 (75) NA-2 (25)	F-7 (58.33) NA-5 (41.6)	F-11 (91.6) C-1 (8.33)	F-9 (75%) C-3 (25)	F-12 (100)	F-10 (83.33) C-2 (16.66)	F-3 (25) C-5 (41.6) NA-4 (33.33)	F-3 (25) C-5 (41.6) NA-4 (33.33)	F-10 (83.3) C-2 (16.6)	F-2 (25.0) C-4 (33.3) NA-6 (50)	NA-5 (41.6)	F-1 (8.3) C-5 (41.6) NA-6 (50)	C-1 (8.3) NA-10 (83.3)	F-7 (58.3) C-2 (16.6) NA-3 (25)	C-2 (16.6) NA-10 (83.3)

*C - Charged * F - Free * NA - Not Available

TABLE 10: CHANGIND PATTERN

LIBRARIES	CBRI	CBT	CDRI	CIMAP	CRRI	IIP	INSDOC	ITRC	NBRI	NPL	NISCOM	NISTADS	N = 12
Charging Pattern	F*	F	F	F	AC*	F	WP*	F	NC*	F	F	F	F-9 (75.0) NC-1 (8.33) AC-1 (8.33) WP-1 (8.33)

* F - Free * NC - Nominal Cost * AC - Actual Cost *WP - With Profit

TABLE 11: PROMOTIONAL ACTIVITIES

PARMETERS	LIBRARIES												N = 12 (100 %)		
	CBRI	CBT	CDRI	CIMAP	CRRI	IIP	INSDOC	ITRC	NBRI	NPL	NISCOM	NISTADS	Response	No	%age
1. Signs, symbols, hand-outs & instructions are kept in appropriate place in library.	*OF	OF	*OC	*R	OF	OF	OF	OC	OC	R	OF	OC	R OC OF	2 4 6	16.66 33.33 50.00
2. Gi ve tours of the library building.	OF	OF	OF	OF	OF	R	OF	OF	OF	R	OF	OF	R OF	2 10	16.66 83.33
3. Notify users of the status OR availability of products/ services.	OF	OF	OF	OF	OF	OC	OF	OF	OF	OC	OF	OC	OC OF	3 9	25.00 75.00
4. Give a formal lecture on library resources in a particular field.	OC	N*	OC	R	OF	N	OFOF	N	OC	OC	OC	N	R N OC OF	1 3 5 3	8.33 25.00 41.66 25.00
5. Give demonstrations of various systems like OPAC, CD-ROM, E-mail, On-line services etc.	OF	OF	N	N	OF	R	OF	OF	N	OC	OF	R	R N OC OF	2 3 1 6	16.66 25.00 8.33 50.00

Contd.

TABLE 11: PROMOTIONAL ACTIVITIES (CONTD.)

PARMETERS	LIBRARIES												N = 12 (100 %)		
	CBRI	CBT	CDRI	CIMAP	CRRI	IIP	INSDOC	ITRC	NBRI	NPL	NISCOM	NISTADS	Response	No	%age
6. Conduct user-orientation programmes.	OC	N	OC	N	OF	N	OF	OC	N	R	OC	OF	R	1	8.33
													N	4	33.33
													OC	4	33.33
													OF	3	25.00
7. Arrange user-groups/ focus group meetings.	R	N	N	N	OF	OF	OF	OC	N	N	OC	N	R	1	8.33
													N	6	50.00
													OC	2	16.66
													OF	3	25.00
8. Conduct user-survey.	OF	R	R	R	OC	R	OF	R	R	OF	OF	R	R	7	58.33
													OC	1	8.33
													OF	4	33.33
9. Arrange library committee meeting.	OF	OF	OF	OC	OF	OF	OF	OF	OF	OC	OF	OF	OC	2	16.66
													OF	10	83.33
10. Display the latest arrivals.	OF	OF	OF	OF	OF	OF	OF	OF	OF	OF	OC	OF	OC	1	8.33
													OF	11	91.66
11. Prepare brochures and send them to target groups.	R	R	OF	R	OF	OF	OF	OC	OC	OF	R	N	R	4	33.33
													N	1	8.33
													OC	2	16.66
													OF	5	41.66
12. Suggestion/complaint Box kept in the library.	OF	N	OC	N	OF	N	OF	OC	N	N	OC	N	N	6	50.00
													OC	3	25.00
													OF	3	25.00
13. Write articles about the library and its services/products in in-house publications, local newspapers etc.	OF	N	OC	R	OF	OC	OF	OF	N	N	R	N	R	2	16.66
													N	4	33.33
													OC	2	16.66
													OF	4	33.33

* OF - Often *OC - Occassionally * R - Rarely * N - Never

TABLE 12: USER'S FEEDBACK VIS-A-VIS MARKETING RELATED ACTIVITIES

PARMETERS	LIBRARIES										
	CBRI	CDRI	CIMAP	CRRI	IIP	INSDOC	ITRC	NBRI	NPL	NISCOM	NISTADS
PRODUCT											
• User's involvement in selection of library resources	55	25	20	75	25	90	75	70	70	95	60
• User's involvement in the designing of information services/products.	50	20	15	70	20	90	70	65	60	55	40
• User's satisfaction with the quality of information services/products of the library.	70	80	70	85	70	100	95	80	85	75	65
PRICE											
• User's willingness to pay for information services/products.	15	40	40	40	10	60	45	30	40	20	10
PLACE											
• User's satisfaction with the time taken to receive the requisitioned document.	70	90	80	80	70	100	100	80	85	60	60
• User's satisfaction with the reading environment of											
General Book Stock	80	60	70	100	70	100	100	90	100	90	70
Reference Room	55	60	55	80	50	100	100	80	80	60	50
Periodicals	80	100	70	90	60	100	75	90	100	80	55
Newspapers/Magazines	70	20	85	70	70	100	90	20	90	40	15
• User's satisfaction with the accessibility of different reading materials											
Books	100	80	100	100	80	100	100	100	100	100	90
Current Periodicals	100	100	100	100	85	100	100	100	100	100	80
Bound Volume of Periodicals.	100	100	100	100	80	100	100	100	100	100	70

Contd.

TABLE 12: USER'S FEEDBACK VIS-A-VIS MARKETING RELATED ACTIVITIES (CONTD.)

PARMETERS	LIBRARIES										
	CBRI	CDRI	CIMAP	CRRI	IIP	INSDOC	ITRC	NBRI	NPL	NISCOM	NISTADS
• User's satisfaction with the accessibility of specialised/advance information services.											
OPAC	100	—	—	—	100	100	—	—	100	—	100
CD-ROMs	90	40	—	90	70	100	90	—	90	100	80
On-Line	90	40	—	90	60	100	90	—	90	80	60
• User's satisfaction with the photocopying service.	80	90	70	90	80	90	80	90	90	80	60
• User's satisfaction with the responsiveness of library staff.	80	80	70	95	80	100	90	70	90	90	85
• User's satisfaction with the opening hours of the library	70	60	40	60	65	100	100	80	70	60	60
PROMOTION											
• User's satisfaction with the display of latest arrivals											
Books	80	40	40	80	80	45	90	75	70	80	70 40
Periodicals	90	60	80	70	90	60	100	75	80	90	70 80
• User's satisfaction with the way intimation of arrival/purchase of documents.	80	50	90	80	90	75	100	100	80	90	75 70

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Quality in Library and Information Science Education in India

A BARADOL

ABSTRACT

Paper discusses the meaning of quality. It explains the need of quality in Library and Information Science education in India. It describes the characteristics of the quality which include commitment, working as a mission, etc. Paper emphasises on the role of supervision in Library and Information Science schools to achieve the quality. It provides guidelines for making an institution a quality institution like periodic assessment, development of individual identity, transparency and professional development. In conclusion it observes that for achieving the quality in the Library and Information Science education there are no standards.

1 INTRODUCTION

Quality is a key factor in the economy of any nation. It is an essential requirement from any product and institution. The quality control is an integrated approach to the quality function in an institution. It has the basic objective of providing a definite quality assurance and keeping the cost of the quality at an optimum level. Quality does not mean merely the goodness or otherwise of any product. It is the ultimate objective of any institution. Every consumer expects the quality from any product. It is true with the products of Library and Information Science schools. In order to achieve this it is essential that the educational institution, right from the time of selection, admission of students to final stage i.e. till the students leave the portals of educational institution, has to contribute to quality into the education programme.

2 Need for Quality

The funding agencies for Library and Information Science education in India are the state government and the University Grants Commission (UGC). There is a trend to reduce the grants to the higher education programme. The Library and Information Science education is not an exception to this. Already there is a cut in the budget in many universities and colleges for books, periodicals and the equipments. There is an increase in the cost of the books, periodicals and equipments. The staff salary is increased. This forces the Library and Information Science schools to generate resources by way of fees. The quality comes to the rescue here. Only the best quality institutions are likely to attract the students and generate their own resources. The other institutions which are slightly below in quality probably will be in difficulty.

3 Quality in Library and Information Science Schools

There are different requirements to achieve quality like commitment, working like a mission etc.

Narayan mentions following six fundamental requirements for achieving the total quality in any activity.

- top management commitment
- attitude change
- continuous improvement
- Strengthened supervision
- extensive training
- recognition of performance.

These requirements can be applied to Library and Information Science schools. The managements of schools should reinforce total quality in all their deeds. Every institution is concerned wit the quality of its different subsystems. Schools are concerned with the quality of its subsystems viz. students, staff, the environment etc. To bring in the total quality in the schools commitment, working as mission, recognition of performance, public relations, supervision, accreditation and continuous improvement. etc. are essential.

4 Commitment

The commitment include the commitment by the staff, the administration/management. The management differs from one type of school to other type of school. For the universities it is different authorities of the

university, for the private colleges it is the college managements or trusts, in case of government colleges, it is the state government. All those concerned with the total quality should make a verbal commitment. It is not enough if the commitment is made in writing. It should be visible in actions. It should be demonstrated by staff and managements. The teachers must perform their function in a more rigorous way, with greater zeal, interest and involvement. The commitment should be made in the verbal form of communication, newsletters, annual reports, handbooks, prospectus and through such other publications. When a commitment is made the same should be accepted without any further change in it. The executives of the Library and Information Science schools like the heads of the departments, chairmen of the Board of Studies, the person in - charge of admissions, the person in-charge of examinations have to be trained to understand what is meant by commitment.

5 Working as A Mission

The entire work in the Library and Information Science school should be on the model of a mission. The separated units have to be united. The frequent meetings help unite the separated entities. There should be formal and informal meetings in the schools. Both together would lead to the development of a common vision. A written document about the mission statement should be accepted. This would provide the staff, researchers, students a clear vision about the purpose of the school. The mission statement helps the school in providing the proper direction. The components of the school are students, teachers, researchers, technical staff, administration and parents/guardians.

While discussing Total Quality Management (TQM) in education Manu says, "In the school set-up all those who contribute to the system must be involved, including employees and students. Also everything that contributes to the system must be involved including the environment and strategic planning." 2 If all these components perform their respective functions as a mission it is possible to achieve the total quality.

6 Supervision

The supervision which was once seen and understood as authority is no more valid now. The colleagues have to be given self responsibility. The self responsibility would improve the quality of teaching, which would in turn help to achieve total quality. The University Grant Commission (UGC) has introduced the self performance appraisal. At the college and

university level the same should be made more rigorous for Library and Information Science teachers at the university level. For the Library and Information Science teachers at the polytechnic level a different of mechanism could be evolved on the similar lines of self performance appraisals.

7 Accreditation

To achieve the total quality in Library and Information Science schools the accreditation is essential. Unless the schools are accredited the quality can not be achieved. Rigorous parameters should be applied before awarding the accreditation certificate. It is not enough if the accreditation is got once. A periodical accreditation is required for all the Library and Information Science schools in India for achieving quality.

8 Continuous Improvement

There has to be continuous improvement over the previous results of any activity. This requires positive support from the management of Library and Information Schools. Schools must recognise that achieving innovation requires constant feedback and positive support. The positive support should be extended to every employee.

9 Guidelines to Achieve Quality

The quality can be achieved in education and institution can be converted into quality institution by following certain guidelines which are discussed below:

9.1 Indiscipline

The indiscipline has to be killed. It is essential to kill it first among the management. In case of the Library and Information Science schools it has to be killed among teachers first and students next. It is very difficult to implement it in India because India is a heterogeneous country having multi religion, multi-lingual, and multi-cultural people. The ready made assended quality models will not suit to India. We will have to develop our own models.

9.2 Planning Radical Changes

The institution imparting education should be careful when planning radical change. When the institutions were started in the beginning many

were planned and developed for undergraduate programmes. Here the teaching was a central mission. Such institutions have started Master's programmes and in some cases research also. In such cases there may be mismatch of qualifications of staff, etc. This would cause the frustration among the staff. The schools should be very careful while starting any new programme.

9.3 Curriculum Development

The curriculum development requires faculty who have specialised knowledge of course content and methods of instruction. In some cases the curricula are developed by less experienced staff. This should be avoided. The prospective/future employers have to be involved in the curriculum development. This may look somewhat utopian in Library and Information Science education. But now it is needed. We are more quality conscious than ever before.

9.4 Trends in Technology

A departmental programme committee should develop the proposal of revision of curiculum keeping in view the trend in the technology and the need of the hour.

9.5 Research

Since planning for change will have a number of impetus it must be based on a number of assumptions related to societal trends. The allocation of funds for research should be carefully done because it would affect the existing programmes.

9.6 Innovation

Innovation is required for successfully implementing any new plan. Innovation is the foundation of the future. Innovation is necessary for the vigour of the institution. Innovation is fundamental to progress. Without innovation no progress can be achieved. Good innovative ideas from the employees have to be welcomed. We have to go step ahead, if a student has any innovative idea even that also should be encouraged. Innovation requires resources. Hence a provision should be made in the budget for innovative programmes.

9.7 Recognition of Performance

Recognising the performance and achievements is important while motivating the staff. It is not enough if only reward is given. Fixing reward is

likely to create problems because of bureaucracy. Hence rewards are not to be encouraged. We have to facilitate such staff by reducing their work load so that they can devote the same time in improving the knowledge of the subject.

9.8 Public Relations

The improvement of public relation is an important aspect in the quality assurance process. There is a need to make use of the expertise available in the other departments in an university and college. This is possible if the Library and Information Science department maintains better public relation with other departments. The improvement of communication skill is required for this. Hence the communication skill has to be improved.

9.9 Periodic Assessment

Let every Library and Information Science school be subjected to periodic assessment against planned quality improvement measures.

9.10 Development of Individual Identity

The quality can be achieved by all round development of each Library and Information Science Schools. For this the institutional development planning has to be made as a standard feature.

9.11 Transparency

There has to be transparency in all activities in the Library and Information Science schools. Transparency in the curriculum design, in the internal assessment, curricular and co curricular activities.

9.12 Professional Competence Development

Facilities for the continuous professional comptence development should be provided. This includes attending to number of programmes related to professional development like refresher course, seminars conferences, workshops, higher study, etc.

10 Conclusion

The quality standards varies from one organisation to another organisation, from one service to another service, from one type of activity to

another type of activity. There are no uniform standards by which we can achieve quality. Among other things the concepts viz total commitment and acceptance of mission statement etc. are significant to achieve quality. Unfortunately there is no ready made formulae to ensure change and innovation in the education for Library and Information Science. It is very difficult to design uniform mechanisms to improve the quality of Library and Information Science education. This is because we have different levels of Library and Information Science education and different type of schools imparting Library and Information Science education like polytechnices, universities, and colleges and government department. The standards for achieving quality are yet to be developed.

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Accrediting Agencies for Library and Information Science Education

ABDUL MAJID BABA

ABSTRACT

Examines the need for accrediting agency in L&IS education. Discusses the role of an independent agency like Indian Council of Accredition of L&IS education Compares and gives advantage and disadvantages with that of the UGC's Accreditation and Assessment Council.

1 INTRODUCTION

Regarding the accrediting agency for library & information science education, it is a matter of wide discussion to select a body which may be able to do the accreditation. While collecting the views through the questionnaire from the eminent library professionals by the author of the present paper, the various agencies were recommended as accrediting agencies for library & information science education. Most of the library professionals recommended that University Grants Commission (UGC) or Indian Council of Accreditation for Library & Information Science Education (ICALISE) should take the responsibility of accreditation of LIS education in India and other agencies which were recommended are: (i) Indian Library Association, (ii) National Committee consisting of members from faculty, professional associations, libraries, (iii) Association of Indian Universities, (iv) Indian Association of Teachers for Library & Information Science, (vi) Inter University Board, (vii) Association of Library & Information Science Schools. It is in the light of these recommendations that emphasis can be laid either on the UGC and

ICALISE as an accrediting agencies. However, agencies like Indian Library Association (ILA) which the library professionals believe to act as a accrediting agency can be stated briefly as some want to follow the American Library Association (ALA) pattern. Our national professional association ILA could take up this activity. This could avoid the interference of the government or any of its agencies. The activities of the Association would be under the close scrutiny of its members and it will be possible for the whole profession to join in the formation and review of such programme. It may be noted, however, that like Library Association of U.K., the ILA does not maintain a register of librarians, nor has it any authority in its constitution. Keeping in view the inability of the Association to establish proper full-time headquarters and staff, its financial position, its limited membership, it is not possible that the Association could take active part in the process of accreditation.

2 Indian Council for Accreditation of Library and Information Science Education (ICALISE)

It was resolved at the National Convention on Library Science Education held under the auspices of the ILA in 1976 that: "To maintain uniformity in the standards in the programmes in the country, the Government of India be requested to create a Library Science Council on the pattern of the Indian Medical Council".

A National seminar on Accreditation of Library and Information Science (LIS) Schools in India, sponsored by the University Grants Commission, was organised at Nagpur University, Nagpur during 7 to 10 March, 1994. The seminar also stressed the need for establishing an independent National Council which may be named as Indian Council for Accreditation of Library and Information Science Education (ICALISE). The various components of ICALISE have already been framed by various library professionals.

3 Accreditation and Assessment Council (AAC) of the UGC

The Programme of Action of National Policy on Education, 1986 has proposed the establishment of an Accreditation and Assessment Council (AAC) for maintaining and raising the quality of institutions of higher education. In order to prepare a detailed report on the proposed Accreditation and Assessment Council, the University Grants Commission (UGC)

constituted a committee with Dr. Vasant Gowariker as the Convenor in November, 1986. The Committee submitted its report in 1987. The UGC after receiving the report, decided to conduct workshops in different regions and asked some identified universities to conduct on the concept of accreditation and assessment. It appears that a few workshops have been organised. The progress of AAC is very slow. The report of the Committee on Accreditation and Assessment Council has been divided into 8 main headings: i. Introduction ii. Management of Higher Education iii. Accreditaion iv. Important Features of Accrediting System v. Steps Towards an Accrediting System in India vi. Linkages vii. Financial Implications viii. Recommendations.

4 Outcome of Comparision

From the above comparision, we can say that ICALISE is the only accrediting agency which can take full care of maintaining the standards of library and information science education. The Parliament has to pass the Act to establish the Indian Council for Accreditation of Library and Information Science Education (ICALISE) on the anology of Indian Medical Council Act, Bar Council of India Act and All India Council for Technical Education Act.

Recognition of library and information science qualifications is a necessity in order to prevent the quacks and insufficiently trained persons from practicing librarianship. Since librarianship is considered as an prestigious profession, governments of various countries like USA and UK feel the necessity of safeguarding the readers/scholars community by controlling library education. It is expected that the Government of India, which has not yet cared to legislate for the provision and coordination of proper national library services, will now show much interest in creating the ICALISE.

TABLE 1: ADVANTAGES OF INDIAN COUNCIL OF ACCREDITATION FOR L&IS EDUCATION (ICALISE) OVER ACCREDITATION AND ASSESSMENT COUNCIL (AAC) OF UGC

	ICALISE		ACC
Scope for leadership	1 The ICALISE can play active role as an accrediting agency in the field of library and information science education as it has to solely deal with only one profession i.e. Librarianship.	1	The AAC has much broder scope and it has to deal with the whole institutional programmes offered and with the result library and information science education may not get the due attention.
Role	2 ICALISE is expected to play its role like that of Indian Medical Council, Bar Council of India and All India Council for Technical Education which are considered as the best accrediting agencies in their respective fields such as medicine, law and technical & engineering education.	2	It will be the bundle of all subjects and making the justice with the none of the subjects. It will be just like jack of all trades but master of none.
Implementation	3 It is an new venture and is bound to grow if nurtured properly and provided due support.	3	It is still on the paper for the last several years and no fruitful results have taken place so far.
Institutional Support	4 Majority of the libraries, library schools and library professionals are interested to create ICALISE on the anology of other	4	It is just like too many cooks spoil the broth. People are only talking about it but no concrete results have been shown despite more than one

Contd.

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	ICALISE		ACC
	accrediting agencies of professional courses. Thus, it is easier to form the ICALISE. All the professionals are ready to co-operate voluntarily with the ICALISE in order to maintain the standards of library science education.		decade's efforts put in this direction. If the UGC did not do anything for the last several decades for maintaining the standards, how one should expect that AAC will perform the job of accreditation in a better way. UGC was already having the powers to act as an accrediting agency and despite that it has not done anything so far.
Autonomy	5 It will act as an independent and autonomous body, free from political, academic community pressures and chosen few manning various committees of LISE.	5	The AAC is in every sense of the word the child of the UGC. There will be the connection between the UGC and the AAC ie. the Secretary of the UGC who will be member of the Council in his ex-officio capacity. It can lead to a conflict between UGC and AAC on certain occassions.
Certification of	6 It has to only accredit the library schools products and only those products coming out from the different schools will be given employment whose schools have been accredited by the ICALISE like that of American Library Association (USA) and Library Association (UK). It will not provide any grants for maintaining the standards but will only certify the schools for upholding the laid down standards.	6	The UGC has been able to exist by doing half the job i.e. giving out grants. It did not do the other half though its original mandate was to give grants so as to co-ordinate and determine the standards. UGC has shifted its unsolved problem of accreditation to AAC. When the problem is defined, it is half solved. We don't expect that AAC will be able to define/solve the problem of accreditation.

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	ICALISE		ACC	
Area Coverage	7	From the moment it starts its work of accreditation, it will cover all the central and state universities, colleges, polytechnics conducting library and information science programmes through out the country.	7	In case AAC starts its work of accreditation, it would begin its assessment with the accreditation of deemed universities, autonomous colleges and a few central universities in the first phase. Thus ignoring the majority of the universities where library and information science programmes are conducted and also polytechnics.
Visiting Team	8	The visiting/inspection team will perform the following tasks: a) Hold conference with the members of the faculty, students and authorities; b) Observation of physical facilities and technical resources available in schools of LIS; c) Visit to classes and observe methods of instruction; d) Examination of performance of different areas of work; e) Holding meetings with alumni and non-teaching staff to understand their problems; f) Observation of academic contribution.	8	The visiting/inspection team would visit the institution only to see if the self assessment was accurate and something related to it;
Grading/Ranking	9	It will have grading/ranking system of the institutions.	9	There is no provision for grading/ranking.

Contd.

	ICALISE	ACC
Voluntarily co-operation	10 Institutions conducting library and information science programmes are willing to come forward voluntarily under the domain of ICALISE.	10 Its existence depends upon whether the institutions come forward to accredit and assess themselvs since it is an entirely voluntary process.
Future	11 It has bright future to achieve its objectives being a collective effort in right direction.	11 It might end up like existing role of the UGC - without teeth.
Relevance	12 It is relevant for the library profession in the modern scence of the term and scope of the training programmes.	12 It will not find support from the professional courses. As it has been stated in its that all higher educational institutions except medical, engineering, law and dental colleges would come under its purview. We should expect the same treatment for librarianship as it has given to the medical, law and engineering, being a professional course like others.
Office	13 Its office may be located centrally i.e. Delhi with its zonal sub-office at Mumbi, Calcutta, Madras and Banglore.	13 Its office is located out of reach i.e. Banglore.
Representatives	14 The representatives at ICALISE would be represented by all the established library associations, library professionals, library schools from all the regions of the country. In addition it would be represented by University Grants Commission and Association of Indian Universities.	14 Librarianship will not get any chance to represent at AAC. It would be represented by All India Council for Technical Education, central and state universities, senior academicians and educational administrators as mentioned in its programme.

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Career-Oriented Education for L&IS Students: Meeting Challenges of Next Millennium

RAJEEV VIJ AND D S BEDI

ABSTRACT

The origin of library and information science (LIS) education in India can be traced back to 1911. Over the years, the information scenario has seen many changes. The information explosion and growing demands from a wide range of LIS users for authoritative, validated and value-added information are very important factors that are having considerable ramification on the development of LIS profession. The increasing user needs have necessitated the automation of LIS activities making optimum use of ever-changing information technology products and services. There is therefore an imperative need to equip the library professionals with all the needed knowledge, skills and capabilities to handle this new'IT invasion' in LIS profession. However, the present day LIS curriculum which could not match the pace of the changing LIS scenario has become more or less irrelevant. The lack of appropriate training standard among LIS students is leading to considerable unemployment and underemployment in the profession.

At present, the lack of appropriate direction is throwing the LIS field open to specialists from other disciplines who are more ready to adapt to the changing environment. The present study attempts to identify challenges to LIS profession in the area of career development, based on the survey of the Internet-based career, job and employment information particularly regarding the skills required for LIS professional jobs across the developed countries. Suggests suitable measures to overcome these challenges faced by information professionals. Argues that the application of these measures will enable LIS professionals to pursue new and challenging information delivery roles during the next millennium.

1 Introduction

The application of new information technology in LIS profession mainly to meet the growing demands from a wide range of users for authoritative, validated and value added information has transformed the conventional libraries into information centres. As a result, it has become imperative to equip human resources with all the needed knowledge, skills and capabilities to handle the new'IT invasion' in LIS profession. Most of the LIS schools in India follow traditional curriculum, which is inadequate to serve the emerging information market. This calls for reassessment of strategies for developing manpower competent enough to meet the challenges of the new millennium.

Information Technology (IT) applications have also brought tremendous change in the overall scenario of information storage, access and dissemination. Advancement of telecommunication and networking technologies has facilitated faster information access and delivery. The developments in the area of Internet and the World Wide Web have made tremendous impact on the society as a whole, shrinking the world into a global village. In this changing information scenario, the information professionals are required to play a vital role (1).

2 Objectives of L&IS Education

Some of the specific objectives of LIS education as identified by John Dean are:

- To produce personnel capable of handling a variety of problems arising in different kinds of libraries and information centres.
- To produce professionals capable of undertaking research work on different facets of library and information science.
- To provide training in the design and development of library and information systems, services and techniques.
- To familiarise the students with information technology, such as reprography as applied to library and information systems; and
- To develop the ability of the students to apply methods of research in finding solutions to library and information systems problems; to formulate project proposals and to effectively present project reports and dissertations (2).

3 L&IS Education in India

Library and information science education in India has its origin in 1911, when the first training course was conducted by WA Borden in Baroda. AD Dickenson, the Librarian of Panjab University, Lahore, organised a

three-month training course, in 1915. Today, over 95 universities are running BLIS degree programme and over 65 providing advanced training leading to MLIS. Out of these, 32 universities have facilities for research leading to MPhil and PhD. Also, Indian National Scientific Documentation Centre (INSDOC), New Delhi and Documentation Research and Training Centre (DRTC), Bangalore, run specialised courses leading to degrees that are treated equal to MLIS. Over 12 universities are producing thousands of students through correspondance courses (distance education) armed with CLIS, BLIS and MLIS degrees.

The distance education system is increasingly being considered as the most viable method of overcoming the problems faced by under developed countries like India in developing competent human resources. In fact, the distance mode of teaching is gradually evolving as an important component of LIS education in India. The courses offered by the open universities in the country are quite innovative and involve multimedia packages for teaching and learning. The trend is towards delivery of courses through electronic networks. The latest development in this direction is the Indian Training and Education Network for Development (INTEND) which is being set up to impart education through distance mode. The network will be used for value added services, such as e-mail, downloading of lectures/notes from the hub station to remote classes, provision of internet services through gateways, library services, video conferencing, etc. The network will be also utilised for online registration and evaluation purposes. As a part of INTEND, the OPENET is being set up to connect all the open universities and the distance teaching institutions in the country. The INTEND once implemented is expected to bring about revolutionary changes in the education and training through distance mode in India (3).

However, with all this infrastructural development, the present day library and information science education in India, which primarily aims at training general purpose librarians, fails to develop knowledge and skills in information professionals that are necessary for handling the new information technology. Today, the general feeling is that the present day library and information science curriculum has become less relevant, as it is unable to update the training standard among students by way of imparting new skills, leading to a lot of unemployment and underemployment in the profession. The curriculum has not expanded in line with the production of information on the subject. It is based upon obsolete practices. Although some library schools have added a few papers like computer application, online searching, etc. but these are limited to theoretical knowledge rather than practical hands-on training.

The deteriorating job market for librarians in India has led to increasing concern amongst the number of people currently being educated for the library profession.

In the present information scenario, the role of the LIS professional has become more insecure. The lack of leadership and sense of direction is throwing the field open to specialists from other disciplines who are more ready to adapt to the changing environment.

4 Status of Information Profession

The existing curriculum of most of the Indian universities is based on the recommendations of the Ranganathan Committee and the Committee set up by the University Grants Commission (UGC), in 1978. The recommendations made by these Committees, which are mainly for the Bachelors level courses, are quite outdated and irrelevant in the present day context. To restructure the curriculum and bring about a uniform national pattern of LIS education in India, the University Grants Commission (UGC) appointed the Curriculum Development Committee (CDC), in 1990. The report brought out by the CDC was however found to be unsatisfactory and was not adopted by most of the universities. Today, in view of the latest developments in information technology and rising demand for the information professionals, there is an urgent need to develop strategies conducive for the National Information Infrastructure(4).

How to generate appropriate manpower for the National Information Infrastructure is the major issue confronting the information profession today. As a result of wide range application of information and communication technologies, the nature of information work has undergone a vast change over the last two decades. In the context of the emerging information society, information organization, dissemination and management is getting more emphasis. The developments in the Internet, multimedia technology, web etc., have changed the whole scenario of information management. There is a distinct clange in the role of the information professionals as compared to the traditional roles and responsibilities. Adoption of wide range of information technologies for information related work calls for redefinition of services, roles and responsibilities of information professionals. For providing effective services, the modern information professionals needs to acquire knowledge and skills of different professions, viz., computer and software specialist, database manager, publisher, journalist and media specialist, etc. There is rising demand for this new kind of information workers

having the skills of various professions. It has therefore become very important that the information professionals be properly trained in information technology applications and information handling procedures so as to enable them to adapt to the everchanging information environment (5).

The 'virtual university' mediated across the Internet is already a reality in advanced countries and it is gradually being adopted in developing countries like India. Increasingly, academic activities are taking place in a new educational space created by the local and global networks (6).

Librarians lack a strong sense of identity and library schools and library profession have been weak in regulating themselves in comparison to other professions. With information work becoming multifunctional in nature, it has become essential to incorporate changes in the curriculum by adopting multidisciplinary approach. The greatest challenge is to bring together the skills of the librarians, computer scientists, and subject specialists. There is also an urgent need to attract more number of persons to the profession. Unless immediate steps are taken to develop adequate number of modern information professionals, chances are there that persons from the other professions will have an upper hand in the information related work and the LIS professionals will be left with the traditional roles of managing libraries. This will restrict the development of the profession and create a glut in the market for the LIS professionals. Thus, redesigning and restructuring the curriculum for the LIS courses has become the foremost task of the profession and special attention is needed in this direction.

5 Results of Internet Survey

A survey of the various library and information science related job sites on Internet was conducted to identify the major skills required by various job advertisers. Some important ones are:

- Working knowledge of online research systems (e.g., Lexis-Nexis, Dow Jones, the Internet) and CD-ROM databases.
- Interviewing, communication and presentation skills.
- Basic personal computing skills (word processing, spreadsheet, database, and e-mail).
- Demonstrated leadership ability in conflict resolution, problem solving and organizational change.
- Excellent oral and written communication skills, including the

ability to work and communicate cross-culturally with diverse groups and individuals.

- Innovative thinker (detail-oriented).
- Highly developed organizational skills, including the ability to direct large projects team builder and player.
- Competent information technology skills and knowledge of current and emerging library technologies.
- Thorough knowledge of competencies for service librarians.
- Familiarity with automated library systems and internet resources.
- Successful experience with web page design and web-based technologies such as HTML.

Unfortunately, none of the library and information science curricula in any of the universities in India, aims to impart most of these skills amongst their trainees/students.

6 Professional Education—Problems & Trends

The educational reform in library and information science is a long-term process that may never reach a final settlement. The main requirement is that the process should keep balance between the needs of job market and establishment of solid foundation in academic environment. Here are some suggestions on what need be done to improve the education/ training system with an aim to produce LIS professionals competent enough to face the challenges posed by the new millennium.

A quick review of the LIS education system in the country reveals that the curriculum for most of the courses has not been able to keep pace with the latest developments in information technology and information handling procedures. The provision of continuing professional education programme is another area, where the activities are limited and sporadic in nature. The network-based teaching and learning system can solve these problems to a great extent. It provides a great degree of flexibility to the curriculum designers. It gives a scope to redesign and reorient the curriculum as and when required according to the needs of the society. The continuing professional education is another area which could be addressed effectively through the network-based education system (7).

Finally, to facilitate the development of students to handle new technology, the following measures may be adopted: (a) Curriculum development and updating (b) Compulsory six-month training/internship, and (c) Certificate/diploma level training in an allied subject, such as audio-visual technologies, multimedia, telecommunications, online/ CD-ROM searching, statistical analysis, bibliometrics, technical writing

and database design.

Some important areas that need proper attention while modifying the LIS curiculum are: (i) Information technology, including office software, text and information retrieval software and database structures, and software; (ii) Electronic resources, including multi media, on-line, Internet/WWW, and Electronic document design; (iii) Communications technology, including networking, intranets, and network management; (iv) General management procedures and systems; (v) Information systems, including security and control, records management and information audit, etc, and (vi) Research skills, including project design and management, methodology design and management, etc.

The teachers of library science and the librarians should not grumble to switch over to a new system and to adjust and recast their activities in the present changing technological scenario, as new technologies can make old services work better and often do not require radical changes. Rather, they facilitate the librarians to do what they wanted to do better. The authorities responsible for professional education must identify the future professional trends and needs, and accordingly prepare practitioners to meet the changed situations.

The foremost task of the LIS schools should be to develop professionals specializing in handling new information technology. Special emphasis should be given to impart skills and training in handling the latest technological innovations. The curriculum should be flexible enough to adopt changes as and when required, integrating the information technology aspects with the general curriculum. The traditional skills of information processing, retrieval and dissemination are to be reoriented with the new information technology to suit the present day situation. In a fast changing society, it may not be possible for any generalist curriculum to take care of all the aspects of information work. It is therefore imperative to develop curriculum at different levels. The courses should be developed in three levels: generic, specialized and advanced levels (8). The generic courses should provide knowledge and experience in information processing, resources and services. The specialized courses should provide extensive experience and skills in the new information technology at both technical and operational levels. The advanced level courses should be mainly for developing professional expertise. While restructuring the curriculum to suit the current needs of information infrastructure, special attention is also required to develop sufficient number of qualified faculty. A well-trained faculty is the most crucial requirement for implementing changes in the curriculum. It is therefore important to reorient and re-educate the faculty from time to time to keep

them abreast of the latest developments in the profession. Moreover, the multidisciplinary approach of the curriculum will require cooperation from other disciplines also. The faculty could comprise two categories: the generic and the specialist. While the generic faculty would be providing knowledge and training in information handling procedures, the specialist would impart skills and training in handling various information and communication technologies, management techniques, etc. (9).

The strategies mentioned above could only be fruitful if proper infrastructural facilities are available. It is therefore essential for the institutions to have adequate infrastructure in terms of computer and communication technologies - both hardware and software, sufficient access to multimedia learning resources, and well trained staff to handle and maintain the resources. The future also depends upon such other factors as framing a national policy on LIS education, evolving suitable standards, checking unplanned growth and developing responsive educational and training programmes (10).

One small beginning has been made by the Department of Library and Information Science, Aligarh Muslim University, which is shortly going to start a new course, first of its kind in India, on "Master of Computer Applications to Libraries (MCA Libraries)". The objectives of the course is to train the students in the latest information and communication technologies along with sufficient knowledge of information systems and services to enable them to take up jobs in fully automated libraries.

Another good news is that the Curriculum Development Committee of the UGC is undertaking necessary exercise to revise and update the curriculum to be adopted by LIS departments. However, no serious attempts have been made to ascertain whether the supply of personnel matches demand, or falls short of it, or is in excess of it. This is an area that needs to be carefully examined.

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MORE SARASWATI GANPATRAO

ABSTRACT

The paper discusses the concept of continuing education with a case study of Dr Babasaheb Ambedkar Marathwada University, Aurangabad (Dr BAMULA).

1 INTRODUCTION

Human life is dynamic and change is nature's Law. Library profession is not exception to it. Old traditional ideas, concepts become outdated, professionals must be kept well informed about recent developments to update awareness about their field. Librarianship as a profession needs up to date knowledge is no exception to this. As library is a service oriented institution and needs to serve the patrons Library is known by the services it renders and not known by the marvelous building and huge furniture. Now a days due to the information revolution, needs of the clientele are changing day by day. The changing environment such as change in Librarian's role, change in reading material which is not limited only to books but films, gramophone records, tapes, micro production along with computers. They come to help internet, library serves the intellectual desire of a large clientele. As per changing demands library professionals should change and it can be done by continuing education. It is essential far library profession.

2 WHAT IS LIBRARY PROFESSION?

Dr P.N. Gour defines "Persons employed to serve in the Library as members or its satff".

Continuing education is inservice training. It keeps ourself upto date with new developments. It helps in career development, refreshes knowledge skills and education.

3 What is profession

As per ALA World Encyclopedia of information and library services "maintenance of knowledge growth in skills and development of competencies of performing roles in the work environment are critical aspects of a profession".

3.1 Why continuing education

The changing role of reading material due to information revolution, reading material is changed from printed to non printed material, vast material is printed, Growth of information sources published, information sources it needs to learn these activities.

3.1.1 Meaning

All those learning activities after initial qualifications in librarianship which contributes to professional development whether they take place on the job within the library system or outside it provided by library schools.

3.1.2 Changing pattern of library services

Library is service oriented institution. It is for reaching the potential users recent developments in information technology. Continuing education teachers all the personal facilities connected with different types of libraries and technological advancement development in information storage. Continuing education is life traditional to new creation of education it prevails C.E.

Developments of new information tools such as Internet, Union calalogues abstracts needs C.E. Changing role or librarian.

Days have gone that librarian is only the custodian of a library. Their status qualifications pay have changed, they are at par with the teachers University and college libraries report of library committee of UGC.

"Qualifications for the library staff academic qualifications of the library staff are at par with Professors, Readers Lecturers so as to keep abreast of the prossess of recent trends professional qualifications Ph.D, M. Phil, M. Lib, B. Lib, status and salary"

3.2 Professionalism as per ALA

"Professionalism is the conduct of qualified people who share responsibilities for rendering a service for engages in continued study and for maintaining high standards or achievements practice within the principles structure and content of a body of knowledge"

3.2.1 Aims and Objectives of Study

- To know what is continuing education.
- Why it is necessary and what are the continuing education programmes.
- To study whether continuing education facilities are given to library professionals.
- To survey what types of continuing education and how the library professionals lacking behind.
- To see whether the staff is keeping abreast of new developments in the fields.
- To observe whether the satff is keeping abreast of new developments in the fields.
- To suggest some solutions for career advancement of library professionals at Dr. Babasaheb Ambedkar Marathwada University Library.

4 Methodology

1) Case study
2) Observation
3) Oral interview

4.1 Scope and limitation of study

A case study of Dr. Babasaheb Ambedkar Mararthwada University Library, Aurangabad reveals that

Upto 1950 Marathwada was a part of (Nizam) Hyderabad state now it is part of Maharashtra. Marathwada was under developed region due to Nizam state rulers. There Marathwada people thought to estabilish new University and Marathwada University established on 23rd Aug. 1958 before that Osmania University was importing knowledge. Our First Prime Minister Pandit Jawaharlal Neharu inaugurated Marathwada University.

Marathwada university was renamed as Dr. Babasaheb Ambedkar Marathwada University on 14th Jan. 1994. Now the University is well developed. The library foundation stone was laid down by Shri. Y.B.

Chavan the then Chief Minister and inaugurated at the auspicious hands of Dr. Sarvapalli Radhakrishna our 1st. President of India on 15th March 1966.

Table showing existing staffing pattern of the University Library.

1 Librarian
2 Dy Librarian : Vacant since 1997
3 Assistant librarian (Technical sect.)
4 Assistant librarian (ordering)
5 Assistant librarian (reference)
6 Assistant librarian (periodical)
7 Documentation officer vacant (science)
8 Documentation officer (arts)
9 Senior library Assistants (3)
10 Junior library Assistants (7)
11 Steno typist, clerks, Binder, Asstt binder, helpers, peons

Binding section is closed since 1992 books are bound by out side binder.

4.2 Traditional services

Dr. Babasaheb Ambedkar Marathwada University library provides the traditional services. Though the computer were purchased way back in 1994, the library staff still required to be trained.

Refresher courses have started since 1996 at Dr. Bamula. Chart shows the refresher courses completed by library professional.

Name of the post	University	Year
1. Assistant Librarian TechnicalSection	Aligarh Muslim	1991
	Pune	1992
	Dr Bamula	1996-97
2. Assistant Librarian Periodical Section	Aligarh Muslim Pune	1996
3. Assistant Librarian Circulation Section	Aligarh Muslim Pune	1996,97,98
4. Assistant Librarian Ordeing Section	Aligarh Muslim Pune	
5. Assistant Librarian	Aligarh Muslim	Orientation Course

Stone says:

> "Continuing education means all activities and efforts by librarians to upgrade their knowledge abilities competencies and understanding in their field of work or specialisations so that they can become more effective professionals and be able to handle the responsibilities of greater scope and accountability."

Actually employer has the responsibilities both for providing opportunities for C.E. and to encourage employee to keep update Library associations are expected to identify the needs in the field and recent trends through conferences, workshop, publications.

Ph.D. facility is provided to eight students. Only one guide is there, therefore, guides from other Universities may be reconginsed as Pune University is having practice. As per norms and ordinances those who are not Ph.D. but has ten years teaching experience to post graduate students may be recognised as guides. Because todays demand is for Ph.D., as library professionals at are par with the teachers and UGC is demanding Ph.D. to provide salary, status but for Ph.D. Study leave or teacher fellowship facility is not given up till now.

As per G Devarajan "Library science education and Manpower" ESS ESS publications Ansari Road, Darya Gang, Delhi 1995 P 79 & 78, there are number of courses offered by different universities. They are enumerated in the following chart.

Chart Showing Ph.D./M.Phil. Courses at Various Universities

Courses Offered

Sl.	Name of Univ.	C.Lib.Sc/	B.L.I.Sc.	M.L.I.Sc.	M.Phil	Ph.D
1.	Agra University Agra	*	*			
2.	Aligarh Muslim University		*	*		
3.	Amravati University (Maha.)	*	*			
4.	Andhara University	*	*			*
5.	Annamalai University		*	*	*	*
6.	A.P.Singh University. M.P.	*	*			

Contd.

Contd.

Sl.	Name of Univ.	C.Lib.Sc/	B.L.I.Sc.	M.L.I.Sc.	M.Phil	Ph.D
7.	Banaras Hindu University, Varanasi		*	*		*
8.	Banglore University Karnataka		*	*		*
9.	M.S.R. University of Baroda, Gujarat		*			
10.	Berhampur University Orissa	*	*			
11.	Bhagalpur University, Bihar		*	*		
12.	Bhavnagar University, Gujarat		*			
13.	Universtiy of (Bombay) Maharashtra		*	*		
14.	Bundelkhand University, UP		*			
15.	University of Burdwan, West Bengal		*	*		*
16.	University of Calcutta, W.B.		*	*		*
17.	University of Calicut, Kerala		*	*		*
18.	Cochin University of Sci. & Tech., Kerala					
19.	University of Delhi New Delhi	*	*	*	*	*
20.	Dr. Harisingh Gour Viswa Vidhyalaya, M.P.		*	*		
21.	Gauhati University Assam		*	*		*
22.	Gujarat University, Ahmedabad		*			
23.	Gulbarga University Karnataka	*	*	*	*	*
24.	Guru Ghasidas University. MP		*	*		
25.	Guru Nanak Dev University, Panjab		*	*		*

Contd.

Sl.	Name of Univ.	C.Lib.Sc/	B.L.I.Sc.	M.L.I.Sc.	M.Phil	Ph.D
26.	Jadavpur Univeristy Calcutta		*	*		
27.	Jabalpur Univeristy MP	*	*			
28.	Jamia Millia Islamia New Delhi	*				
29.	University of Jammu, Jammu & Kashmir		*	*		*
30.	Jiwaji University MP		*	*		
31.	Karnataka University Dharwad		*	*		*
32.	University of Kashmir, J & K		*	*		
33.	University of Kerala Trivandrum		*	*		*
34.	Kurukshetra University Haryana		*	*		*
35.	Lalit Narayana Mithila University		*	*		*
36.	University of Lukhnow, UP		*			*
37.	University of Madras, Madras	*	*	*		*
38.	Madurai Kamaraj University	*	*	*		*
39.	Manglore University Karnataka		*	*		*

M. Phil.:

Andhra, Annamalai, Banglore, Calcutt, Delhi, Gauhati, Gulbarga, Karnataka, Madras, Manglore, Universities have started M. Phil. Course but Dr Babasaheb Ambedkar Marathwada University has not yet started.

M.L.I.S.:

Dr. BAMULA started M. Lib course in 1984 and renamed it as M.L.I.S. in 1989. Only two full time teachers are there one reader cum HOD is having Ph.D. in library management and now registered the name for Ph.D. in LIS at SNDT Mumbai.

Other lecturer is doing Ph.D. in LIS. There are nine contributory teachers and one tutor who are assistant librarians from the University, College librarians and four contributory teachers are from non granted colleges. They are not having teaching experience.

As per GUC library committee report on development of P.G. education Arts, Science and Commerce.

> "The colleges which have P.G. departments in Arts/Science/Commerce and which fulfill the following norms will be considered for assistance for development of P.G. education in the department.
>
> (a) "A department coming under humanities, Social science, Commerce, Maths, Statistics must have at least four teachers including two teachers handling M.Phil./Ph.D. degree"

Teachers in LIS Department:

> As per UGC Library Committee Report, "The minimum strength of full time student in the two years P.G. courses must be 20 relaxable by 35 in case of music and fine arts"

Dr. BAMULA admits 40 students in all 50% fresh and 50% deputed are admitted and 20 seats are allocated for a M.Lib. students.

Even though University staff is compensating their time, they are not deputed nor they are permitted to attend the classes. Even college librarians are permitted in time. Affiliated college staff is deputed far B.Lib/M.Lib. But from the University itself does not depute the staff when late admission are given that too in the month of Oct.

As per UGC Library Committee Report:

> "The ratio of full time teachers (other than demonstrations) to students should not exceed 1 to 10 in the B.Lib. classes course and 1 to 5 in the M.Lib courses. The following chart show teacher student ratio from other Universities and Dr. Babasahed Ambedkar Marathwada University has been compared.

TABLE : STATEMENT SHOWING TEACHER- STUDENT RATIO

Name of Univ	No. of full time staff	No.of part time staff	No.of Students Total ——— B.L.I.Sc./M.Lib.Sc B.Lib.Sc. M.L.I.Sc			Total	Teach 'Student ratio
1	2	3	4	5	6	7	8
Aligarh Muslim	7	-	7	50	10	60	1:9

Contd.

Contd.

Name of Univ	No. of full time staff	No.of part time staff	No.of Students Total —— B.L.I.Sc./M.Lib.Sc B.Lib.Sc. M.L.I.Sc			Total	Teach Student ratio
1	2	3	4	5	6	7	8
Andhra	5	-	5	30	15	45	1:9
Awadeshpratap Singh	2	1	3	17	-	17	1:7
Banaras Hindu	5	-	5	40	15	55	1:11
Banglore	3	-	3	25	5	30	1:10
M.S. Universiy		4	6	40	-	40	1:7
Bombay University	4	-	4	35	5	40	1:10
Burdwan University	4	8	12	50	10	60	1:51
Calcutta University	5	5	10	100	10	110	1:11
Calicut University	3	1	4	15	-	15	1:4
Delhi University	9	1	10	40	20	60	1:6
Gauhati University	3	1	4	45	10	55	1:4
Gujarat University	1	4	5	36	-	36	1:8
Karnataka University Univetsity	7	-	7	30	5	35	1:5
Kerala University	4	-	4	30	12	42	1:11
Kurukshetra	3	1	4	30	-	30	1:8
Lucnow University	7	-	7	30	-	30	1:5
Madras University	5	1	6	40	12	52	1:9
Madurai Kamraj	4	-	4	40	5	45	1:12
Marathwada	2	9	11	40	20	60	1:13
Mysore University	6	-	6	30	12	42	1:7
Osmania University	5	-	5	41	9	50	1:10
Patna University	-	6	-	40	-	40	1:7
Poona University	3	-	3	30	8	38	1:13
Panjab University	5	1	6	40	15	55	1:10
Panjabi University	3	-	3	20	-	20	1:7
Rajasthan University	8	-	8	80	15	95	1:12
Ravi Shankar	1	4	5	25	-	25	1:5
Sagar University	1	3	4	30	-	30	1:8
Saurashtra University	-	5	5	25	-	25	1:5
Shivaji University	1	6	7	20-40	-	40	1:6
S.N.D.T Women's	4	16	20	42	8	50	1:3
Vikram University	5	-	5	30	8	38	1:8
Lalit Narayan Mithila	-	9	8	40	-	40	1:5

No one is doing minor or major research project.

U.G.C. library committee says:

"The department has at least one major research project founded by UGC or some other agency undertakens by faculty members or at least 3 publications by faculty members in some standard journals during last three years proceeding the date of submission of the proposals".

5 Participation of Library Staff in the Conferences

The conference, seminars are intended to bring together academics and experts from different parts of country and abord for in - depth analysis of subject for helping the participants do become upto date in their subject and exchange of thought of ideas.

Even though paper are accepted fo: regional and Library conferences, only duty leave is sanctioned and TA/DA facility is not provided.

6 Opportunities to be Provided for Library Presessionals

Continuing education concerns with post experience for improving performance, for obtaining additional training through Ph D, Conferences workshops, seminars, short courses on Information Technology.

Staff is evaluated by his/her work performance, seniority advanced degree, research publication of books and articles, therefore, advanced degree facilities be provided to them.

6.1 Fullbright scholarship

To improve the status of Library professionals and their professional qualifications Fullbright scholarship scheme may be known to the library professionals. Opportunities should be provided to the concerned staff such as motivation for paper writing attending seminars work shops, conferences and writing books.

7 Suggestions

1 For participating in the conferences (Library) Duty leave with T.A./ D.A. may be sanctioned.
2 When paper is accepted for seminar/conferences, deputation should not be limited for only one time.

3 In the approved list of library conference IATLIS may be included
4 Study leave for completing Ph.D may be sanctioned.
5 For Ph.D Guides, recognised guides from other University may be permitted as Pune University has the practice.
6 Full time teachers in the student teacher ratio may be appointed.
7 M.Phil. may be started.
8 Career advancement programmes should be made available to library professionals.
9 Discrimination should not be there, No individual can remain untouched by the change. Library professionals may keep up their knowledge update.
10 The establishment section may send permission letters before starting the classes
11 The establishment section may arrange permission granting committee meeting for examination well in advance.
12 When working Library professionals are admitted in the course they may be alloweded to attend the course as and when the staff is admitted. Library management and department are two separate things.
13 Affiliated colleges depute their Library professionals but University does not depute the Library professionals.
For Completing
14 Ph.D. study leave for 3 years may be granted as per standard code and LIGC rules.
15 As there is only are guide, others may be recognised from other universities.
16 As per the Norms recognition for Ph.D. Guide those who are post graduate teacher having 10 years experience may be granted.

8 Conclusion

Chang is natures rule, education is inevitable, continuing education is post experience training. Lib professionals much adopt it for providing effective & efficient service and continuing education comes for the rescue.

CHART SHOWING PERSONNEL'S PARTICIPATION AT C.E. DR BAMULA

Name of post	Availed fullbright scholarship	Major Research research project	Minar research projet	Ph.D	M.Phil	Teacher Fellowship	Attended Confere-nces	Attended seminars	Attend short term courses	Computer Training	Resource Person
Librarian	-	-	-	Yes	-	-	-	-	-	INFLIBNET or DRTC	No
DLibrarian	Vacant	-	-	-	-	-	-	-	-	-	-
Asst Librarian (Technical Section)	No	-	-	-	-	-	16	4	DRTC (Yes)	No	Yes
Asstt. Libn	-	-	-	-	-	-	-	-	-	-	-
Asstt Libn	-	-	-	-	-	-	-	-	-	-	-
Asstt Libn	-	-	-	-	-	-	-	-	-	-	-
Asst Librarian (Periodical Section)	-	-	-	-	-	-	1	-	Yes	Yes	-

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Library and Information Science Education in a Changing Environment: Continuing Education of Library and Information (LIS) Professionals

KHAISAR MUNEEBULLA KHAN
AND SMITHA G BEKAL

Abstract

Defines library and the concept of modern library and librarianship. Discusses the present scenario in libraries, the use of modern technologies, information technology, computerisation etc. and present LIS education to prepare professionally educated professional in India. Discusses about need for continuing education and techniques and methods for continuing education programmes with emphasis on in-service training. Concludes with observations on existing efforts to provide continuing education of LIS professionals along with few practical suggestions.

1 Introduction

Library is a social institution. It is born in civilised literate society, grows and develops in response to social conditions and need for equipping the people with necessary proportion of accumulated knowledge and preparing them for co-operative social life. A library can be defined as a collection of graphic, acoustic and holistic materials such as books, periodicals, newspapers, manuscripts, maps, charts, filmstrips, microfilms, phonograph records etc. all designed for use.

According to Dr. S.R. Ranganathan 'a library is a public institution or establishment charged with care of a collection of books, the duty of making them accessible to those who require the use of them and the task of converting every person its neighborhood in a habitual library goer and reader of books.'[1] Yet another place Ranganathan states that libraries are not the store houses but rich springs from which knowledge flows out

to irrigate the wide fields of education and culture. This task of collection, organisation and dissemination of information/knowledge and the task of converting every person in its neighborhood into a habitual library gooier lies on the shoulders of library staff. Further Dr S.R. Ranganathan, the doyen of librarianship in India, rightly stated decades ago in his five laws of library science that "whatever be the library location, the library hours, the library furniture and way in which books are kept, it is the library staff that ultimately make or mar a library."[2] Hence the importance, need and usefulness of professionally qualified and well-trained library professionals with uptodate knowledge in the use of latest methods and techniques of information processing and dissemination needs no further emphasis.

2 Modern Library

2.1 Library Automation

The Library automation saves time, money and manpower. It plays an important role in the management of library and information services. It eliminates mistakes and duplication of tasks. It is economically feasible and desirable in modern libraries to have accurate and instant information to cope up with the demands of learned clientele, demanding users, especially by researchers, scientists etc. The enormous increase in documents, the problems of storage, dissemination and retrieval of information will enforce the libraries to use the automatic and semi-automatic devices. It is envisaged that every modern library sooner or later will adopt mechanical, electromechanical or electronic systems and devices to automate some of its repetitive jobs and operations. The automation will remove the spatial barriers of land and language by establishing the data banks and access to information more quickly. In fact automation has solved the problem of staff storage, saves time, money and human effort, provides better efficiency, quick services, better maintenance of records by keeping them uptodate, accurate and easily accessible. Hence many libraries are automating their work and services.

According to Prof. Lancaster, the modern man moves into paperless society which has not come true and may not be and what he some times terms 'the age of information technology.' In India many purposeful software packages have come into existence. These innovative software packages are helping the modern librarian in processing and distributing the information and extending the scope of sophisticated kinds of information technology.

Application of micro computer and TV to library functions and services has been founded to be highly useful. The sooner the libraries are automated, the better. Automation of functions in libraries requires a co-ordinated efforts, realisation help encouragement and support from planners and authorities at higher level.

2.2 Computerisation

Many libraries in India are making a sincere attempt in the adoption of information technology. The are acquiring computers and are in the process of completely computerising their holdings. The collections available have rich information in the areas of their specialisation. An attempt is being made to acquire important periodicals which provide latest information published all over the world. The international on-line data base is being made use of so as to bring international information both micro and macro to the desk of the specialist. Even multimedia such as CD-ROMs are being made use of.

The information gathered through the survey of the library is a valuable step in developing computer linkages among libraries. This holds promise for better exchange and sharing resources.

2.3 Information Technology

Information technology is a relatively recent one. For many 'Information Technology' is synonymous with 'the new technology'- the use of micro processor based machines, microcomputer, automated equipment, word processors and the like. For others the significance of the introduction of new term 'Information Technology' is the belief that the principles, practice and terminology of information handling can be treated on a unified, systematic bans. It may also be said that 'Information Technology' simply represent an attempt to make respectable some development in electronics and to control the access to information.

There could be no doubt that information technology has redically altered the way in which research is conducted, not only in science and engineering, but also in the humanities and social sciences. Computers have for some time offered not just increased processing power, but new approaches in many other fields.

Now, improved telecommunications and networking allow greater and greater inter communication and co-operation both national and international. These will lead to a new and valued series of gatherings in the information field.

3 Library Services-Changed Scenario

The progress of technology has made a deep impact on the libraries on many countries. "The emphasis in libraries is shifting from çollection (building) access, providing access to information (is) the principle goal and activity."[3] It can be said that the 'information age' has certainly arrived. The card catalogue is over in 50% of the academic libraries. The fully integrated on-line system has improved the operation of acquisition, cataloging, periodicals and the circulation departments. CD-ROM technology is taking over the printed indexes, and on-line searching is certainly on the increase. In fact it can be said that libraries are now without walls.

Historians of library and information science will certainly consider technology for having libraries to develop and grow into information age during 1960-1990. This revolution has been possible due to telephone lines, data communication networks, computer terminals and the development of telecommunications network. There is no way that we can stay away from this trend of introducing technology in our libraries. There is no way that libraries can avoid joining the information age. Therefore, it is better to prepare librarians, educationists and administrators to join the group for the benefit of all users.

4 L&IS Education

Education is a life long process, it is on going and continuous. The earliest LIS education in India goes back to the efforts of W.A. Borden in 1911 when he started for the first time library science course in the then Baroda state. The year 1915 Asa Don Dickinson at Lahore, Punjab University followed. The regular full time course in librarianship was started in the Imperial Library, Calcutta (the National library of India) by Khan Bahadur. K.M. Asadullah who was the Librarian for nearly two decades. The Bengal Library Association, the Madras University (1931) under Dr. S.R. Ranganathan, Banaras Hindu University (1942), Bombay University (1943) and Calcutta University (1946) started regular courses to educate library and information science professionals.

At present there are more than 115 universities, institutions and affiliated colleges providing education to LIS professionals. Besides there exists many private management institutions, corresponding courses and programmes for LIS professionals to undergo their professional training and education. The courses exist at different levels such as certificate course, diplomas, bachelor's degree after research.

Many of these universities, institutions, affiliated colleges and organisations not only provide regular programmes and courses at different level but also conduct part time training programme, summer schools seminars and conferences, refresher courses, orientation programmes to working librarians as a part of continuing education program for LIS professional.

5 Need for Continuing Education

Education is a life long process. It starts at cradle and ends at grave. Education is of two types: formal and informal. Even the formal education continues as 'continuing education for professionals and specialists.'

The need for continuing education in any profession is necessary or essential to the completeness of education which can never be achieved. The need for continuing education is felt because of the changed scenario in library and librarianship. Some of the reasons for continuing education for library professionals are:

5.1 Inter Disciplinary Nature of LIS

LIS in inter disciplinary in nature. The newer disciplines of management, quality management, statistical applications, mathematical formulas, psychology, sociology, architecture, planning, designing, economics etc. The invasion of computers, computerisation leading to automation and use of information technology has further enhanced the discipline LIS in its scope and potentiality.

5.2 Development of Information and Communication Technology

"Information technology is the product of fusion of information science and technology. Information science comprises of set of practices and related disciplinary studies, which is concerned with the transmission, organisation, storage, retrieval and use of information. Technology is the branch of knowledge that deals with industrial arts, applied science, engineering etc."

Technologies especially computer and telecommunication technology has thoroughly revolutionised and has made impressive impact in the field of library and information science and library services. They facilitate collection, storage, organisation, processing, analysis, presentation, communication and dissemination of data. The successful use of

information technology also helps in the implementation of fourth law of library science. 'Save the time of the reader/staff.'

According to UNESCO 'information technology is the scientific, technological and engineering discipline and the management technique use in information handling and processing, its applications, computers and its interaction with men and machine and associated social, economic and cultural matters.' The professionals who are in charge of collection, organisation and dissemination of information or management of information cannot ignore from incorporating or using these developments of information and communication technology in libraries.

5.3 Information Explosion

Information generation is a continuous process. The 20th Century is considered to be the Century of explosion, the population explosion, nuclear explosion and the information explosion. There is an unprecedented growth in the proliferation of information and hence ours is an age of information, where in the reign of supreme. The very nature of information is that it is dynamic, multidimensional, infinite and continuous. There are quantifiable studies conducted in regard to the literature output or information growth, the well known being that of Solar de Price as reported in 'Little Science, Big Science.' The information explosion led a series of responsibilities on the part of library professionals to gather right information and provide to the right reader at the right time. The task is enormous, to control the flood of information which is referred as information explosion, to refine and update the traditional methods and techniques of information gathering, organisation and its dissemination.

5.4 User Demands and Needs

The needs of the user/reader have also changed in the context of the changed scenario. Their needs and demands are more complex. The users expectations are high to the extent that they hope for instant information, timely, in other words pinpointed, expeditious and exhaustive information. In order to meet their demands the LIS professionals need to update their traditional skills of librarianship by continuing education program.

5.5 Communication Media

There has been a change in communication media. There is more and

more use of non-printed media. The non-book material, the computers, electronic media, CD-ROMs etc. have replaced the traditional printed sources of information in libraries. In this context the library professionals need training and education to store, organise and manage the new communication media.

6 Methods of Continuing Education

Education as pointed out earlier is a life long process. The self education is perhaps the best form of continuing education. The constant change in the techniques for effective use of information and libraries asks for continuous education program. All professions have the responsibility to provide continuous education to its professionals to update their knowledge. To quote Allen Lawrence 'whether the student of library science receives a PhD or DLS or a master degree, he has only began a life long process of continuous education' (Lawrence 1971). Hence there is a need to provide continuing education and in-service training.

Jones suggested that "professionals need to engage in various continuous education programmes such as: a) reading library literature, b) reading literature of basic disciplines, c) studying for further qualifications, d) reading literature of basic disciplines, e) receiving in-service training, f) taking active part in professional activities, g) carrying out research projects, h) writing discussion papers for use in library, i) writing guidesand aids for use of library users, j) holding information discussions with colleges, k) visiting other libraries, l) giving talks to and attending talks of, groups outside the profession, m)writing for publications and finally n)making oneself available for outside assignments."[5]

The above mentioned programmes if not all, at least the following can be taken as methods of continuing duccation conveniently i.e.,[5]

a. Seminars, Conferences and Workshops: Various professional associations, universities and institutions conduct annual seminars, on current topics. The LIS professionals can be departed or sent to attend such seminars, conferences and workshophs so as to get the exposure of current trends in the professions of library and information science.

b. Short-term courses: The library schools, universities and many private, commercial organisations conduct short term courses in order to update the skills and continue education. The professionals need to participate in such short term courses. Further, the library schools and universities shall point out the need for and new areas of importance in the profession and shall organise short term courses.

c. In-service training: In-service training is an integral part in the

continuing education program of any profession including library and information science. In-Service training on the other hand includes continuing application of principles as well as experimentation of new developments within some employing agency. In the development of any responsible professional in-service training is only one element in the carrier.

In the best instances in-service training is planned and continuing program conducted by staff members who are trained in and have extensive experience with creative and innovative teaching methods. All professional persons have a responsibility to get and also to provide in-service training.

In-service training is an instructional training that has been developed in and employed many professionals as a method for staff development. In the evolution of a profession the content and utilisation of in-service training passes through 3 stages. At first, instructions on the in-service level is largely involved with the apprenticeship training of professional staff. But as professional schools develop, the training provided for in-service staff begins to include supportive staff eventually astute profession itself matures. In-service training is largely confined to supportive staff. Supportive staff are taught by the professionals who have learned the art of teaching in an instructional practice or internship.

In-service training is neither new nor peculiar to library profession. The term in-service training encompasses largely those programmes which are carried on within individual agencies, however now it is also used by some other programmes which are organised outside the library with the co-operation and encouragement of other agencies. These include in-service training and orientation, refresher courses special lectures etc.

The UGC has done a commendable work in sponsoring short term courses, orientation programmes and refresher courses to the LIS professionals. The summer and winter courses for colleges and university librarians organised by Academic Staff colleges improves their professional qualification. There is a heavy rush to under go these courses as it is made minimum requirement for further promotions and to get better incentives.

The refresher and orientation courses need to be organised more periodically with the course contents to sharpen the skills and to introduce the latest techniques in handling the information in day-to-day work. These courses shall be well structured to train professional in

managing the libraries in the changed scenario. The libraries or the institutions should also organise special lectures by inviting specialist and experts from LIS and other disciplines so as to get a exposure of different disciplines and the current trends in librarianship. Beside UGC, INSDOC, NISSAT, professional associations the ILA, IASLIC, libraries also provide opportunities to the professionals for in-service training programmes.

It is worth to note that there was an experiment in continuing education designed by the state libraries of 7 Western States in USA in conjunction with the Western Interstate Communication for Higher Education. The funds available are shared by all the 7 states and the policies are framed by the respective representatives. The US Office of Education publishes an annual list regarding the opportunities for in-service training. There is a need for such booklet, listing the available in-service training programmes in India.

7 Conclusion

As stated earlier, education is a life long process. It is continuous and is necessary to the completeness of education which is never "complete" or "ending". The continuing education of LIS professional is much more essential in the present context of modern library, digital library, use of information technology, library automation, electronic library, virtual library or in other words the impact and use of modern technologies in libraries.

Libraries are changing and these changes are escalation. The change in libraries has necessitated for upgrading traditional skills and knowledge of LIS professionals. Hence the universities, LIS schools and the professional association at national level along with the UGC and other interested groups shall strive to provide continuing education to LIS professionals on modern lines.

Though there are efforts made by universities and schools of library science in conducting orientation courses and refresher courses, they are more traditional and hence need to be reoriented in training the professionals in using the modern technologies in the changed scenario of modern libraries and librarianship. Finally it is concluded that if not all at least few practical suggestions of Noragh Jones (1978) for continuing education can be adopted purposefully and usefully for continuing education of LIS professionals.

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Privatization of Library and Information Science Education: Pathetic scenario of Madhya Pradesh

S KUMAR AND LEENA SHAH

Study presents scenario of privatisation in various field-especially in higher education. Provides basic data on higher education & situation of LIS education in M.P. Studies economics of LIS education in detail. Observes some malpractice adopted in private colleges. Suggests measures to maintain standards.

1 Introduction

The best results of privatization of education can be seen in school education where private schools dominate government schools and another service oriented organisation where private clinics and nursing homes dominating government hospitals. The higher education, which was once totally service oriented and a social liability of the state is now an industry. Millions & Billions of rupees are invested on higher education by private sector.

The public institutions entirely depend upon the funds collected from the public in terms of taxes. These institutions are "Of the public, for the public & to the public" but there is no one who can realise that these institutions are our own and any money wasted in these institutions is wastage of our own money. The reason is that only very few people are within the income tax range Eighty percent people live in villages and agriculture is free from income tax. The other indirect taxes like sales tax, excise, etc are not understood by the common people. They have feeling that public institutions are "by the government of the government and of course to the people." They say "Dan Ki Bachia Ke Dant Nahien Gini Jate" (Quality is not measured for accepting donation of a cow).

If professional institutions are set up by private organisations, it will save huge amount of the government which can be diverted to more required social areas where such organisations do not enter, the motive of private commercial organisations can never be social service. They live on money so earned. They have entered in telecommunication which is profit making. They are entering in electricity generation where profit is, guaranteed. But they are not entering in electric distribution because they do not find it profit making. The latest example is permission to private foreign insurance companies to work in India.

As regards standards are concerned, there are some public educational institutions which can be considered as below normal but on the contrary there are so many private institutions which have high opinion in the public. In professional education, the privatization is not much old phenomenon. In these institutions, in the beginning the money is diverted to erect infrastructure, building, library, labs, But after some time high standards can be maintained of course all private organsations are not good and similarly all public organisations are not bad.

The money in public institutes is spent mainly on salaries. Modernisation is not possible due to lack of funds. In contrast, private institutions generate their own resources, spend less on salaries and more on modernisation. The performance of service, be it teaching or medicine, is a much better. It has done wonderful job in school education. In professional education, due to prlific demand of unemployed youths and their dream to become engineers, doctors, business managers or computer scientists etc. they are ready to pay whatever amount is asked for. This has brought many substandard institutions into the area. They might go to any extent to collect money and to become rich and richer into the area. B.Ed is one example where lot of bogus degree distributing institutions creep up in many states. We know that students residing at a far distance are given attendance and degree is awarded

In the medical education the picture is different. Due to strict control of Medical Council of India, It is not possible to start sub standard medical colleges. It also requires huge amount. On the contrary Engineering Colleges can be seen in old godowns of the city, computer training institutes are mainly in the hands of private organisations like Aptec, Tulic, NIIT, etc. Ony few public organisation like SECT, ET&T have come in this field. Universities have come in picture in this field later. In Library Science there is no control of any central body/council to maintain standards in its education. The permission lies with state government and the universities can be persuaded easily. In some cases in

spite of government's refusal to grant permission the colleges obtain it due to politician affiliation.

2 Higher Education in Madhya Pradesh

Madhya Pradesh is situated in the center of India and bounded on all sides by other states-Rajasthan, Uttar Pradesh, Bihar, Orissa, Andhra Pradesh, Maharashtra and Gujarat. It is spread over in 4,43,446 sq kms has 61 districts. Madhya Pradesh was formed on November 1,1956 consisting of 17 Hindi districts of earlier state of Madhya Bharat except Suhel area of Mandsour, former Vindhya Pradesh and Sironj division of Kota District of Rajasthan. It's population is 6,6135862 according of 1991 census. It's sex ratio is 932 women against 1000 men and density of population is 149 per sq kms. The literacy rate of M.P. is 43.45%. The female literacy rate is only 23.39 and male literacy rate is 57.93%.

In M.P. the higher education is largly in the hands of government. There were a few private colleges. Only recently private colleges have emerged in large number, and most of them in last 4-5 years. It has 9 general universities. 2 Agricultural universities. One music university and 1 university of Journalism.

Table 1: Chronological list of Universities of Madhya Pradesh

S.No.	Particulares	Est.Year	Year of Starting	
			LIS Dept	Affiliated College
1	Dr. Hari Singh Gour University, Sagar	1948	1970	1960G
2	Vikram University, Ujjain	1957	1957	1996P
3	Rani Durgawati University, Jabalpur	1957	-	-
4	Devi Ahilya University Indore.	1964	1994	-
5	Jivaji University, Gwalior	1964	1982	1964G
6	Awadesh Pratap Singh University, Rewa	1968	-	-
7	Barkatula University Bhopal.	1970	-	1996P

Contd.

	Particulares	Est.Year	Year of Starting	
			Lis Dept	Affiliated College
8	Guru Ghose Das University, Bilaspur	1983	1985	-
9	Makhanlal Chaturvadi University of Journalism, Bhopal.	1990	1990	-

G=in a Government College P=in a private college

Besides there are few discipline oriented special universities:

1 Indira Gandhi Music University, Kheragarh, 1956
2 Jawaharlal Nehru Agricultural University, Jabalpur, 1964
3 Indira Gandhi Agricultural University, Raipur, 1987
4 Bhoj University, Bhopal

The Madhya Pradesh has 413 government graduate and post graduate colleges. It has large tribal areas in which 97 Colleges have been established by the government. There are 126 Arts Colleges and 262 are multi-faculty colleges. There are 13 sciences colleges 11.7% students at of 2,70,800 students enrolled are post graduate students, 46.6% students are enrolled in Arts faculty. These colleges have 86.3% faculty members in various categories and 13.7% faculty members are working in various university departments.

TABLE 2: SOME BASIC FACTS ON HIGHER EDUCATION IN MP

A NUMBER OF GOVERNMENT COLLEGE

Particulares	General	Tribal area	Total
Graduate Colleges	232	83	315
Post Graduate Colleges	84	14	98
Total	316	97	413

B FACULTY DISTRIBUTION OF GOVERNMENT COLLEGES

SN	Particulares	General	Tribal	Total
1	Science Colleges	13	-	13
2	Commerce Colelges	2	-	2
3	Arts Colleges	94	32	126
4	Sanskrit Colleges	10	-	10
5	Miscllenous	197	65	262
	Total	316	97	413

C NUMBER OF PRIVATE COLLEGES

Aided	92
Unaided	162
University Colleges	3

D FACULTY IN UNIVERSITIES & COLLEGES

Professional	University	Colleges	Total
Professors/PG Principals	278	98	376
Reader/G Principal	505	315	820
Professor Colleges (Reader)	-	1150	1150
Lecturer\Ass.Prof.	748	8038	8786
Total	1531	9601	11132

E STUDENTS OF HIGHER EDUCATION

Particulares	Male	Female	Total	%
Graduate	157325	87134	239059	88.3
Post Graduate	16608	15133	31741	11.7
Total	168533	102267	270800	100

F FACULTY DISTRIBUTION OF STUDENTS

Faculty	No of Students	%
Arts	123350	46.6%
Commerce	47038	17.4%
Science	67301	24.8%
Hom.Sc.	2879	-
Law	11132	4.1%
Total	270800	100

Source-Rachna 2,1998.p 41.

3 LIS EDUCATION IN MADHYA PRADESH

The credit for starting formal course of library education in India goes to the two students of great master Melvil Dewey, William Admson Borden Established a training course at Central Library, Baroda in 1911-12 and Don Dickinson at Pubjab University, Lahore (now in Pakistan). At university level Punjab University is first in the world after Columbia University and probably first in world to use word Library Science instead of Librarianship. Madras and Bengal Library Associations were next to follow in 1929 and 1935 respectively. Dr Ranganathan took

Certificate Course of Madras Library Association to Madras University in 1931 and converted the same into P.G. Diploma in 1937. University of Delhi was the first to start Master in Library Science in 1948, first to start M.Phil in 1977 and also Ph.D & D.Lit in Library science. Now many universities and affiliated colleges in India have these facilities. Correspondence courses have also been started at B.Lib Sc and M.Lib Sc. levels. Kota Open University registers students for Ph.D. in Library Science. In India Dr Ranganathan was the first recipient of D.Lit. in Library Science from University of Delhi in 1958. Madras University converted Diploma Course to Bachelor degree Course in 1960.

Vikram university, Uijain is the first university in MP to start B Lib Sc in 1957-58. It is first in MP to start M Lib Sc in 1971-72. At present APS University, Rewa, Rani Durgawati University Jabalpur, Barkatulla University, Bhopal don't have School of Library Science Studies/Department of Library & Information Science along with other teaching departments. They had BLS of MLS courses in affiliated colleges in TRS College, Rewa (APS University) and MLB College, Gwalior (Jiwaji University) since 1964, Bhasha Bharti College (Private) (RD University) Jabalpur also started BLS in 1968. A separate department in the university started as late as in 1982 in Jiwaji University, Gwalior and Barkatulla University, Bhopal still do not have its own department of Lib. Sc. though it has started BLS & MLS through correspondence and regular course in many private affiliated colleges recently. Devi Ahilya University, Indore has BLS under self finance scheme run by the librarian of the university since 1994. Barkatulla University, Bhopal and Rani Durgawati University, Jabalpur are likely to start teaching department in LIS very soon.

On the whole in Madhya Pradesh there are 6 universities having Department of Library Science. Other 3 remaining universities have Library Science only in affiliated colleges. There are 2 Government Colleges at Rewa & Gwalior running BLS & MLS courses. ACE college Panchmari (Sagar) provides admissions only to military people, probably only of its kind in India.

But recently revolution has come in this field and there is a spurt of private LS schools in Madhya Pradesh. After liberalization policy of professional courses in India, as many as 21 private colleges started BLIS/MLIS from the year 1995096 as given in T3 A & 3B. In last two years 13 institutions came up. A few are yet to get permission next year.

TABLE 3A: LIST OF DEPARTMENTS OF LIBRARY & INFORMATION SCIENCE IN UNIVERSITIES AND THEIR AFFILIATED COLLEGES

S No	Particulares	Starting Year
1	Vikram University, Ujjain	
	11. S.S. In LISc	1957
	12. Sandipani College, Ujjain	1996-97
2	Dr. Hari Singh Gour University, Sagar	
	21. AEC Training College (Military College) Panchmari	1961
	22. S.S. In LISc	1970
	23. Vidya Sagar College, Gopal ganj	1996-97
	24. Gadarwara College, Gadarwara (Narsihmpur)	1999-2000
	25. Seoni College, Seoni	1999-2000
3	Awadhesh Pratap Singh University, Rewa	
	TRS College (Govt.) Rewa	1964
4	Jiwaji University, Gwalior,	
	41. MLB (Govt) College	1964
	42. S.S. In LISc	1982
	43. Youth Professional Education Institution College Gandhi Nagar, Gwalior	1995-96
	44. Lal Bahadur Shastri College Suresh Nagar Radhipur, Morar (Gwalior)	1996-97
5	Ravishankar University, Raipur	
	51. S.S. In LISc	1965
	52. Beli Ram College, Bhilai	97-98
	53. Seth RCS Arts & Commerce College, Durg	98-99
6	Rani Durgawati Vishwavidyalaya, Jabalpu	
	61. Kanta Prasad Guru Bhasha Bharti Mahavidyalaya, Jabalpur	1968
	62. Vidhya Jain College, Katni	1996-97
	63. Hitkarini Training College, Jabalpur	1998-99
	64. Shiwani College, Jabalpur Road, Shiwani	1999-2000
	65. College of Computer & Communication Narmada Road, Jabalpur	1999-2000
	66. Mahrshi Arvind College Amrit King Mar Garha, (Jabalpur)	1999-2000
7	Guru Ghasi Das University, Indore	
	S.S. in LISc.	1983

Contd.

Contd.

S No	Particulares	Starting Year
8	Devi Ahilya University, Indore	
	S.S in LISC	1994
9	Barkatulla University, Bhopal	
	91. Rajiv Gandhi College, E9, Tilanga, Shapura, Bhopal	1995-96
	92. Vivekananad Anglo Sanskrit College, Bhopal	1995-96
	93. Indira Priyadarashni College, Bhopal	1998-99
	94. Vivekanand College, Nalanda School Campus, Bhopal	1998-1999
	95. MPB Memorial College Narwar (Raisen) Bhopal	1998-99
	96. Jaihind College, Bhopal	1999-2000
	97. Carrear College, BHEL, Bhopal	1999-2000
	98. Jawaharlal Memorial College Ganj Basoda (Vidisha)	1999-2000

TABLE 3B: NUMBER OF PRIVATE COLLEGES HAVING LIB SC

S No	University	95-96	96-97	97-98	98-99	99-2000	Total
1	V.U. Ujain	-	1	-	-	-	1
2	HSGU, Sagar	-	1	-	-	2	3
3	APS. Rewa	-	-	-	-	-	-
4	JU, Gwalior	1	1	-	-	-	2
5	R.U. Raipur	-	-	1	1	-	2
6	RDU, Jabalpur	1	-	-	1	3	5
7	GGD Bilaspur	-	-	-	-	-	-
8	DAVV, Indore	-	-	-	-	-	-
9	BU, Bhopal	2	-	-	3	3	8
	Total	4	3	1	5	8	21

Besides there are many universities which have correspondence courses in LS Barkatulla University, Bhopal does not maintain a regular library dept in LS but have started correspondence course for BLS & MLS. This can be taken as part of separate research.

4 ECONOMICS OF PRIVATIZATION

The fees structure of public institution are totally unrealistic and uneconomical. It is unfair to compare private institutions where fees have to be much higher. Still private institutions are unable to charge industry based system where, all overhead expenditures, interests, depreciations and profit are added to the value. If such entire course are considered the fees will be very high and unrealistic in present situation.

In a university department only salaries and overhead recurring expenditures will be approximately Rs 8-10 lakhs. If there are on an average 50 students in BLS/MLS the state expenditure will come to Rs 16-20 thousand per BLS/MLS students. This amount does not include non recurring expenditures on books, furniture, building rent etc. This has been calculated in the table:

S No	Post	Number	App per annum expenditure
1	Professor	1	Rs 2,40,000
2	Reader	1*	1,80,000
3	Lecturer	3x	4,30,000
4	Clerk	1	70,000
5	Peon+/Fara	2	10,00,000
6	Contigency		
	1. Electricity+water		
	2. Telephone		
	3. Miscellaneous		20,000
	Total		10,40,000

=2as per UGC X -4as per UGC

Number may be more in senior positions due to various promotion schemes.

The fees realised in public institutions is very low. Tution fees is not charged from girls and scholarships are given to SC/ST/OBC candidates whose number is 40% of total seats.

The amount so realized is not sufficient even to meet contingency. The above expenditure does not include building, lighting, overhead expenditure, cost of depreciation, recurring expenditure on Libraries and equipment. If we add PF contribution and other pension gratuity liabilities the amount will go to app 30-50 thousand rupees per student.

The per capita state expenditure on 50 students in the department comes to Rs 20,800 per students. So far no study has been made on economics of education in LIS at various levels.

In such courses, in a private college, it is not practical, at least for the present, to charge this much of fees so as to appoint faculty at par with university departments. They run with minimum staff and with least contingency expenditures. These institutions, are run by some part time/ retired/teachers on minimum salary. The payment of Rs 50 per period is very common practice in Madhya Pradesh. State government itself has appointed part time teachers in its colleges on payment of Rs 60/- per day (with no payment on holidays & during vacations). It is likely to be raised to Rs 80/- per day.

To some aided private institution grants are made available by the state to meet salaries of the faculty but many do not receive government aid. Such aided colleges have some faculty for whom grants are not received. Under the vocationalization of education, colleges are permitted to start professional courses, in self financing schemes and admit 30 students. To such courses, grants aren't given by the government. Besides there are unaided private institutions which generate their own funds and pay to the faculty as per some norms. Full grades are not paid to them. In such colleges on the payment of Rs 60 per day, Rs 17000/- per annum will be required to appoint 2 teachers for BLS. For MLS course 2 more teachers may be appointed for another Rs 17000/- per annum. It is shown as here:

1. No of working days in a month	20
2. No of teachers (For BLS)	2
3. Payment per day in Rupees	60
4. Total per month	2,400
5. Total months of teaching	7
6. Total expenditure per annum	16,800
Per student expenditure (Rs @ p.a.)	560

Similarly if the payment is made on per period basis, the estimates comes to Rs 24,000 for BLS and 24,000 for MLS as shown here:

Number of papers	8
Per subject allotment of lectures per week	3
Number of periods per day	4
Average working days in a month	20
Lectures per month	80
Number of months	6
Number of lectures in an year (80X6)	480
Payment @ 50 per lectures (480X50)	24000
Per student expenditure (Rs @ p.a.)	800

As per MP Universities Act, 1976 at least one full time teacher must be appointed to start a course. If it is followed it will cost Rs 1,25,000 p.a. If two part time teachers are also appointed to run BLS & MLS it will cost Rs 1,37,500 p.a. as shown here:

1. Number of lectures per day (for part time teachers)	2
2. Number of teaching days in a session	125
3. Total lecturers (125x2)	250
4. Per period payment (in rupees)	50
Total payment 250x50 (p.a. in Rs)	12500

Salary of full time teacher (pa)	1,25,000
Per student expenditure (30 student) (p.a in Rs)	2750

It does not include building rent, electricity, water charge etc. which is not less than Rs 200 per student per annum. If MLS is also opened more staff will be required. But this is seldom appointed even full time teachers get less salary.

If an institution admit 30 students with Rs. 4000-6000 as fees, the collection comes to 1,20,000 per 1,80,000 annum, i.e. a saving of Rs. 1,00,000 or more per annum to the college with two part time teachers for each class.

As regards the starting of a BLS/MLS course is concerned, it isn't very costly as compared to Medical, Computer or Engineering faculty. so more and more colleges are attracted to open this course. Most of the college have a librarian because it is a condition for getting recognition to college. They are interested in starting such a course to add a feather in their cap. With few books in Library Science added to their libraries the permission can be obtained easily. The permission is to be sought from department of Education, which has been housed in a seperate wing "Recognition of Non government colleges at Hindi Bhawan, Bhopal.

An inspection is made by experts before granting the permission. Few books are purchased and a few are called for some period from a book-seller. There is no hard and fast rule regarding availability of DDC, UDC and CC codes. In some cases photocopies of DDC are used clearly violating copy right act. Few copies of DDC are arranged from some books sellers for the inspection.

5 Some observations

The authors have visited many private colleges personally before completing this paper. Though no proof can be given and not all institutions are alike but few common problems can be seen. Managers of one college blames other colleges. The author himself has seen many malpractice and has made complaints to the authorities. A few observations are:

5.1 False attendance

In most cases attendance is not compulsory. In few cases students who have never attended the classes or have attend very few classes are permitted to appear in exams. This has produced too many substandard professionals.

5.2 Examination work

It is alleged that some common malpractice are adopted in BLS exams also. In some cases it is alleged that change of answer books, mass copying, especially in practical, writing supplementary answer books outside the premises were also brought to our notice besides other common malpractice of exams.

5.3 Wrong Admission

In some cases admission are given to non eligible candidates. Students already having BLS Degree passing were given readmission without canceling earlier degree. In some cases Ph.D. Students took admission in BLS which is not permissible under M.P. Universities Act. Minimum qualifications criterion are not observed.

5.4 Lack of class room teaching

Often classes are not held regularly. Some have it in evening colleges where it has become a part time course.

5.5 Lack of resources

Often these institutions lack in resources. No LS journals are subscribed by these institutions. The money earned by LS course is diverted to other advities of the college.

5.6 Less payment

The teachers are paid very less. Regular faculty members aren't appointed. Usually new entrants are attracted. Minimum norm of at least one full time faculty is not observed.

5.7 Project work

In some cases one part time entrant has to supervise 50 MLS dissertation.Quality can be imagined. In some cases, dissertations have been removed for MLS to avoid such situations.

6 Conclusion

It is difficult to say that all of them are adopting malpracticies and do all sort of mischiefs. Few old colleges have reputation in LIS education and some new colleges are also trying to establish as good institutions. Many

of them have huge buildings having large number of students and high quality of infrastructure facilities.

I am not against the privatization of LS education but I am against the malpractices adopted therein. Being a professional course, and being ourself as professionals, everyone of us should try to enhance the profession. Such malpracices have made this course not more than a degree. The rule of many institutes have become as centre of degree distribution. Sale of degrees is on and after few months formalities it will be sold to you. You should pay handsomely. The ILA should take some steps, Though I know, being an association, cannot interfere with the universities. But like Medical Council, time has come when such regulation are necessary. We are already under pressure of adoption of New Technology in such courses.

If we consider economics of education,no doubt government can save huge amount of money. But should we close down university department? Answer will always be no. These private institutions are not centre of research. It is not their aim. A thorough study is needed on the topic. At present we can compromise. Let these institutions function as centre of training of Library Science and let university departments functions mainly as centre of research (as well as training). Let us not compromise with the quality of training and let there be strict check before granting accreditation. Gradation of these departments may be done by an evaluation Committee of ILA by formulating certain norms.

SUGGESTIONS

1 Number of admitted candidates must be limited, especially for MLS.
2 There should be central admission committee at state level or at least at university level, like in engineering and other pro fessional courses.
3 Workshops should be a must in each department.
4 Computer application should be compulsory in the syllabus and such institutions should emphasize on practical library automation.
5 Being a professional course malpractice in its exams must be minimized, if not stopped.
6 Viva Vocae, project work, lab work should be part of syllabus. Internship training should also be included. To avoided malpractice practical must be conducted separately by calling external examiners.
7 Change of examination centre should be a must. No private college

should be a centre of exam for at least professional courses to maintain standards. Change of centre for every student should be compulsory.

8 There should be minimum one full time LISc teacher in each college.

9 For the selection of teachers in private colleges there should be a central selection board as in case of Uttar Pradesh

10 State level education text (SLET) should be made compulsory even for part time teachers.

11 Local retired professionals may be associated as visiting fellows for 10-15 days to gain from their experiences.

12 Mushroom growth of private institutes should be stopped and it should be allowed only when there is demand need for libraries ILA should pursue state government with some basic data.

13 There should be formulation of minimum standards for LS course.

14 There should be gradation of departments of LIS by formulating norms by ILA.

15 There should be acceredition council of the ILA.

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Impact of Electronic Age on Libraries and Library Professionals

SWEETY MATHEW AND M BAVAKUTTY

1 Introduction

We are approaching the start of Net Millennium, a time when Net forms the basic infrastructure of everyday life. In the Net of the 21st century, there will be a billion repositories distributed all over the world, where each small community maintains a collection of their own knowledge. Information analysis will become a routine operation in the Net, performed on a daily basis world-wide. Information infrastructure will become the essential part of the structure of everyday life and digital libraries will become the essential part of the information infrastructure.

2 Value of Information

Knowledge refers to the sum total of what is known to the society whereas Information is more user specific and an essential input for generating and developing more knowledge.

Today information is the major input, which has become the strategic resource for socio-economic development of knowledge. Hence, knowledge of the information resources is very much required to lead, direct and support the emerging information society. Hence library and information professional must possess knowledge of global information resources, information services in problem solving and the system of generating and managing information skills. Knowledge refers to the sum total of what is known to the society whereas information is more user specific and an essential input for generating and developing more knowledge.

3 Impact of Electronic Age

The impact of IT has been all pervading. However, the largest impact seems to have been made on Library and Information Science. It has changed the ways of perception and dissemination of information and has even threaten the traditional approaches to library and librarianship. In order to meet the requirements of the information seekers, there is a need for library and information professionals to gain a comprehensive, balanced and creative perception of computer communication technology. The essence of this technology lies in the understanding of a computer based information system. Application of IT in libraries and information centres raises the efficiency of collection, storage, organisation, retrieval and dissemination of information. The skills of traditional library professional need a total transformation in the changed circumstances.

3.1 Electronic Publishing

The exponential growth in the volume of published literature, difficulty in retrieving information from libraries due to the literature seepage and scattering, the need to control and provide access to ever increasing volume of information etc have resulted in the shift of emphasis from conventional publishing to electronic publishing. The fusion of electronic, computer and telecommunication technologies with publishing usually called the electronic publishing, mean any information source published in electronic medium.

3.2 CD-ROMS

Optical information storage systems have become synonymous with electronic publishing. This is because of the success of the CD-ROM as the optical medium of choice by the publishing industry and it's adoption by major libraries and information centres. CD-ROMS, videodiscs and online bibliographical databases form a major part of the EP field. The librarians need to develop skills to use CD-ROMS in saving space of libraries, in preserving archival material and in providing effective time saving mech CD-ROM database to provide right information to the right user.

3.3 Digital Imaging

With the advent of the multimedia era, the needs of electronic imaging are growing rapidly. In addition to traditional text based information, digital libraries are adding up visual data such as photographs, videos,

motion pictures, maps, satellite picture etc. In the context of digital imaging, librarians face greater challenges in capturing, storing, formatting, and retrieving and in the reproduction of non-textual information. The digitisation and handling of data require specialised knowledge and hence librarians are forced to re-educate themselves to meet this new challenge.

3.4 Internet and Networking

Internet is usually referred to as the network of networks. The Internet is changing the notion of libraries into a library without walls. The Internet is the best example of a co-operative movement, a digitised store house of information, a logical global meta network of computer networks, making information world-wide. Librariay professionals should develop skills to use Internet and E-mail effectively. They should make use of all the telecommunications means and networks economically.

Networked digital libraries are going to be part of our day to day professional activities, in the coming years. Information explosion has made it difficult to meet the various information needs of the users. Hence the situation urged the concept of resource sharing which can be possible only by networking of libraries and information centres. Internet, with hypertext navigating tools like World Wide Web (WWW) has opened out tremendous opportunities for providing and disseminating better information services. And the library professionals responded to this with the concept of the digital library.

3.5 Digital Library Environment

Digital library can be broadly defined as a system of distributed full-text and multimedia databases accessible on computer networks. Digital library is yet another product that resulted from the response of library and information professional to the opportunities and challenges of the developments in IT just as the products like OPAC and CD-ROM databases The modern digital library will be a sleek array of computer based information systems. Adding of current information, weeding of out-dated information and sharing of information will be the main tasks of a digital library. The technology for electronic transformation of information is developing rapidly. We are now moving towards paperless information. This includes the digitisation of information, their electronic transmission, electronic ordering, payment etc. which can be called as digital information delivery. This digital information delivery has improved the data quality, speed of access and reduction in cost as over the traditional document delivery.

4 Library Professionals in the Digital World

In the digital environment the library professional would become the guardian of information and would be the vehicle to preserve democratic access to information. He can no longer be the custodian of knowledge. His role is towards offering consultancy to the users and would act as an integrating link between the computer scientist and information seekers. In this new world, the librarian's role will be that of a continuous learner, an alert user and an expert consultant, all rolled into one.

The library professionals have to develop skills to cope with the change. Their skills of classification, cataloguing, indexing etc. are to be remoulded for data analysis, data structuring, data organisation, packaging and re-packaging of information and for providing value added library and information services. The basis and fundamentals of librarians' skills—to provide right information to the right user at the right time—are not going to be changed in the digital library environment. Inspite of the various barriers in the skill development like economic, psychological, cultural, social, and political barriers and barriers of existing information infrastructures, the librarian will acquire timely skills and continue to be a reliable source for the information seekers.

The technology for electronic transfer of information is developing rapidly. We are now moving towards paperless information. This includes the digitisation of information, drawings, etc their electronic transmission, electronic ordering, payment etc. which can be called as digital information delivery. This digital information delivery has improved data quality, speed of access and reduction in cost as over the traditional document delivery.

When the technologies are becoming smart, knowledge and information are becoming complex, resulting in a wide variety of media and these new media have posed challenges before us, the biggest challenge is to ensure equitable access to information to one and all. Integration and updation of IT, maintaining a fair balance between print-based and digital information, education and training of the professionals and end users, issues related to copy right, security, privacy, and multilingual aspects of information and providing connectivity to Internet/ISDNs are a few more challenges facing the profession.

Education and training of library professionals and end users has become the major issue to cope with the new environment. Library and Information Science education has to adopt multimedia approach in importing knowledge and skills. Conventional teaching methods should be replaced by newer educational media. The educational potential of the

computer and its versatality has to be fully realised. Computer Aided Instruction (CAI) and Computer Aided Learning (CAL) have to be incorporated to understand the concepts. The library academy must broader beyond the home front to become international in scope.

Training and development opportunities for librarians and end users for optimal utilisation of digital innovations is to be encouraged and revitalised. NISSAT, NICNET, C-DOT, ERNET and other leading national bodies should regularly organise the training programmes for the library professionals.

The transition of paper/print into and electronics media can be summed up in to a single word 'Deinstitulisation'. And when the libraries have become deinstitulised, so must the library professionals.

5 Conclusion

The existence of the libraries of the future depends largely on the decision of the present generation. If not thought well before, it will be vulnerable because other professionals mayget into our jobs. Librarians have to change their present role of custodians of knowledge to knowledge counsellors of tomorrow. We can hope that electronic age may bring a number of free-lance librarians. It is foreseen that until such time as computers are capable of matching human intelligence, and until such time, as all the information required is delivered at an affordable price; the role of the librarian will remain central.

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Libraries and Librarianship: As Reflected in the Journal *Employment News*: A Case Study

NEENA SINGH

Abstract

A survey study to identify vacancies notified in the library profession, variation in pay scales and qualifications. Examines the trends in job requirements of the profession. The results of analysis indicated that vacancies notified on librarianship decreased steadily in the year 1995 and 1996. The demand for professionals with computers knowledge is decreasing with more and more libraries opting the revolution in information technology for library automation.

Journals and news papers are concerned with instant information which they provide to the citizen of every nation. They play a vital role in creating peoples awareness about policies and programmes of development and motivating them to be active partners in nation building endeavor.

Employment news is one of the leading weekly journal of India, devoted exclusively to news on employment opportunities in India. The journal is published by the publication division, a media unit of the ministry of information and broadcasting. The publication is brought out in English Hindi and Urdu. The journal had a circulation of above 4.25 lakh copies a week in 1991-92

The focus of this study is on the coverage of employment news journal on libraries and librarianship in India. The study has been limited to the vacancies notified by the journal from the yar 1994-96 in the field of Library profession.

1 Objectives of the Study

The present study was undertaken with the following objectives.

1 To determine the state of employment in the library profession by the number of vacancies advertised on various categories

of library profession including academic, research and administrative positions.

2 Evaluate the variations in pay scales of the library professionals.

3 Observe the essential and desirable qualification and experience requirements of the procession.

4 To examine the trends in the job requirement of the library profession.

2 Methodology

Survey method was used for the study. Employment News of three years from 1994-1996 and the vacancies notified therein on the library profession were taken as input for the study. A total No. of vacancies advertised on various posts of library profession has been analysed.

3 Analyses and result

Table 1: Positions advertised in Employment News During 1994-96

SN	Positions	1994	1995	1996	Total	Percentage
1	Faculty	06	06	07	19	06.10
2	Libraian	108	22	19	149	47.90
3	Dy Librarian	01	02	05	08	02.58
4	Asst Lib.	07	21	16	44	14.15
5	Doc Officer	02	01	00	03	00.97
6	Professional Assistant.	02	01	00	03	00.97
7	Tech.Asst.	06	03	01	10	03.21
8	Lib Asst.	13	25	20	58	18.65
9	Lib attendant /Clerk	11	01	05	17	05.47
	Total	156	82	73	331	100.00

The tabulation of data indicated in table 1 shows that total No. Of 311 vacancies were advertised during the period 1994-96 covered by this study. The highest No. Of the post notified was that of librarians in various academic institutions followed by the library assistant 58 and assistant librarians 44. The least 3 No. Of vacancies appeared on that of the professional assistant and documentation officers.

The fact that Librarians post had the highest No. Of vacancies can be attributed to different type of libraries viz school college, universities, institutes and research centers libraries in which they have been notified.

The table further reveals that the year 1994 had the highest No. 156 vacancies advertise on librarianship which decreased steadily in the year 1995 with 82 No. of vacancies and 1996 with only 73 No. of vacancies indicating the growing unemployment among library and information graduates.

TABLE 2: DISTRIBUTION OF VACANCIES BY TYPE OF LIBRARIES

SN	Type of Library	1994	1995	1996	Total	Percentage
1	University Lib.	18	33	17	68	21.86
2	Institure Lib.	18	20	24	62	19.94
3	College Lib.	03	01	02	06	01.93
4	Public Lib.	02	00	05	07	02.25
5	Parliament Lib.	10	11	04	25	08.04
6	Research Lib.	15	04	12	31	09.97
7	School Lib.	81	03	04	88	28.29
8	Others	09	10	05	24	07.72
	Total	156	82	73	331	100.00

For the purpose of study, libraries were delineated as indicated in table 2, school libraries topped the list with 88 No. Of vacancies notified followed by the university libraries 68 and institutional libraries with 62 (19.94%) 31% of the vacancies were notified from research promoting bodies such as CSIR, ICSSR, DST, UGC.

The fewest No. Of vacancies appeared in the college libraries with 06 No. and public libraries with 07 No. of vacancies. It is significant to note that No. Of vacancies notified declined from 156 in the year 1994 to 73 No in the year 1996.

The foremost and obvious causes of decline in the job of library professionals can be attributed to the inadequate number of libraries of all kind and slow opening of new libraries. Many libraries are under staffed and new job are frozen due to many curb in the name of economy measures as in these days of budget cut the axe painfully falls on library funds.

TABLE 3: DISTRIBUTION OF VACANCIES OF LIBRARIANS BY SCALE

SN	Scale	1994	1995	1996	Total	Percentage
01.	4500-7300	07	04	04	15	10.07
02.	3700-5700	01	02	00	03	02.02
03.	3000-4500	02	04	01	07	04.69
04.	2300-4300	00	00	02	02	01.34
05.	2200-4000	07	04	00	11	07.38
06.	2000-2500	02	01	02	05	03.36
07.	1640-2900	01	00	00	01	00.67
08.	1600-2900	01	03	02	06	04.03
09.	1430-2500	05	03	04	12	08.05
10.	1400-2600	81	01	00	82	55.03
11.	1350-2200	00	00	03	03	02.02
12.	1200-2040	01	00	01	02	01.34
	Total	108	22	19	149	100.00

Table No. 3 illustrates the status of vacancies of the librarians advertised scale wise. The highest. 82 No. of vacancies appeared in the scale 1400-2600, that of librarians in schools followed by the 15 No. of vacancies in the scale 4500-7300 that of university librarians and 11 (7.38%) vacancies in the scale 2000-4000 that the college librarians. The vacancies of librarians in the scale of 3700-5700, and 3000-4500 appeared mostly in central government/Autonomous institutes and Research Libraries. The fewest 00.67% of vacancies appeared in the scale 1640-2900. The variations in the pay scales of librarians is evident perhaps on the account of certain factors like the size of libraries its manage mended, services provided by the libraries and the responsibilities associated with the profession.

The university librarians are placed at par with the professors, hence, enjoy the professor scale. The job of university librarians is multi tasking, they have to deal with over all administration and management of library, plan library budget, look in to technical services and improve the library services in tune with the development in technology. The librarian also has to interact actively with academic staff and plan the maximum utilization of the library facilities for the benefit of faculty, researchers and students of the university.

The analysis of various position scale wise notified by the journals indicates that the scale of librarians in universities are at par with that of

professors. However, variations are still evident as some of the universities are not implementing the UGC scale. The Gorakhpur University (3) library notified the post of librarian in the scale of 3700-4825 in the year 1994, latest this vacancy was notified again in the scale 4500-7300 in the year 1996 (4)

CSA University of Agriculture and Technology, Kanpur (5) notified the post of librarian for its Itawa campus in the scale 2200-4000 with the qualification of masters degree in library science a desirable Ph.D degree and two year experience as Assistant librarian. Similar variation is evident in the college libraries also. Regional Engineering college Kurushtra notified the vacancy in the scale 3700-5700 (6) where as Motilal Nehru Regional Engineering college notified the vacancy in the scale 2350-4300, other colleges notified the vacancy in the scale 2200-4000.

Professional organisations Institutes and research centers libraries do not support the cause of academic librarians scale, hence, wide variations in the scale is noted.

Central Aviation Research Institute (8) notified the vacancy of junior Librarian in the Scale 2200-4000, Ministry of Petroleum and Natural gas notified the post in the scale of 2000-3500 (9) Indian Institute of Forest Management Bhopal, notified the vacancy in the scale of 3000-4500 (10) Central Statistical Organisation Calcutta (11) and Institute of Hotel Management Catering Technology and Applied Nutrition (12) notified the post in the scale of 1350-2700 and 1200-2040 respectively.

TABLE 4: DISTRIBUTION OF VACANCIES BY SCALE OF DEPUTY LIBRARIAN AND PROFESSIONAL ASSISTANT

SN	Scale	1994	1995	1996	Total	Percentage
1	Deputy Lib. 4500-7300	01	02	05	08	100
2	Professional 3700-5700	02	01	00	03	100
	Total	03	03	05	11	100.00

Deputy librarians post exists mostly in the University libraries unlike the institutes, colleges and school libraries. All vacancies of the Deputy librarian also appeared in the scale of 3700-5700, the highest being in the year 1996. The vacancies of professional assistant were notified in the scale of 1640-2900.

TABLE 5: DISTRIBUTION OF VACANCIES OF LIBRARIANS BY SCALE

SN	Scale	1994	1995	1996	Total	Percentage
1	2975-4175	00	02	00	02	03.70
2	2800-4000	00	01	00	01	01.85
3	2200-4000	03	09	12	34	62.97
4	2000-3500	01	04	01	06	11.11
5	1800-3400	00	01	00	01	01.85
6	1640-2900	00	01	01	02	03.70
7	1400-2600	01	01	01	03	05.56
8	1350-2200	02	01	01	04	07.41
9	1200-2040	00	01	00	01	01.85
	Total	07	21	16	54	100.00

Table No. 5 shows that the highest 34 No. (62.97%) vacancies that of Assistant librarians advertised in the scale 2200-4000, mostly by the university libraries, 6 No. (11.11%) Of vacancies appeared in the scale 2000-3500. Few No. of vacancies also appeared in the scale 2800-4000, 1800-3400 and 1200-2040. The table further reveals that highest 21 No. Of Vacancies that of Assistant librarians was notified in the year 1995 followed by 16 No. Of vacancies in the year 1996.

Certain organisations like Engineers India (13) Educational Consultants on India (14) advertised the post in a better scale of 2975-5030, Association for Cultivation of Science (15) notified the same in the scale of 2800-4000.

Only one No. Of vacancy was notified in the scale 1200-2040 by the National Institute for Visually Handicapped in the year 1995 (16).

TABLE 6: DISTRIBUTION OF VACANCIES OF LIBRARIANS BY SCALE

SN	Scale	1994	1995	1996	Total	Percentage
1	2200-4000	01	00	00	01	10.00
2	1640-2900	01	01	00	01	10.00
3	1400-2600	01	01	01	03	30.00
4	1400-2300	03	01	00	04	40.00
5	1200-2040	01	00	00	01	10.00
	Total	06	03	01	10	100.00

Table No. 6 illustrates the vacancies of technical assistant notified in various scale. The highest 4 No. Of vacancies appeared in the scale of 1400-2300 advertised by institutional libraries and research centers libraries, 3 No. of vacancies appeared in the scale 1400-2600. The highest No. Of vacancies that of technical assistant were notified in the year 1994. The table reveals wide variations in the scale of technical Assistant. Department of Ocean Development New Delhi notified the vacancy as Technical officer in the Scale 2200-4000 (17) National Research Centers for Soybean (28) notified the same in the scale 1200-2040 as technician with the qualification of matriculate and certificate in card indexing.

TABLE 7: DISTRIBUTION OF VACANCIES OF LIBRARY ASSISTANTS SCALE

SN	Scale	1994	1995	1996	Total	Percentage
1	1650-2950	00	12	01	13	22.40
2	1640-2900	05	02	01	08	13.81
3	1450-2700	00	00	01	01	01.72
4	1400-2600	07	03	07	17	29.31
5	1400-2300	00	04	07	11	18.97
6	1200-2040	01	02	01	04	06.90
7	1200-1800	00	01	00	01	01.72
8	950-1800	00	00	01	01	01.72
9	950-1400	00	01	01	02	03.54
	Total	13	25	20	58	100.00

Table No. 7 illustrate the vacancies of the library assistant notified in various scale. The highest 17 vacancies appeared in the scale 1400-2600 notified by the institute and research libraries, followed by 13 (22.40%) vacancies in the scale 1650-2050 notified by university libraries. The lowest No. Of vacancies appeared in the scale 950-1800 and 950-1400. The post of library Assistant has also been notified in various scales the highest being in the scale 1650-2950 and the lowest 950-1400. Some universities like the Punjab University Chandigarh (19) and SNDT Women University, Bombay (20) advertised the vacancies of Assistant librarian in the scale 1650-2950, were as Nyasaland University (21) and Tejpur University (22) notified the same in the scale 1200-2040. College libraries advertised the post of library assistant in the scale 950-1800.

Research libraries and Institutes like COIR, CABRI, Central Fisher-

ies Research Institute, Central Arid Zone notified the vacancies in the scale 1400-2300 and 1400-2600.

TABLE 8: DISTRIBUTION OF VACANCIES OF FACULTY POSITION BY SCALE

SN	Scale	1994	1995	1996	Total	Percentage
1	Professor 4500-7300	02	01	02	05	26.32
2	Assoc.Prof. 3700-7500	01	02	04	07	36.84
3	Lecturer 2200-4000	03	03	01	07	36.84
	Total	06	06	07	19	100.00

Table No. 8 indicates the vacancies notified that of the faculty positions in library profession. The highest 7 No. Of the post advertised was that of lecturer in the scale 2200-4000 and associate Professor 3700-700. Only 5 No. of vacancies appeared that of professor in library and information sciences.

It is evident from the data that faculty position notified are comparatively less than the administrative technical vacancies notified in the profession. The obvious causes of this state of affairs is due to the under staffed schools/departments of library and Information sciences. The universities are producing more than desired number and consuming less than prescribed norms.

TABLE 9: DISTRIBUTION OF VACANCIES OF LIBRARIAN BY QUALIFICATION

SN		1994	1995	1996	Total	Percentage
1	Master in Lib.Sc. Specialization in Acrchive and innovative Library services	06	03	03	12	08.05
2	Master degree & degree in Lib Sc. One year Specialization Inf.Sc.	07	02	01	10	6.04

SN		1994	1995	1996	Total	Percentage
3	Post Graduate and degree In library science.	02	02	05	09	06.04
4	Graduate in any discipline and masters degree in lib sc.	02	04	00	06	04.02
5	Master degree in Lib sc. & Net qualified	02	04	00	06	04.02
6	Degree in Lib Sc. or degree in Arts/ Sc with Diploma or Certificate in Lib Sc.	02	04	00	06	04.02
	Total	108	22	19	149	100.00

Table No. 9 represents the qualifications requirements for the various vacancies advertised for the post of librarians. The table reveals that 12 No. Of the vacancies were notified of that of University librarians with the qualifications, masters in library science or Documentation science, specialisation in information technology innovative work in library services and published work 10 vacancies for librarians were advertised with the qualification of masters degree in any subject with a degree in library science and one year specialisation in information science.

Vacancies of university librarians also demand fair amount of exposer to library work and experience. It has been observed that normally ten years of deputy librarian and 15 year experience as college librarian with innovative library work and published work is required. Some vacancies of librarians also desired an M.Phil or PhD. Degree in library science. Only 6 No. of vacancies required UGC or Net qualified personnel. A No. Of vacancies in Institutional libraries did not make Net qualification as essential qualification. Vacancies notified of the University librarians also did not make net qualification as essential qualification the table further reveals that the highest 106 No. of vacant posts mostly in school libraries have been notified with the qualification of degree in library science or graduate with diploma in library sciences. The year 1994 notified highest 108 No. of vacancies.

TABLE 10: DISTRIBUTION OF VACANCIES OF ASSISTANT LIBRARIAN BY QUALIFICATION

SN		1994	1995	1996	Total	Percentage
1	Master in Lib & Inf Sc./Doc.Sc. with Deg Ree in Lib Sc.	01	03	03	07	15.90
2	Master in Lib/Inf Sc. & Net qualified	01	02	04	07	15.90
3	Masters degree and Masters in Lib & degree Inf.Sc	00	01	01	02	04.55
4	Science graduate and Masters in Lib science	01	05	00	06	13.64
5	Post graduate & degree in any subject and deg-or diploma in Lib Sc.	01	04	04	09	20.46
6	Degree in Lib Sc or degree in any subject with diploma in Lib Sc	03	06	04	13	29.55
	Total	07	21	16	44	100.00

The table above reveals the qualification requirements for the post of a Assistant Librarian. It is observed that the highest 13 No. Of the vacancies were advertised with the qualification of degree in library science or a degree in any subject with diploma in library science followed 09 vacancies, notified with qualification of post graduation in any discipline and a degree or diploma in library science.

Seven No. Of vacancies demanded masters degree in library science with Net qualification Only 02 vacancies required an additional masters degree with degree in library science. Only 06 No. of vacancies gave preference to science graduates.

TABLE 11: DISTRIBUTION OF VACANCIES OF DEPUTY LIBRARIAN BY SCALE

SN	Scale	1994	1995	1996	Total	Percentage
1	Master in Lib.Sc Inf.Sc/Doc. Sc &	01	02	03	06	66.67

SN	Scale	1994	1995	1996	Total	Percentage
	one year specialization in Inf. Tech/ Archives					
2	Master in Lib Sc. & Net Qualification	02	01	00	02	33.33
	Total	02	02	05	09	100.00

Table No. 11 shows the qualification requirements of deputy librarian. Unlike Librarians, and Assistant Librarian, not much variations is noted in the qualifications of deputy librarians perhaps due to the fact that post of deputy librarian exists mostly in university libraries, only 6 No. of the vacancies appeared with the qualification masters degree in library science or information science or documentation science with one year specialization in information technology or achieves and evidence of innovative work in library. Only 3 vacancies were advertised with NET Qualification and masters degree in library science.

TABLE 12: DISTRIBUTION OF VACANCIES OF PROFESSIONAL ASSISTANT BY QUALIFICATIONS

SN	Scale	1994	1995	1996	Total	Percentage
1	Degree in Art/Sc with degree in Lib & Inf Sc.	00	01	00	01	33.33
2	Master in Arts/Sc & degree in Lib & Sc.	02	00	00	02	66.67
	Total	02	01	00	03	100.00

Table No. 12 illustrates the qualification requirements of professional assistant. Very few No. Of vacancies were advertised for this post. Only two No. Of vacancies appeared in the year 1994 with the qualification of masters in Arts or science and a professional degree in library and information science followed by one No. Of vacancy notified in the year 1995.

TABLE 12 : DISTRIBUTION OF VACANCIES OF TECHNICAL ASSISTANT

SN	Scale	1994	1995	1996	Total	Percentage
1	A graduate degree & a degree in Lib Sc. desirable master degree in arts/Sc.	04	02	01	07	70.00
2	Degree and Diploma in Lib Sc.	01	01	00	02	20.00
3	Metric and Certificate in Lib. Science	01	00	00	01	10.0
	Total	06	03	01	10	100.00

Table 13 represent the qualification requirement of the vacancies advertised for the post of technical assistant. Technical assistant is an important post in libraries created for technical works. The highest 7 No. Of vacancies appeared with the qualification of degree in any subject and professional degree in library science. Some vacancies particularly in Research center libraries, desired knowledge of operating library software and computerisation of library activities. A marked difference in the qualification requirement of technical assistant is observed, some organisations preferred personals with knowledge of computers, indexing etc. where as others advertised the post with mere matriculation and a certificate in library sciences. The National Research Center for Soybean is unique example.

4 LIBRARY PROFESSION AND TRENDS

The traditional role image of the librarian is fading out. New role of the service librarian is supplemented by information specialist. The study reveals that the trend is towards appointing a professional librarian rather than scholar librarian. The professional degree in librarianship is now essential qualification and not a preferential qualification of secondary importance M.Lib.I.Sc degree is considered at par with post graduate degree. Regarding experience their is more stress on working experience and innovative library service rather than research experience, however good academic record and publication is still preferred. The impact of information and communication technology on libraries is evident from the various vacancies notified demanding for computer literate candidates. Universities and institution libraries are now giving preference to

candidates having knowledge of computer application to the libraries. The university libraries notified the vacancies of librarians with an essential qualification of one year specialization in information technology or archives.

The study reveals that libraries of Autonomous Institutions and Research Centers are fairly ahead of the universities and college libraries in library automation. Vacancies notified from these libraries preferred candidates having a diploma or a certificate in computer application with a degree in library science on the other hand university and college libraries are giving preference to UGC/NET qualified professionals. It is evident that library automation has become an important feature in libraries. The librarians are exhibiting keenness in adopting the modern information technologies.

5 Conclusion

The study results indicates a general overview of the News Paper coverage on the employment market, available for the library professionals. It is significant to note that School libraries followed by University libraries and other institutional libraries are the main organisations creating maximum job opportunities for the library professionals. Very few No. Of vacancies were notified by the private establishments. It is evident from the employment generation on an average are on the decrease. Bulk of the vacancies notified pertained to the administrative and technical nature of work in the library. Only 19 No. of the vacancies were notified for the faculty positions and research activities. Most of the vacancies were from School libraries followed by University libraries.

The impact of information technology on library operation and services has increased steadily over the last two decades as more and more libraries are automating their activities. The demand for computer literate library professionals with experience of handling modern office automation equipment, operation of computing system and maintenance of database is certainly bright.

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Professionally Trained Manager: An Indespensible Part of a Qualitative University Library

SONAL SINGH AND SURENDRA SINGH

ABSTRACT

Discuss the need for professionally trained manager. Detail responsibilities of a university librarian have been mentioned. As a case study that management of university library of Uttar Pradesh has been cited. Comparative data on various aspects have also been given.

1 INTRODUCTION

Management is the force which leads, guides and directs an organisation in the accomplishment of predetermined object. In an organisation, Individuals work in groups, so managing becomes essential to coordinate individuals efforts. The function of management is the coordination of human activity. Management is quite dynamic and flexible and responsive to changes in the social concepts and economic conditions. In fact, in any scheme of work, management is very important and for a sound management, the manager should be active and dynamic.

A library is a non-profit organisation, where individuals work in groups. This, managing becomes essential to coordinate individual efforts. Libraries are costly ventures. Costs must be justified by providing effective and efficient services through efficient and effective management. Hence the role of management would be to convey the resources of humanity, finance, library holdings and technical methods into outputs by way of efficient and profitable services. Management of a library thus needs a dynamic personality in the librarian who could plan, organise, direct and control the whole library. Library is a living organism and

it has been defined as a trinity of books, readers and staff brought into a meaningful and integrated relationship. In order to cope with this living organism, it must be management efficiently resulting in better and effective services.

With the spread of literacy and higher educations, libraries are gaining increasing importance, both qualitatively and quantitatively. The university library is the focal point for those seeking information on many diverse subjects, for those who wish to improve their education, for recreational reading, for research and aesthetic appreciation. In fact, the University library is to womb of higher education which brings out fruitful results to take care of the well-being and future development of a nation. The University libraries are hopefully expected to respond meaningfully to changing needs. Needless to say, its organisation must also be geared to present and future needs and be oriented to the demands of the modern world's student, teachers and research workers.

A library to render effective service requires adequate and competent personnel with an academically qualified and professionally trained librarian as its manager.

2 University Librarian

Librarianship today, is a highly complex profession requiring specific and detailed knowledge of many kinds-personal, financial, bibliographical and bibliothecal. The complicated services which a modern library renders do not organise and run themselves but must be organized and operated; they must be modified, improved and extended in the light of changing conditions. This can be done only by one who knows the objectives and potentialities of the library, the techniques, tools and means of achieving them and purposed and limitations of means. the head of a library must, in short, be thoroughly familiar with all phases of modern librarianship. It is the librarian who plays an important role in the university in providing information to its users. Atkinson has rightly stated, "The library is the core of the university. As a resource it occupies the central and primary place, because it serves all the functions of the university-teaching and research, the creation of new knowledge and the transmission to posterity of the learning and culture of the past."

The librarian makes an intellectual contribution to the university library. Without his active participation, the quality of teaching and research would suffer considerable. He is the product of a high degree of academic and professional training. He occupies the pivotal position in the university library. He works as a policy maker, a manager, an

administrator and an executive officer. He also works as an intermediate between the readers and the library, and correlates and organizes the various libry programmes and services of the univeristy. Thus as the librarian has to perform multidimensional duties, he must be the master of universe of knowledge. He must be well aware with the different facts of the present modern librarianship.

In some universities the librarian is known as 'Chief Librarian'; in some others merely 'Librarian'; and in yet others as 'Director of Libraries'. The designation and status of the university librarian are usually defined in the statues of the university. He is usually appointed after selection by a Selection Committee and on the recommendation of the Executive Council of the university and is usually responsible to the Vice-Chancellor or the Rector.

The University librarian unifies and correlates library programmes.The larger the library services the more varied will be his functions. The role of university librarian is very challenging and requires scholarship and administrative experience. The university librarian has to plan the organisational framework; to supervise the senior staff of the library, seeing that they carry out properly the responsibilities allocated to them. He has to seek and cultivate new knowledge and he also has to interpret old knowledge and beliefs in the light of new needs and discoveries. He has to provide right kind of leadership in all walks of life. University Librarianship is a mixture of administrative and academic routine. The University librarian has to strive hard to achieve the goals of his library. A university librarian must be acquainted with total educational programme of the university and must be able to adjust its administrative procedures to those of the university. "The control of the library by a librarian is a dynamic activity, and at this level three things are required; firstly, a constant inflow of information on which sound judgment can be based; secondly, the ability to see the needs of the library as a whole and unobscured by administrative details; and thirdly sufficient confidence and courage to give the necessary orders and leave others to carry them out. The librarian's total activity may therefore be summed up as that the 'Controller', exercising power over or managing the library, but always responsible to the governing body which must have overhead or final responsibility for its control. University librarian has got a central position between administration and faculty, and he should try to get support of both. The work and attitudes of the librarian and his colleagues will reflect the strength and/or weakness of a library. The specific areas of the librarian's duties are staffing, the provision and maintains of

accommodation and equipment, building up the library's stock and readers services.

A University Librarian is an administrator, a manager and controller of the university library. He is a scholar, technician, lover of books, social worker and overall a social reformer. He is a leader, director, principal organiser and planner and the person responsible for all that goes on in the library. Librarian works as a manager of a business firm. He requires frequent consultation and a close relationship with the Registrar, Vice-Chancellor, and members of the executive committee and impress them with should business judgment. He also holds confidence of library staff by his ability to develop a systematic organisation of library work and attain personal respect from others. Goodrich has described that the qualities of an executive lie in four factors: the power, the ability to analyse, the geniousness and the faculty of cooperation. The attitude of the librarian should be democratic and firm in action. The librarian in the words of Bonn, must possess "adaptability, awareness, common sense, courtesy, discrimination, enthusiasm, imagination, initiative, judgment, leadership, maturity, originality, responsibility, text, understanding, willingness, vitality and zeal; a feeling for communication, cooperation, experimentation, innovation and participation; an ability to be constructive, creative, decisive, expressive and receptive, and a truly professional point of view.

The Chief Librarian is the officer responsible to the authority for the executive management of the library. Primarily he is an administrator and educationist. He is responsible for staff duties and their performance, for library building, stock and equipment. Generally a professionally trained and academically qualified librarian has following personality traits:

(i) Ability to delegate authority, to estimate other's capacity and to give clear instructions.
(ii) Power to keep the group to a common goal.
(iii) Capacity of the decision making habit of applying new methods and freedom from prejudice.
(iv) Courage of patience, accepting criticism, seek suggestions and praise work of the able staff member.
(v) A sense of humor and the faculty of observation of the objectives.

The librarian with the qualities of head as mentioned above, is able to deal with his staff efficiently and led them properly.

Thus, a qualitative library, with a professionally trained and academically qualified mangers as its librarian, is the ideal situation for

intellectual society. But, the path to this ideal is full of thorns. The hurdles on the way to this ideal can be clearly seen in many libraries in the country. For example, can we imagine a university library without a professionally trained manager" No! But;it is true. Let us have a look on the university library management in Uttar Pradesh. Through a process of gradual evolution, university libraries in India have reached a stage where they have more or less similarities in their attitudes and approaches to the problems, aims and objectives and uniformity in its organisation and administration. Despite these similarities there are inconsistencies and inequalities in the University libraries of Uttar Pradesh specially in relation to the library management.

3 University Library Management in Uttar Pradesh

Uttar Pradesh is the most populous state, containing roughly one-sixth of the country's total population. But, in the matter of literacy, it's fifth from the bottom in the country. The government is spending a huge amount in primary, secondary and collegiate education in the state. Measures have been adopted to improve education at all levels,both qualitatively and quantitatively.

At present Uttar Pradesh is having twenty universities to meet the requirements of higher education. No university can develop effective work, in the academic sense, without a strong library as its center. A well equipped and well managed library is the foundation of modern educational structure.

Out of these twenty universities in Uttar Pradesh, this study covers twelve University Libraries. 1 The University of Roorkee, Roorkee, 2 Govind Ballabh Pant University of Agriculture and Technology, Pantnager, 3 Chandra Shekar Azad University of Agriculture & Technology, Kanpur, 4 Narendra Dev University of Agriculture & Technology, Faizabad and 5 Sampurnanand Sanskrit Vishvavidyalaya, Varanasi, are of specialized nature. Their collections, services, clientele and requirements are of special type. They do not fall in the sphere of general universities. Hence, as the nature of reading material, equipment, clientele etc. are different in these universities, it is thought that comparison would be difficult and unbalanced. Similarly, the Banaras Hindu University and Aligarh Muslim University are the central universities, under the Government of India. It makes a major difference as far as universities library finances and services are concerned. As a result, these seven university libraries are kept outside the purview of this study.

The Purvanchal University, Jaunpur, which is a very recent in origin, does not have its central library.

In Uttar Pradesh, if the university library management is sought, recourse may be had to the laws of the state concerning the institutions which the library serve. Although variation in University pattern is to be expected, some general patterns in the legal structure are evident. The universities in Uttar Pradesh are organised as teaching and affiliated ones. The colleges control majority of undergraduate teaching, whereas post-graduate teaching is the principal domain of the university departments (though the same is done in some college also.) Admission to research work is controlled by the university. Each university of Uttar Pradesh is governed by its individual act.

It is a general principle of organisation that for any new organisation, the chief of the organisation is appointed first and according to his need the subordinate staff is appointed. Thus, the organisations are built from top to bottom. unfortunately in India, the university libraries grow from bottom to top. Hardly any example exists where the university librarian is amount the very first officer of the university who is appointed to build up the university libraries of Uttar Pradesh there has been practice of honorary librarianship. Except one or two university libraries, there is no trained and full fledged university librarian. University libraries are headed by one of the university professors in the cadre of honorary librarian. In Uttar Pradesh people are not library minded and after the establsment of university, much attention is not given to its library and to the appoint of the university librarian.

According the Uttar Pradesh universities laws,

1 (a) The university may, with the proper approval of the State Government appoint a whole time librarian. The librarian shall be appointed by the Executive Council on the recommendation of a Selection Committee, consisting of the following namely,

(b) The Vice-Chancellor;

(c) Two experts in Library Science, to be nominated by the Chancellor.

(d) Until the Librarian appointed under clause (1) assumes charge of his office the Executive Council may appoint an Honorary Librarian from amongst the Professors of the University for such terms as it thinks fit.

2 The Qualifications of the librarian shall be such as may be provided for the Ordinances.

3 The emoluments of the Librarian shall be such as may be approved by the State Government.

4 It Shall be the duty of the Librarian to maintain the Library of the University and to organise its service in the manner most conductive to the interest of teaching and research.

5 The Librarian shall be under the disciplinary control of the Vice-chancellor:

Provided that he shall have a right of appeal to the Executive Council against any order of the Vice-Chancellor passed in the disciplinary proceedings against him."

Thus, in the absence of a trained and experienced librarian, University libraries of Uttar Pradesh have not been established and organised on scientific lines. The duties of library staff are limited to normal running of the library. Much of the selection work is done by the teaching faculty and the library staff performs processing and procuring work.

The position of university librarian in the universities of Uttar Pradesh is as under:

4 Comparative Position of University Librarian in Library

Table 1: Committees and Academic Bodies of the University

Name of the University	University Library Headed by	member of any Academic body of university	Status in Library committee
Agra	Honorary Librarian	Deputy Librarian is the member of board of studies	Deputy Librarian is the Convenor
Allahabad	Honorary Librarian	-	Secretary
Avadh	Librarian	-	Secretary
Bundelkhand	Honorary Librarian	-	Secretary
Garhwa	Librarian & Honorary Librarian	-	Honorary Librarian Secretary Librarian member
Gorakhpur	Honorary Librarian	-	Secretary
Kanpur	Honorary Librarian	-	Secretary

Name of the University	University Library Headed by	member of any Academic body of university	Status in Library committee
Kashi Vidyapith	Honorary Librarian	-	Secretary
Kumaun	Honorary Librarian	-	Secretary
Lucknow	Honorary Librarian	-	Honorary Librarian Vice President and Deput Librarian Secretary
Rohilkhand	Honorary Librarian	-	Scretary

While observing the above situation in Uttar Pradesh it can be seen that only Avadh University, Faizabad and Garhwal University, Srinagar, are headed by the full-fledged librarian. Rest all the libraries are headed by Honorary librarian.

In Agra, the Deputy Librarian is the member of Board of Studies. The two full fledged librarians are not the members of any academic body of their respective universities. The Honorary Librarian are the members of academic bodies in the cadre of Professors of teaching department.

In all the universities, the honorary librarians have been given the place in library committee as the Secretary of the committee except in Agra-where Deputy Librarian is the convenor, Meerut -Where Honorary Librarian is Vice-President and Deputy Librarian is Secretary. In Avadh University, librarian is the Secretary of Library Committee. In Garhwal University, though there is a full fledged librarian, he is the only member of the library committee and Honorary Librarian is the Secretary of Library Committee. In Kashi Vidyapith, Three Assistant Librarians have been given the place in library committee for assistance.

Thus, it can be seen that (i) the university librarian in Uttar Pradesh is one of the professors of University, (ii) He is not familiar with the latest library techniques, (iii) He spends much of his time for teaching and visits the library hardly for one or two hours.

To provide better library service, a full-fledged and professionally qualified university librarian must be appointed in all the universities of Uttar Pradesh. The Victoria practice of keeping a 'professor in charge of University library' should be abolished and the university librarian should be in direct touch with the library committee and the Vice-Chancellor.

Until the universities appoint a full-fledged qualified university librarian having a good academic status and is equated in pay scale with the professors and is getting an opportunity to sit in the various committees of the university, and is taking part in the academic bodies of the university, we can expect nothing in the name of library service. The situation in Uttar Pradesh seems to require a drastic change in this direction.

5 Conclusion

From the above, it is very clear that unless all other branches of management understand the importance of library management, the onward march to emerging trends of management is not possible. To ignore the importance of a professionally trained librarian acts as a back drag in the onward journey towards the technologically advanced library management. Thus, corrective measure in retrospect are bound to improve the prospects.

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Status and Qualifications of Library Manpower in Different Types of Libraries

KRISHNA CHAKRABORTY GANGULY

ABSTRACT

Employers look for the skill and competency. It varies from Library to Library. It is the scheme which forms the basic foundation of recognizing the contents of the categories of essential knowledge and skills of a professional discipline corresponding to any man-made production system. The knowledge contents comprehend answers to every pertinent why, what and how?

1 Can we specify a common professional level of educational preparation or intellectual awareness that everyone who is called a Librarian should be able to demonstrate?
2 Can we develop district specialisation tracks that meet the needs of specialised constituencies as separate from and in addition to the requirements from basic professional competencies whatever we decide to call the individual who demonstrates them.

Inevitably we will have to differentiate between and among the parameters of professional experience (practice work with or without academic credit, degree, education, continuing training and the potential role of internship.

Finally, what sort of people do we really want to join us in this profession?

To measure an occupations professionalism criteria exists. They vary in their wording but essentially there are six criterias; they are:

1 Professions involve essentially intellectual operations with large individual responsibility.
2 They derive their raw material from science and learning.
3 This material they work upto a practical and definite end.
4 They possess an educationally communicable technique.
5 They tend to self–organisation.
6 They are becoming increasingly attruistic in motivation.

To practice profession is not just to practice a set of skills. It is the skills, techniques and knowledge of libraianship and information science that make us different from any other profession and therefore, allows us to claim a position in Society that identifies us as different from the others and for which we should be properly rewarded, recognised and remunerated.

The actual work and responsibilities of many professional librarians are often at low levels particularly when compared to those of other professionals in the parent organisation within which libraries are located, whether it be within universities, local or central Govt.; some Librarians believe that a lack of legal status or statutory recognised qualifications from the professional body inhibits the perceptions by the public of their status.

Library schools often receive less qualified students; these low level students are trained by a teaching staff, who in many cases are also second rate, according to many respondents.

In conclusion, it may be stated that in case of Public Library, status and qualifications of Library man-power is minimum.

In case of University and College Libraries, status and qualifications are required better than public library.

In case of research and special libraries, status is more dignified and high qualifications of man-power is required.

1 Introduction

It is the skills, technique and knowledge of librarianship and information science that make us different from any other profession and therefore, allows us to claim a position in society that identifies us as different from the other and for which we should be properly rewarded, recognised and remunarated.

The actual work and responsibility of many professional librarians are often at low levels particularly when compared to those of other professionals in the parent organisation within which libraries are located, whether it be within universities, local or central Govt.; some librarians believed that a lack of legal status of statutory recognised qualifications from the professional body inhibits the perceptions by the public of their status.

2 University and Research Libraries

In case of University Librarians, to understand the needs of university libraries, Librarians must first understand the major factors that influence higher education; scholarship, technology and economics-all of which are interrelated. They will have to be comfortable and conversant with the world of scholarship and research, understanding the research

process generally as well as maintaining knowledge about subject disciplines they serve.

Librarians in the research Library system must recognise the support of instruction and research beyond their own department or clientele, and they must consider the needs of the broader university community as well as scholarly community out side of their own university, the expected requirements for present and future research Librarians are quite impressive. There is no way that this level of expertise can be achieved without serious attention to the process of education. This education must be on going with responsibility being shared by the faculty in the graduate programmes, research Library administrators and managers and the individual Librarians themselves. Each should approach the topic of education with a global and integrative view. Of course, Librarians have a responsibility for their own learning and development. Professionals should attend and participate in local, regional and national conferences as well as enrolling in workshops and taking formal courses. Librarians must also be willing to spend their own money to support their continued education and professional participation's. Librarians will need new knowledge, skills and abilities as change occurs; they will also have to relinquish some old outlooks, attitudes and behaviours in the new environment.

University library managers must recognise the need to conduct recruitment for professional positions in a sophisticated manner. Recruitment is one of the most important public relations function for a library. University libraries must market themselves; they must be able to describe the opportunities for contribution, learning and advancement that are available in the research library environment; while it is possible that smaller academic libraries or special libraries may offer new librarians more immediate involvement in a full range of organisational activities, university libraries offer greater variety and opportunity over a period of time.

Salaries of librarians are affected by the fact that Librarianship is a female dominated profession and library work and librarians have historically been undervalued. In addition higher education institutions have never been likely to provide substantial monetary rewards. Unfortunately, however, university libraries tend to try to improve local salaries by comparing only with peer libraries where salaries are higher. Real improvements in librarian's salaries will occur when they are compared with those of teaching faculty and other professional groups on campus, as well as with those of comparable information professionals in industry. Changes within University Libraries regarding requirements,

responsibilities and roles for librarians will vary by library and university though the direction of change is clear.

More will be expected of university librarians, their role and activities will become increasingly sophisticated and more diverse.

3 Large Public Libraries

Many of the expectations and needs of large public libraries in the preparation of librarians are common to libraries of all sizes and types. None the less, large public libraries possess some unique problems in terms of special skills, employment levels, standards and turnover.

In selecting and recruiting professional staff, large public libraries still have high standards and expectations of the new graduate.

4 College Libraries

In case of college library staff members are needed to have good basic training, training based on that 'Identifiable Core knowledge' common to all types of librarianship. The need for college librarians to be generalists rather than specialist.

The purpose of college library, is primarily to serve under graduated and to do that by supporting the teaching/learning process. Another characteristic of college libraries that must be considered in defining their personnel needs is staff size. Most college libraries have small professional staffs.

5 Small Public Library

There are several obstacles to fully professional small public libraries, under qualifications of staff is perhaps the most critical. Many small public Libraries are unable to pay competetive salaries to attract qualified applicants.

Under qualifications may extend even to Director of small public library. Perhaps the most pressing need is to develop staff to assume leadership positions. Directors, too, are recruited locally and paid minimum wages; they receive few benefits and lack adequate library education.

In assessing staff development for small public libraries, it is, therefore, important to remember the unmet need for basic professional education.

6 Conclusions

To sum up, directors and staff of small public libraries need professional education, often at a basic level.

Finally it may be stated that in assessing status & qualifications of library man-power in general, we will have to assess first what sort of people do we really want to join us in this profession ?

To measure an occupation professionalism criteria exists. They vary in their wording but essentially there are six criterias:

(a) Professions involve essentially intellectual operations with large individual responsibilities.
(b) They derive their raw material from science and learning.
(c) This material they work upto a practical and definite end.
(d) They possess an educationally communicable technique.
(e) They tend to self organistion
(f) They are becoming increasingly attruistic in motivation.

To practice profession is not just to practice a set of skills. It is the skills, techniques and knowledge of librarianship and information science that make us different from any other profession and therefore allows us to claim a position in society that identifies us as different from the other and for which we should be properly rewarded, recognised and remunerated.

Employers look for the skill and competency to select the best possible candidate. All human beings are in need of a bit of encouragement once in a while; a bit of praise for an achievement can give so much stimulus and new ambition. The delegation of some special responsibility gives a feeling of importance and self-respect. Intelligent and ambitious people get tired of mere routine, if they do not see that they are making some kind of progress and having an opportunity for professional growth.

Any employee's value to the library - lies not only in what he is, but what he may become. He must be given opportunity to satisfy his capacities and interests. In his eagerness to retain a capable employee, the supervisor should not hold him after he has outgrown his job and is ready for promotion.

The employee must be made to feel a definite part of the whole, a vital part contributing to the success of the whole. He must become imbued with pride and loyality to the library. To acquire this, he must be informed of its history, its outstanding features, its policies of service etc.

And finally, his professional enthusiasm must be stimulated.

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Customer Service and Satisfaction as a TQM Strategy in Library and Information Sector

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KANCHAN KAMILA

Abstract

Business and manufacturing sectors have taken customer service and satisfaction as the heart of their quality improvement programme. Service sectors are also now making positive moves in this direction. Despite being designated as non-profit making service organizations, library and information centres (LICs) are facing sizable reduction or outright closing worldwide in the face of severe budget cuts. Thus, LICs must also adopt quality improvement strategies in providing information services to their customers, since generation of information and provision of information services are now costly as well. This paper discusses the pros and cons of customer service and satisfaction as a core element of Total Quality Management strategies in organizations with appropriate references from the library and information sector.

1 Introduction

The core element of all 'Total Quality Management' (TQM) strategies and tactics (in the manufacturing and service sector) is customer satisfaction. TQM was developed in the manufacturing environment to correct defects in production and hence to boost productivity and increase customer satisfaction. The TQM approach, so successful in manufacturing industry, has now been adopted by service organizations, largely because customers' expectations have risen sharply, and because quality improvement programmes can be adapted to service industries [9]. But, the process of translating it to a service environment has been a slow one. In case of manufacturing sector, quality was translated into no defects in the products. Similarly, in service sector, e.g., library and information

centre (special, academic or public), quality customer service and satisfaction depends on 'right information to the right customer at the right time, right place and right charge'. Defective information (wrong/not pin-pointed) service is not only expensive to replace, but leads to unhappy customers. Too many unhappy customers (because of defective information/being late) lead to too few customers. USA and Japan adopted qualitative TQM strategies in manufacturing sector resulting into their increased share of foreign market every year. In library field, USA and Great Britain are in a good position to apply the TQM strategies. USA has captured major foreign market in marketing of information almost in every discipline.

Like manufacturing sector, competition also exists in library/information sector—competition with another library or competition to increase the marketing of information as well as profit (now library also earns profit in exchange of quality service directly or indirectly through, for example, school fees in school libraries or taxes in public libraries). The objective of this paper is to promote understanding of what makes a satisfied customer in a library/information environment. However, one need not to believe that the customer is always right one hundred percent of the time or that all customers can be satisfied. [6, 7]

2 Customer and His/Her Nature

A customer is a person, that is an individual or organization, who buys a product from the marketing organization. In manufacturing/business sector, the term 'customer' is very popular. Now, there is an increasing trend to use the term in library/information centres instead of library patron/user. As the 'customer' problems of libraries have more in common with 'customer' problems of other business, so the use of the term is very much justified.

A library user/patron, i.e., customer pays directly or indirectly for his/her information requirements. Naturally, he/she complains for defective information or being late. If the library customers could not be satisfied they will target another library to satisfy their needs. Even librarians and other staff in the library/information centre are customers. Often the librarians who provide services directly to the users is an 'internal customer' of other staff members who work behind the scene, because he or she is dependent on the services of those other staff.

Therefore, customers are anybody who comes in contact with library or information centre regardless of whether or not they spend money on that particular occasion, because they may spend money next time they visit.

There are two types of customers, i.e., external customers and internal customers. External customers are regular customers, potential customers/tomorrow's customers, institutional customers, intermediate customers (peons, messengers, couriers, family members, friends), visitors, suppliers (printers, computer engineers working on library automation). External customers are again of two types: visible customers, i.e., those who come to us in person, and invisible customers, i.e., those who telephone us or write to us. We can of course write back or telephone back to get more details.

Some departments or sections are internal customers of other departments' products or, more normally, services. For instance, the sales division is an internal customer of the head office accounting or personnel section, and it is helpful for those service departments to perceive themselves as providing a service to a customer, that is to develop a 'marketing focus' even though in fact the customer/user has no choice but to make the purchase. [6–8, 10]

3 What and Why of Customer Service

3.1 What of Customer Service

According to Karl Albrecht and Ron Zemke 'Service is not a competitive edge, it is the competitive edge. People do not just buy things, they also buy expectations'. No business today can afford to ignore two very important people, the customer and the competitor. Until recently, companies operated in a very stable world where organizations determined their own notions of excellence, and customers accepted this judgement as they accepted the products and services offered to them—simply because they had no other choice. [3, 6]

Good customer service is a difficult thing to define because many of the factors are determined by the specific nature of the organization. However, some of the characteristics can be applied to virtually any business:

- quality of staff: polite, efficient, knowledgeable, flexible
- knowledge of customer requirements
- application of service philosophy
- skilled training
- speed of service
- motivated staff
- customer information
- ability of staff to react to problems

3.2 Why of Customer Service

Now a day because of the power of information and technology and the removal of barriers to trade and competition, consumer choice has increased dramatically, changing the face of commerce and industry. These greater opportunities for customers have had dramatic effects on the management of organizations. Decisions that were previously taken at the top and cascaded down to staff now tend to be distributed among those closest to the market place, empowering them to anticipate market forces and market expectations. Managers are becoming aware more and more about the fact that the most successful organizations increase their bottom line when they learn to profit from complaints.

Most librarians are already working very hard. Why then should they worry about their customers' expectations? One obvious reason is that if the library has no customers, it losses its justification for funding and, sadly, some libraries are facing sizable reduction or outright closings.

One statistic often cited is that it is on an average five to fifteen times harder to get a new customer than to keep an existing one. This will vary by industry. The figures for libraries are unknown, but the point is clear. It is a lot easier to satisfy the person, who already is in the library, than to get new customers to come to the library.

As a starting point, libraries should focus their efforts on their existing customers. Therefore, it is important to provide excellent service to existing customers, instead of devoting too many resources to getting new customers. Those who know the library and how the facility works should be easier to work with since they already understand the system. Word of mouth is still one of the best forms of advertising, particularly in a closed environment such as a special library. Satisfied customers bring new customers. Dissatisfied customers discourage new and existing customers.

Many customers do not complain before they leave, they just leave. But they frequently tell their friends about their bad experience. Studies have shown that a dissatisfied customer on an average tells twice as many people as a satisfied customer. People seem to love to complain to their friends. The bottom line is that all major causes of customer dissatisfaction are strongly linked to human performance. Therefore, an organization's staff has the greatest impact on the satisfaction of its customers. [3, 6, 10]

At a glance, the benefits of applying customer service are:

- improved profitability
- good company image
- improved productivity and performance
- improved staff morale
- improved management
- responsive suppliers
- committed customers
- safer future.

These gains are achieved when the application of customer service translates into an increase in revenue from:

- repeat sales to existing customers
- more products per customer
- new customers.

As well as a decrease in the costs of:

- prevention of complaints
- rectification of complaints
- replacement of complaints.

4 Determination of Customer Expectations

Determining customer expectations is to some extent a lot simpler than meeting customer expectations. Libraries should simple ask running focus groups and conducting user surveys to determine customer expectations. But a good starting point before going through that methodology is simply to ask customers what they find useful.

As obvious as it seems, some librarians do not recognize that customers determine customer expectations. Librarian can provide information that will affect those expectations, but it is the customer who forms the expectations. Although this seems simple, too often librarians say: 'we offered this service and no one is using it. Don't they realize how wonderful this is?' Library staff may feel that it is unfair that their best ideas are not utilized. They feel they as library staff know what the users (or non-users) need. Of course, the problem may simply be that a customer cannot be expected to want something or expect the library to deliver it, if they do not know that it is available, or if they do not understand what it is.

Libraries must be careful not to create false expectations. Staff, budget and other resources in what they can do for customers limit libraries. A customer may not be delighted if he is told that the library cannot provide what he needs, but he is going to be a lot happier about

that than if he is promised a service or product which the library cannot deliver. [3, 10]

5 Meaning of Customer Satisfaction

The important elements, e.g., repeat customers, referrals or endorsements, meeting (or exceeding) customer expectations, creation of a service-oriented environment are included within customer satisfaction. In another way, we can say that, customer satisfaction depends on quality acceptance level, rework, number of customers, minimum defects or no defects, productivity cost, overtime cost, expenses, floor space, conformance to schedule, lead-time, volume of production, sales volume, number of accidents, number of safety related suggestions, minimum absenteeism, etc.

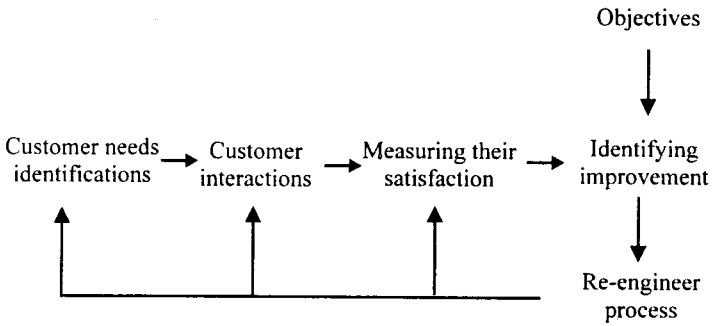
Many companies (even some libraries) and the popular press have jumped on TQM as the current, favoured management tool that will revolutionize the workplace. This is unfortunate. Customer satisfaction that is one aspect of TQM, is a valuable management goal. But it is not something that a company/library can simply initiate by telling it staff to do it. It takes a lot of work and perseverance. In fact, it seems that most of customer satisfaction is simple, commonsense. Indeed, some of the quality-in-service means suggested are courtesy, attitude, helpfulness, and being treated with respect. However, while commonsense can indicate the elements of customer satisfaction, it is much harder to get staff to apply their commonsense in day-to-day dealings with customers. The problem is not that the information and techniques are lacking, but that until recently librarians were not expected to work at it. And despite the commonsense elements of customer satisfaction, it takes a lot to apply commonsense to the everyday work environment, especially in this time of limited resources. Libraries must choose how to spend their limited staff time and funds. In the case of customer satisfaction, these limitations are translated into making sure that customers' expectations are not beyond the library's capacity to deliver. [3, 8, 10]

With TQM as a contest, library users define quality for libraries. Since users' needs will continue to change, quality service will require a continuous improvement process. We will be continuously challenged to:

- identify customers—who matter?
- identify customer expectations—what do they want?
- translate expectations into operational processes—what do we need to do to meet user expectations?

- decide on how to measure services—how will we know how we are doing?
- conduct evaluation of services based on established performance measures—what processes should we continue or change?

The process of customer satisfaction management is represented below diagrammatically:



6 Quality Manual and its Need

The quality manual (human resource manual/staff manual) is one that profiles an organization's policies, practices and procedures. It serves as a guide to the employees. It motivates them to strive willingly with zeal and confidence, towards achievement of the objectives of the organization with better application of its capabilities and thereby reach greater heights in customer satisfaction. A manual is also expected to help a new entrant fit in and adjust to the practices of the organization faster and with much ease. It also allows continuity (in case of change in management), prevents arbitrariness in operations/ decisions. The quality manual, thus aims at the ultimate goal of better quality management and higher levels of customer satisfaction through elimination of one or more of the under-mentioned problems:

- Employees/customers have complained against the library/information centre because certain problems/issues were not handled properly.
- They have some confusion/misunderstanding regarding policies/ processes or their implementation.
- The manner in which supervisory staff handled problems/procedures differed from time to time.

- The supervisors are tied up clarifying too many questions by staff/customers, which are procedural in nature. [4, 5]

7 Conclusion

Customer service and satisfaction is a continuous process of improvement, so it is a long-term management strategy. Always mind that, one cannot satisfy the entire customer all of the time, i.e., with customers, one cannot always win. It requires a commitment of time and money to provide training, to all time for staff to meet, to focus and brainstorm, and to get feedback from customers. This will be most effective if there is commitment from the head of the organization, not only of funds and time, but also as a role model. This is a hard period for libraries, whether special, academic or public. A strategic focus on customer service and satisfaction is an effective tool to help libraries accomplish their mission. In this respect, Quality Function Deployment (QFD) tool is very popular for identifying and prioritizing customers' needs as well as for improving quality. Another methodology that is comparatively quite simple to implement and in principle contains the essential qualities of QFD is 'benchmarking'. The concept of benchmarking is not new. Basically, benchmarking is a tool—a means of measuring and comparing performances—a search for industry best practices that lead to superior performances. It is the formal process of measuring and comparing an existing process, product or service against that of top performers, both within and outside an organization [2]. Other techniques, e.g., the Shewhart Cycle, flowcharts, cause and effect diagram (Fishbone diagram/Ishikawa diagram), Pareto charts and control charts also support the systematic approach to understanding and measuring internal performance gaps [1]. Highest weight of Malcolm Balridge National Quality was given on the customer focus and satisfaction to help improve quality and productivity in US companies. In other countries of the World, provision of such type of national quality award will be very helpful for quality customer service and satisfaction. It is high time that both the library authorities and library managers initiate similar endeavours in their designated work places and justify every rupee spent by the parent organization or the public at large for their upkeep.

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Effects of Personnel Standards of AICTE in Engineering College Libraries in Haryana

RAKESH SINGH BISEN

Abstract

The author describes terms like norms and standards. The author explains categories of library standards,analyses norms and standards of the AICTE with the help of examples taking into consideration the libraries of CRS College of Engineering Murthal (Sonepat) and REC., Kurukshetra. The author concludes with the suggestion that the AICTE norms and standards may be reviewed in order to cope up with the technological changes.

1 Introduction

Norms and Standards are measures by which one judges a thing as authentic, good or adequate. Library Standards may be defined as the criteria by which library services may be measured and assesed. Library standards mean a guide, principles and directions according to which a librarian should work, a reasoned document which can be presented to the authorities for better understanding. An important definition of the standard as by Webster's International Dictionary is given bolow:

'Standards means something that is established by authority, custom, or general consent as a model or example to be followed.'
Standardisation avoids wastage of resources. Standards serve as an objective basis for decisions, thus rendering the decisions more readily acceptable.

Library Standards may be categorised into the following categories:

(a) *Minimal Standards:* A preliminary goal for a new or developing institution or a new or developing service which is minimal in its requirement but which must be met for accreditation or other types of recognition.

(b) *Diagnostic Standards:* The statements of accepted guidelines or normative practices beyond any minimum level to provide a method of comparison with leading institutions and for self-evaluation.

(c) *Projective Standards:* Long range goals for development which may be met by any library now but which will challenge even first rank institutions and which will set the direction for professional development in the ensuing years.

(d) *Personnel Standards:* Statements dealing with qualifications, working conditions, professional responsibilities and other personal practices as distinguished from institutional needs.

2 Norms and Standards of AICTE

The minimal standards of AICTE regarding library staff are as under:

The Library staff are categorised as follows: (a) Librarian, (b) Asstt. Librarian, (c) Library Asstts. (d) Library Attendants. There shall be a minimum of one Librarian, two Asstt Librarians, four Library Asstts. and two Library Attendants for each college.

Job Description and Qualifications:

(a) Librarian

The Librarian is responsible for planning and developing the library of the college and provide the necessary library service to the students and staff of the college. He is responsible to the Principal in all matters connected with the library activities.

Job Description:

- General administration,
- Budgeting,
- Books/Periodicals/Video Tapes selection and acquisition,
- Planning and developing the library,
- Supervising of cataloguing and indexing,
- Arranging for repairs.

Qualification: First or Second class M. Lib Science Degree or First Class B.Lib. Science with 5 years of experience in a similar library.

(b) Assistant Librarian

The Asstt Librarian is responsible to the Librarian in all matters connected with the library.

Job Description:

- Assisting the Librarian in his work
- Cataloguing and classification of books and periodicals.

Qualification: Bachelor's Degree in Library Science with 5 years experience in a similar library.

(c) Library Assistant

The Library Asstts are responsible to the Asstt Librarian and the Librarian.

Qualification: Bachelor's Degree in Lib. Science.

(d) Library Attendants

The Library attendants are responsible to the Librarian.

Job Description:

- Checking at the entrance,
- Control at the property counter,
- Maintaining and upkeep of library,
- Labelling and pasting,
- Repair of Books.

Qualification: A pass in pre-university examination or equivalent.

3 Analysis of the Standards

If one examines the standards, the following points come to the fore:

(a) The standards of the AICTE is minimal. It does not say anything about the growth of the library and corresponding increase in the library staff of various levels.

(b) The standards have become outdated and impractical and needs thorough revision. Lib. Science Degree has changed to Lib. & Inf. Science but the Norms and Standards for Engineering Colleges published in 1990 states Lib. Science Degree. Qualification required for the post of Librarian should be First or Good Second Class (55 per cent) M.Lib. & Inf. Science whereas the standard states First or Second Class M.Lib. & Inf. Science.

(c) Engineering College Libraries are academic libraries in which circulation of documents is predominant library service. Hence, circulation staff in sufficient quantity must be prescribed. But as per the standards, cirulation and restoration of documents are the duties of Library Asstts which is improper and no Engineering College library follows it. Library Asstts are assigned the duties of library and information services such as one library asstt may be dealing with Book Acquisition and other may be dealing with periodical subscription.

(d) The minimum staff prescribed is far below adversely affecting the library services.

(e) Norms and Standards published in 1995 has prescribed less minimal staff than prescribed earlier which is ironical.

(f) Norms and Standards of 1995 is silent on the issue of Qualifications and Job Description.

4 Analysis of the Libraries

In Haryana, there are two Engineering Colleges which can be taken as the basis for analysis. Rest of the Engineering Colleges are private and may not follow the AICTE norms in practice. One is the State run Chhotu Ram State Engineering College, Murthal (Sonepat) and the other is Regional Engineering College, Kurukshetra, an autonomous college financially assisted by Central as well as the State Government.

It is evident from the comparative Table 1 that the library of REC is adequately staffed and also professionally highly qualified.

On the other hand, the library of C.R.S. College of Engg., MURTHAL is under staffed but professionally highly qualified. Pay Scales of this library are as per AICTE norms but qualifications prescribed are higher than the AICTE norms.

As per Table 2, R.E.C. library has a staff strength of 26 whereas C.R.S. College of Engg. library has a staff strength of 12. Number of professionals and semi-professionals in REC are 3 and 5 respectively. Number of professionals and semi-professionals in CRSCE are 1 and 1.

R.E.C. Library is managed by professionally highly qualified librarian in the pay-scale of Rs (3700–5700) whereas C.R.S.C.E. library is managed by non-professional Prof Incharge Library. The post of Librarian is lying vacant since the inception of the college.Staff strength in CRSCE is not even minimal as per the AICTE norms.

5 Conclusion

Norms and Standards of the AICTE has become obsolete. New standards must be developed by the AICTE keeping in view the norms followed by the UGC and Deptts of Central Govt. It is very essential for the bright future of Engg College libraries and professionals. AICTE must fulfill its responsibility of enforcement of its norms and standards so that the image of the AICTE as accrediting agency may be restored.

TABLE 1: STAFF STRENGTH OF REC KURUKASHETRA AND CRS COLLEGE OF ENGINEERS MURTHAL

	R.E.C. Kurukshetra		CRS College of Engg. Murthal	
S. No.	*Desig., No. of Post Scale*	*Qualifications*	*Desig., No. of Posts, scale*	*Qualifications*
1.	Librarian–One	(a) Master Degree in Lib. & Inf. Sc. with at least 55% marks or its equivalent grade and a consistently good academic record. (b) One year specialisation in an area of information technology/Archives and Manuscript keeping/Master's Degree in an area of thrust in the institution. (c) Eight years experience as an Asstt. Univ. Librarian/College Librarian *DESIRABLE*: M Phil/Ph.D degree in Lib & Inf Sc/Archives and Manuscript keeping.	Librarian–One Rs (2200–4000)	First or Second class M.Lib. Sc. Deg. or First Class B.Lib. Sc. with 5 years of experience in a similar library.
2.	Asstt Librarian –Two Rs (2200–4000)	Graduate with Master's Degree in Lib. & Inf. Sc. in IInd div. or Master's Degree with B.Lib. & I.Sc. with at least IInd div. in each.	Asstt Librarian–One Rs (1640–2900)	Graduate with IInd class M.Lib. Sc. or Master's Degree with IInd class B.Lib.Sc.
3.	Sr. Library Asstt. – Two Rs (1600-2660)	B.A. & B Lib & I.Sc (IInd) plus 3 years experience in a Library of a Engg. College/Univ.		Not Created
4.	Counter Asstt. –Three Rs (1400-2600)	Graduate with C. Lib & I Sc or Matric with Diploma in Lib & I Sc or Matric with C.Lib &I Sc plus 5 years experience.	Counter Clerk – Two Rs (950-1500)	Graduate with C.Lib & I Sc or Matric with Diploma in Lib Sc or Matric with C Lib Sc plus 5 years exp.

Contd

Contd.

S. No.	Desig., No. of Post Scale	Qualifications	Desig., No. of Posts, scale	Qualifications
5.	Restorer–Four Rs (950–1500)	Matric with C Lib &I Sc plus 1 year experience.	Restorer–Two Rs (950–1500)	Matric with C Lib. Sc.
		CLERICAL STAFF		
1.	Jr. Stenographer –One Rs (1200-2040)	Matric Ist Div./Higher Secondary Ist Div; 100 wpm in English Short-hand.Transcription speed 20 wpm.	Not Created	
2.	Clerk–Two Rs (950-1500)	(i) Matric Ist Div/Higher Secondary IInd Div/Graduate (ii) Knowledge of English &Hindi upto Matric. (iii) Hindi/English Typing speed 25/30 wpm respectively.	Clerk–One Rs (950-1500)	(i) Matric Ist Div/Higher Secondary IInd Div/Graduate (ii) Knowledge of English and Hindi upto Matric. (iii) Hindi/English Typing speed 25/30 wpm respectively.
		CLASS IV		
1.	Library Attendant –Seven	Matric with 1 year exp.	Peon-cum-Attendant –Four Rs (750-940)	Matric
2.	Book-Binder–One Rs (750-940)	Matric with One Year exp.	Not Created	
3.	Cleaner–Two Rs (750-940)	Middle Standard Pass	Not Created	
4.	Peon–One Rs (750-940)	Matric	Peon–One Rs(750-940)	Matric

Conta

TABLE 2: STAFF STRENGTH PROFESSOJNAL AND NON PROFESSIONAL IN REC KURUKSHETRA AND CRS COLLEGE OF ENGG MURTHAL

R.E.C. Kurukshetra			C.R.S. College of Engg. Murthal		
Professional	SP	NP	Professional	SP	NP
3	5	18	1	1	10

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Implemantation of TQM in Library and Information Centres

ANIL KUMAR DHIMAN

ABSTRACT

The Paper describes what is Total Quality Management (TQM) and what are the benefits of TQM in Library and Information Cetnres. Besides, various models of TQM implementation in Library and Information Centres are discussed.

1 INTRODUCTION

In earlier days, libraries were considered merely as a store house of books but with the advent and use of modern technology the complete scenario has changed and nowadays these are known as Library and Information Centres because at present they are not only storing and preserving the information but also generating and disseminating them to the users for maximum use and benefits. Information explosion, increasing rate of obsolescence, increasing and complex information needs of the clientele, interdisciplinary nature of scattered information, continued resource constraints and vide variation in quality and reliability of information have produced a major challenge infront of librarians that how the information should be managed so that a library & information centre could provide right information at right time to the right user. Srivastava rightly states that 'the library has to move from the state of being merely a passive customer of knowledge to the level of becoming a platform for generation, exchange and utilization of knowledge' (Sherikar, 1995).

Librarians must know how to cope intelligently and objectively with the changes in technological advances by adopting a newer technique of management for delivering library product and services. Therefore, the

traditional techniques of managing a library centre become helpless and philosophy of participative management involving every member from the team of personnel to achieve total quality in every aspect would now become relevant, meaningful and valuable i.e., TQM.

2 What is TQM

The concept of quality control emerged around 1920s in United States simply to control the creation of defective items in industrial process. This concept did not immediately take its roots there but it did in Japan after world war II, as a result of which Japan emerged as a world quality leader. The concept central to TQM returned to United States in early 1980s and quality revolution is continuing to develop there.

TQM is concerned with the integration of all efforts in the organization towards quality and customer care. According to Tenner and DeToro (1992), TQM is based on:

- One objective: continuous improvement;
- Three principles: customer focus, process improvement and total involvement and
- Six supporting elements: leadership, education and training, a supportive structure, communications, reward and recognition and measurement.

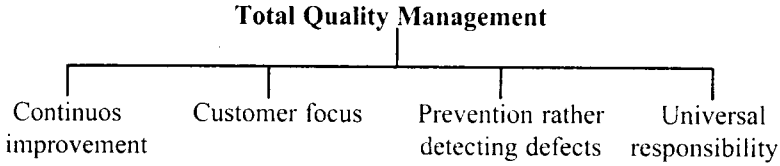
ISO has defined TQM as 'A management approach of an organization centered on quality, based on participation of all its members and aiming at long term success through customer satisfaction and benefits to all members of the organization and to society'. Brockman (1992), has defined TQM as a management philosophy, embracing all activities through which the needs of customer, the community and the objectives of the organization are satisfied in the most efficient and cost effective way by maximizing the potential of all employees in a continuing drive for improvement. In TQM, there are no seniors and no juniors but all work as team members to look at problems which are of integrated and cooperative nature.

So, TQM ultimately aims to improve product quality and customer satisfaction as per their needs and expectations.

According to Joseph and Berk (1995), continuous improvement, prevention rather than detecting defects, customer focus and universal responsibility are four basic elements of Total Quality Management and TQM practice in any organization may lead to the following benefits:

- Creates quality awareness;
- Orients work and workers to customer needs and satisfaction;

- Generates team sprits;
- Improves performance, process and quality and
- Enhance productivity and job security.



3 Elements of TQM

3.1 TQM in Library and Information Centres

Although, TQM is a new concept in management but it is equally beneficial to each and every organization including service organization like library. Dr S.R. Ranganathan's fourth law of library science, 'Save the time of the readers' has similar implications to what is advocated in TQM approach (Raina, 1995). Since the beginning of 1990s, some of Library and Information Centres had started to think about TQM after a growing awareness of the relevance of quality management methods to provide pinpointed, exhaustive, expeditious and efficient information to the users but still it is not being taken into consideration very seriously. According to Earl (1989), TQM can be seen on two groups of libraries viz., (i) those whose parental organizations are adopting TQM and (ii) the library and information services.

The users are the ultimate judge of the quality of the services being provided by a library & information centre. User satisfaction and continuos improvement of the services are the two primary goals of a library. By applying TQM technique, the librarians can not only satisfy the users consistently as per their needs and requirements but also improve quality of their services regularly. Sinha Thakur (1996), has suggested that TQM in a Library & Information Centre may helps in:

- better product design;
- developing an inventory of all the documents available in a library;
- developing a database which includes records for all types of material held in a library;
- facilitating through a variety of tools that can provide access to universal publications;
- improving quality of information analysis and consolidation product;

- improving skills of end users to profitability interact with information system and services;
- integrating and networking all library resources into serviceable resources to users;
- reduction of user complaints;
- efficient utilization of men, machines and materials, resulting in higher productivity;
- elimination of bottlenecks and tension free work environment leading to good human relations and
- improvement of confidence among users.

4 Implementation of TQM

Various models have been suggested to implement TQM in any organization. Oakland model states that every organization has systems, teams and tools and total quality of its services or products improves when the persons engaged in using systems, teams and tools are able to provide a higher order of work culture, communication and commitment with full understanding of each one's role in each process of work as a supplier to meet the need of internal customer, i.e., his own colleagues (Sridharan and Kumar, 1996). Demming's 14 points programme may also be used to implement the same in Library and Information Centres (Mackey and Mackey, 1992). Barnard (1993), suggested a ten stage programme for implementation of TQM which may be discussed under four phases as given below.

(a) *Exploration and Decision Making:* This is first phase where librarians or library managers are required to gather information about quality management including literature, conferences, training events, contacting and visiting the other libraries which had already adopted the TQM.

(b) *Organizing for Quality:* Second phase consists of a number of series of planning tasks which provide ground work on which TQM is to be implemented. This include environmental assessment, seeking deeper understanding of internal as well as external customers and finally a vision needs to be clearly expressed, supported by guide lines and action, which will enable the organization to move forward upto the expectation.

(c) *Start up:* In third phase, there is a need to identify the needs and expectations of their users, then measurement of critical process which are being used by library and to set up a pilot project team to

tackle these processes and finally to provide training to each and every members of the team to enable them to work.

(d) *Planning:* The integrated results of the project team, strategic, and departmental planning activity constitute this final phase. An emphasis should also be made there on spreading the expertise of the initial teams to all members of staff and involving them in teams and problem solving activities.

Ideally, TQM as suggested by Sridharan and Kumar (1996), can be implemented through the following points:

- Improving leadership qualities;
- Encouraging teamwork;
- Open feed back system;
- Improving communication skills;
- Trust;
- Focus on problem solving;
- Recognition;
- Quality consciousness and
- Training.

5 Case Studies

A number of studies were carried out in British Library Research and Development Department. Porter in 1993 undertook the study for British Library Research & Development Department to examine Academic and Public Libraries and Webb in 1994 for the Special Library of the area. Their results are cited by Brophy and Hate (1997). The interpretation of these results shows that Librarians of different libraries were involved in one or more aspects of quality management but number of librarians claimed not to be involved in customer care. Raina (1999), published his experiences of 14 years of professional career spent at IIM, Lucknow in his work 'TQM in Library and Information Services'. This study shows that the library of this institute is performing well using TQM in each and every field of library services. Various cells have been established with in the library for users satisfaction. As and when user finds some difficulties or problem, he can immediately contact the incharge of the respective cell for rectification.

The above two citations tell the story of difference what is advocated by Earl (1989). TQM can be implemented easily in those library whose parental organizations are already adopting TQM but in other organization it needs careful attention.

6 Conclusion

Summarily, we can say that although different management techniques are in practice among library management but TQM seems to be important one in modern era of information technology. TQM can not change the complete scenario of an organization with in a night but it is a continuous process and according to situations and needs it demands improvement. Today, Librarians are expected to be experts not only in library and information science but also efficient and effective managers to achieve the user satisfaction by using modern management techniques then we can think of TQM.

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Information Management in Agricultural Marketing

BIPUL KUMAR CHAKRABARTY

ABSTRACT

In this paper, main emphasis has been given on Marketing Information System/ Marketing Information Management (MIS/MIM) as an marketing information tool for the marketing information users in the field of Agricultural Marketing. The author also highlighted the different categories of users and their role and need in relation to MIS/MIM.

The paper finally discusses the role played by the Librarians/Information professionals for streamlining the effective marketing information system for the diversified target groups.

1 INTRODUCTION

Since ancient days, agriculture has been regarded as the backbone of Indian economy. It contributes about 40% of the country's Gross National product and provides employment to about 68% of the total labor forces. Thus, basic elements of agricultural system are the production and marketing of products. Marketing stimulates production and consumption with a simultaneous increase in pace of economic development where agricultural marketing information is of vital aspect of management activity and so agricultural marketing requires a sound information system to cater the needs of its different types of information users. Some of the states have become aware of this aspect but by the large Marketing Information Management (=MIM) or Marketing Information System (=MIS), its dissemination and its effective use in the marketing decisions specially by the large community of farmers, is still at an infancy stage.

In this paper, the author has examined the marketing information users and their needs in the field of agricultural marketing vis-a-vis the role of librarians/information professionals for proper utilisation of information resources, like processing of market data and to make the available information in the format relevant to the marketing information users or by repackaging the marketing information in the form of reports or bulletins, etc.

Before analysing the features of agricultural marketing and its impact on the role of Librarians/Information professionals, it would be better if we review first the types of information users and their needs in this particular area.

2 Concept and Taxonomy of Users

2.1 Concept of User

Naturally, we should examine the target group of information users before the issue regarding information needs of users in the field of Agricultural Marketing are taken into consideration. According to Wilson, the idea of 'information user' brings together and fuses into a single concept, a wide range of individual behavior resulting in some cases in an artificial statistical construct. In that respect, if the mental construct has no correspondence in reality, then the idea of the 'information user' will be baseless. (8)

2.1.1 *Taxonomical Classification of Information User*

The information user groups may be again categorised with users of Scientific and technological information but also applicable to other information users or information professionals with other groups of subject fields.

The first category of users of scientific and technological information are concerned with the scientific specialists or scientists who create information and use information as the basis upon which to build their own contributions. Any individual scientist has the problem of attempting to learn what is already known, where it has appeared and how to obtain the source material. Numerous tools and services exist to - help him in his search, but does he know how to derive full benefit out of them. Once, he has located the information, he faces another major problem - that of judging the value of this information. Has this information been superseded by more recent information? Does it contain er-

rors? Has it been evaluated? Are there any critical reviews on the subject? and so on.

Engineers represent a second category of users of scientific and technological information as an aid to the interpretation of data, in the design of new development or to help a technological problem. The industrial information user generally encounters problems when seeking information, e.g., the proprietary nature of such information, the reluctance of competitive enterprises to share information, the cost of information systems and services, the information gathering habits of industrial managers and the very fact that informal source of information are as important as the formal information systems.

The third category of information users include administration, planners, policy-makers, etc. who need very technical information in their related aspects, repackaged in a different fashion to help them for decision and planning. In order to understand the political consensus of a given a technological decision, politicians also need a variety of information to assist their own purposes.

Similarly, librarians, documentalists, system-analysts, programmers, etc. come under the fourth category of information user groups who need their information in a very specific way either for them or for other groups of information users. They perform certain functions and produce a facts, reports, data, etc. and repackage these communications for administrative and other purposes.

Finally, non-technical information user who also need both scientific and technical information, appropriately interpreted and make available in order to understand the society he lives in, constitutes the fifth category of users. Such information is interpreted and disseminated through different media like, newspapers, magazines, books, radio, televisions, etc.

2.2 Importance and Need of Agricultural Marketing Information Users

The term "Agricultural Marketing Information User" means the specialists or experts in the marketing of agricultural products from the view point of producers and customers. This group of users are generally belonging to scientists or extension workers or agricultural marketing trainers, who come under the first category of users. In other words, this category of users are directly connected with the subject, agricultural marketing with its rising complexities of production and demand dynamics and therefore, the importance of agricultural marketing research has increased tremendously with the idea of `Green Revolution'.

The main role of research programmer in agricultural marketing are:

- To understand the existing/traditional marketing system.
- To diagnose the problems confronting the farmers, marketing agencies and consumers in a dynamic context and
- To analyse and predict the impact the effectiveness of alternative policy measures in solving these problems.

In order to fulfill the above objectives, the basic needs of agricultural marketing information user are basically related with the market information system/service which is considered as one of the essential ingredients for improving marketing and its distribution system. Such a System/Service is essential not only for the producer but also for the management of traders as well as the consumers' point of view.

2.2.1 Information Needs of Agricultural Marketing Users

The basic information needs of agricultural marketing users are of specified nature and have direct bearing with local and regional conditions. The specialization and multidisciplinary nature of agricultural marketing information is posing a serious problem to agricultural marketing specialists in understanding their needs. It would be of little impact to supply extensive bibliographical information if it is not largely of direct interest to the applied scientists because the information needs of agricultural marketing are diversed and scattered in almost all types of publications as well as with unpublished documents.

Marketing information thus plays an important role in both plan information and implementation, and infact, it is the very basis for the entire process of planning. Farmers, on the other hand, have a need for marketing information about probable supplies and prices in order to make decisions when planning their production and sales. Access to better information enables wholesalers to develop those consumer demands and producer supplies which might otherwise have been neglected. This reduces their business risks and enables them to operate profitably on lower margins. This brings benefits to both producers and consumers. Collection and dissemination of such marketing information is a complex operation which must be processed rapidly to avoid becoming out of date.

Keeping in view this idea, the marketing information system/marketing information management for the market has to function for systematic and continuous collection and processing the marketing data and to make available information in the format relevant to market participants for their decision making process.

Similarly, the producer is keen to have knowledge about the prices of commodities prevailing in the market to enable him to command the price of his produce. The information relating to price varies as needed by the traders and the buyers. Marketing information also guides the market on decisions regarding handling of commodities. The information on quality and gradation with related price behavior is equally important. Both producers and consumers like to be assured on price stability. Market institutions have to depend on large set of information not only on price and arrival but also on the parameters relating to market operations, its management and future prospects. Thus, the MIS is an essential ingredient of marketing management in order to utilise limited resources effectively especially in the field of Agricultural Marketing. (1).

3 Characteristics Features of marketing information system and/or marketing Information Management

The concept of Marketing Information System (MIS) and or Marketing Information Management (MIM) is to collect and process the market data systematically and continuously and making it available to market participants for decision-making purposes. The purpose of the MIS/MIM is to increase the transparency by way of providing information to the primary producers, traders, consumers and market regulating authorities. Thus, like any other organisation, the MIS/MIM for agricultural produce market is to be evolved to serve specific objectives keeping in view the market goals and functions and the needs of target groups. Further, the designing of the MIS/MIM has to take into account its utility at micro level as well as at macro level. For this purpose, study of relevant role played by a particular market and nature of information to be exchanged between markets is required.

The outline of the objectives of MIS/MIM as discussed above for the market should also cover the information needs in market management for performance evaluation and future plans of market development. Figure I focuses on the dimensions of an marketing information system for agricultural produce markets. Thus, MIS can be defined in relation to the MIM as a set of procedures and methods for the regular and planned collections, analysis and presentation of information in making marketing decisions. MIS/MIM is a continuing and interacting structure of people, equipment and procedure to gather, sort, analyse,

evaluate and distribute pertinent, timely and accurate information for use by the marketing decision makers or by marketing information professionals to improve their marketing planning, implementation and control (5). In other words, the main components of MIS/MIM are data inputs, data processing, its formatting in information and transmission of information to decision making points, i.e., information system is an exercise of data management in which activities from the origin of data to its transformation into information and transmission are stream-lined and systematised (Figures-I-II).

As marketing information usually associated with cost, the MIM on modern lines is necessary in order to understand the implications of MIS also, where MIS begins and ends with the information user. It interacts with marketing managers or marketing information managers to access their information needs. Next, it develops the needed information from internal records, marketing intelligence activities and the marketing research process. Information analysis evaluates and processes the information to make it more useful. Finally, the MIS distributes information to information managers or information professionals in the right form and at the right time to help them in marketing planning, execution and control (Figuré-III & IV).

Thus, we may conclude that MIS/MIM is an on-going process and future-oriented structure designed to generate, process, store and later retrieve information to aid decision making in an organisation where marketing information comes from a variety of internal and external sources for the proper management of marketing information (4-7).

3.1 Strategic Marketing Planning for Flow of Information

Strategic marketing planning is the marketing information managerial process of developing and maintaining a viable fit between the organisation's objectives and resources and its changing market opportunities. The aim of MIM and strategic planning is to shape and reshape the organizational products and services so that they combine to produce profit and growth. MIM is the central instrument for directing and coordinating the marketing effect and the MIS by proper marketing research. Recent trends in the field of Agricultural Marketing have emphasized the contributions of marketing research and response to the farmers to it under favorable price conditions and the MIS as a whole.

In view to marketing planning, the information flow needed for agricultural marketing, is not only the element of price prevailing in a

particular market on time but also other related information like preparation of the produce for the market, transportation facilities, package and preservation, etc. The information system for the present day should be a powerful tool to facilitate the farmers to make use of the official machinery available for better returns (with regulatory provisions) in the marketing of agricultural produce where the role of Librarians/Information professionals play a key part for cnannelising the relevant date effectively. (Figures V-VI) (6).

4 Role for Library/Information professionals in agricultural marketing

The role of Library/Information professional has a unique role for retrieving and disseminating relevant information in any particular area. He must know the features of MIM by way of sharing of literatures, managing electronic technologies and instructing agricultural marketing users. Subject knowledge on the part of information professionals are equally important. At the same time, it is essential to remember that time is a valuable commodity and so user education programme should be organised by them. Prompt and accurate document delivery service should be taken into consideration by utilizing modern telecommunication capabilities. They must help to develop services with specialised and selected information needs. In other words, the role of these professionals are to design systems and services that can facilitate and enhance the relationships of scientists/technologists/engineers/etc. For example, there are numerous agricultural data banks and specialised information services for which people contacts are considered as key components. The Postharvest Institute for perishables Information Center whose primary goal is to reduce crop loses in developing nations, maintains an extensive online listing of experts (George, 1981). Both the Agricultural Research Service (ARS), electronic publishing experiment and the development of the Nebraska data bank, AGNET (Agricultural Computing Network, a network which contains about 200 computer programmes and gateways to other information sources) resulted in facilitating contacts between people.

In addition to people's contact, there is need to index and control not only literature, but also software, data banks, etc. So, the library/information professionals have to focuses tremendous energy on library/information technologies and on user-oriented technologies as well. They must have expertise in the management of information system by way of MIS/MIM, viz., data regarding pesticides (NPIR - National Pesticide

Information Retrieval System) and greenplasms (GRIN - Germplasm Resources Information Network), etc.

The information professional's role in response to the explosive growth of scientific - technological literatures also includes to provide end user instruction and assisting users directly to access the assemblage of data banks and services and this role will surely save the time of the users. They must also help to provide document delivery by utilizing modern telecommunication capabilities. Thus, we may conclude that librarians/information professionals have a special pivotal role to play in the rapidly changing society by assessing information needs for the diversified target groups like producers, traders, consumers, researchers, institutions, buyers, Govt. Departments, policy makers, etc. (2)

5 Conclusion

Since agricultural marketing is a multi - disciplinary subject, diversified nature of market information is necessary. In the context of our society, where the resources are scarce and a wide gap exists in fulfillment of the needs of the masses, the agricultural markets are desired to perform with greater managerial skill. Though market information system has been generally realised as an important component in market operations, the needs of market information users are not yet satisfactory in view of collection of relevant data, its storage, processing and dissemination of information in right perspectives. Hence, it is necessary that librarians/ information professionals must help to develop MIS/MIM as a decision-making tool. To play this role, they must look in two directions at once- to their information users for guidance and for statement of needs, problems and priorities and to the world of information and modern technology for solutions and greater resources. It is their special responsibility to bring the two together.

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Dimensions of a Marketing Information System (MIS) for Agricultural Produce Market

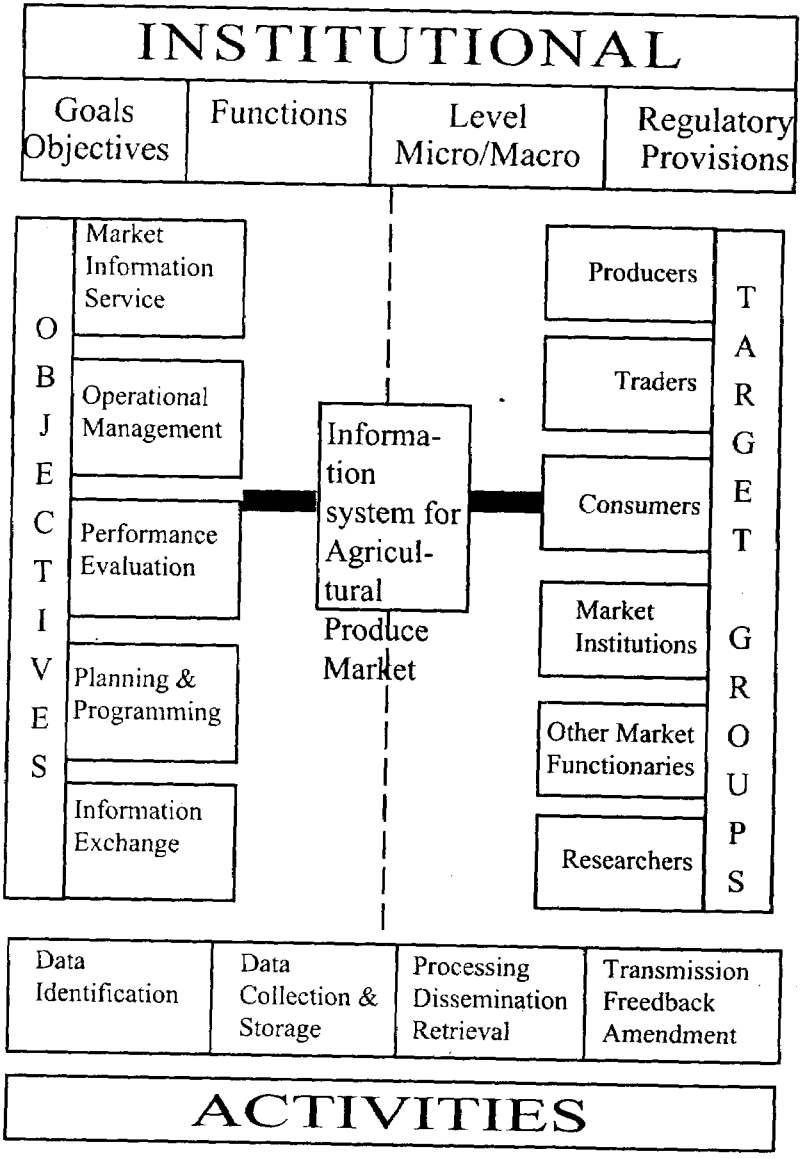


FIGURE-I

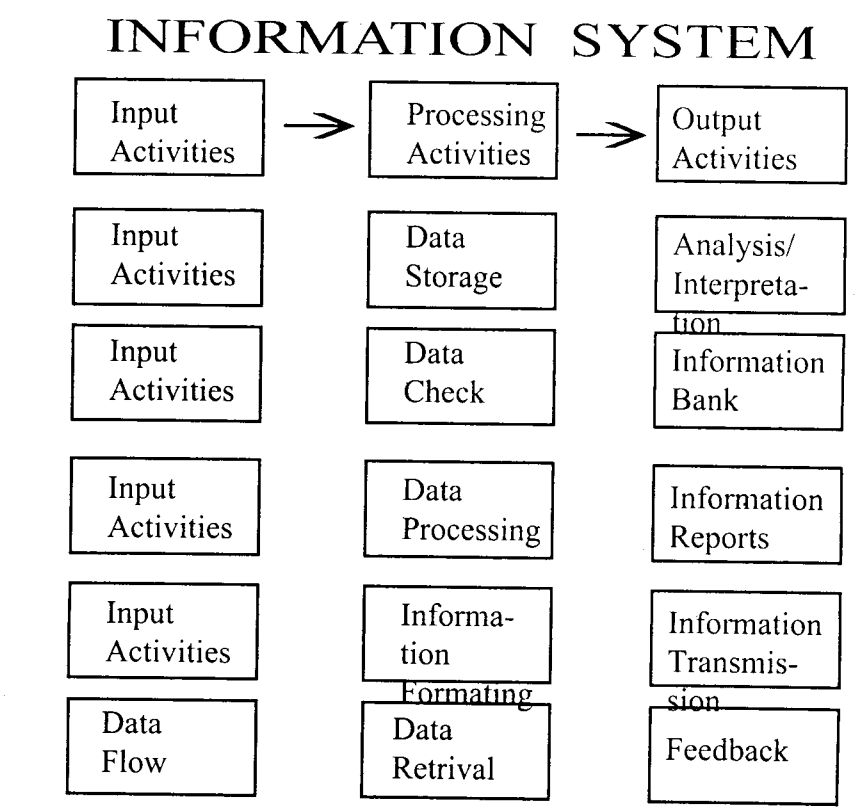


FIGURE-II
(COMPONENTS OF INFORMATION SYSTEM)

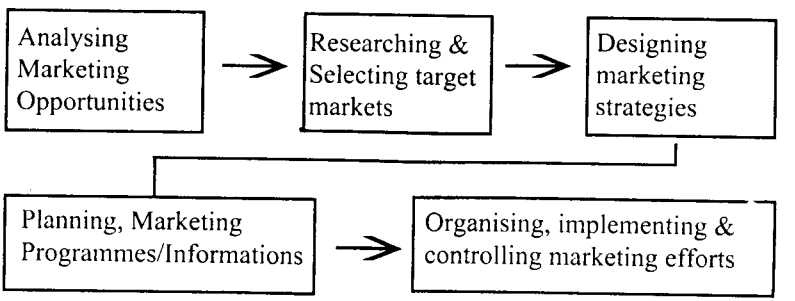


FIGURE-III
(MARKETING INFORMATION MANAGEMENT PROCESS)

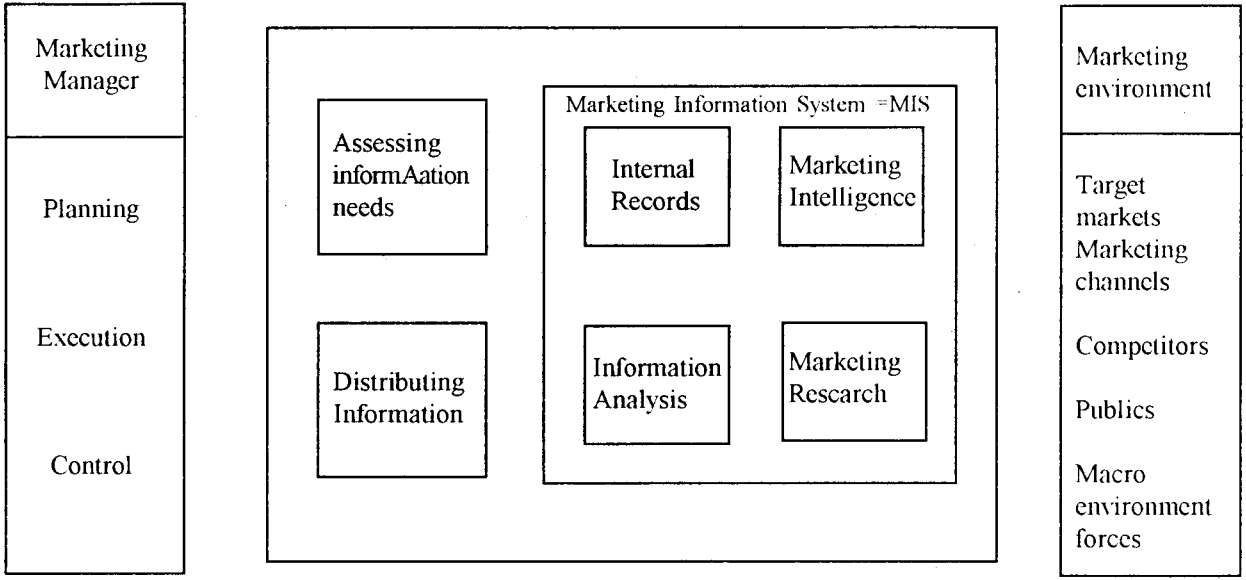


FIGURE-IV
(CONCEPT OF MARKETING INFORMATION SYSTEM MIS)
MARKETING DECISIONS & COMMUNICATIONS

Figure-V
Marketing Information Flow

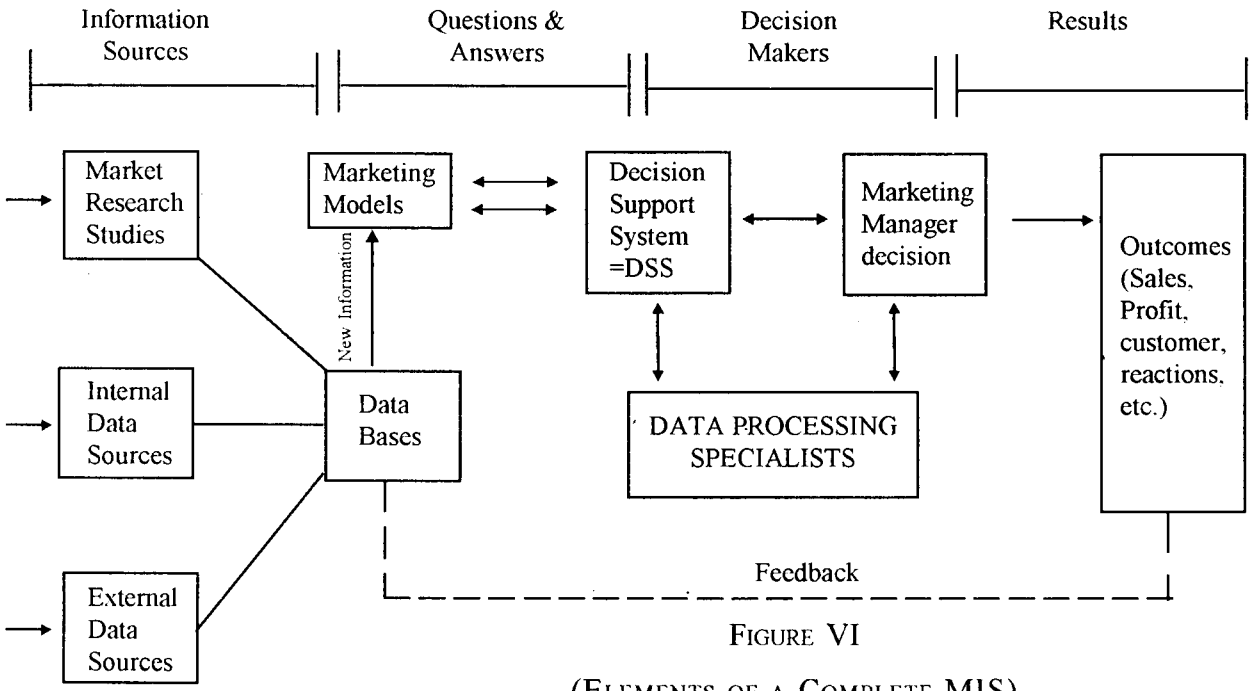


FIGURE VI

(ELEMENTS OF A COMPLETE MIS)

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Managing Network

ABDUL RASHID, SHABIR HUSSAN BANDAY,
AND BASHIR AHMAD

Abstract

To provide more dynamic services to its clients, every organisation is exploring networks. With the vision of information super high way, the internet has spread widely beyond academic communities, public offices and industries down to the household level. Therefore, in order that maximum benefits are to be obtained from networks, it is utmost important to efficiently handle or manage them. Network management has become an important concern in data communication because of the growing number of computer networks and due to the increasing heterogeneity. Network management, being a comprehensive management concept, primarily aims at achieving two things-making sure that the communications network is operating properly and that the user's information requirements are satisfied.This paper focuses on network management in a LAN environment, the technical functions involved and other mangement tasks which directly contribute to the effective delivery of the information service.

1 Notion

There are different network classes namely terminal networks,server networks, open systems, and distributed systems. Each class would have a very distinct network management feature. In this respect one cannot talk about the network management. However, regardless of specific applications, network mangement refers to the:

'tasks and equipment functions that ensure that a communications network operated reliably and as required by its users. This includes monitoring the operation of the network and detecting faults so that repair

can be made quickly and effectively; collecting statistics on traffic so that extensions to the network can be foreseen; reconfiguring the network to cope with failures and to accomodate changing requirements; and providing directories of subscribers and services.' (Gunton, 1990, p 126)

In addition to Gunton's list of tasks, the classical concept explicity includes "user administration" (Kauffels, 1992, p 37). Turnbull (1990,p 91) further expands this definition to cover a wider scope of management activities.

"So network and systems mangement is much, much wider than troubleshooting. It starts with the purpose or mission of the network itself, through design, planning and implementation, to daily operation and mangement reporting."

2 Management Functional Areas

Mainly writers like Miller,Kauffels, Farris, Stallings etc have given five specific functional mangement areas. This scheme is widely accepted as a practical description of network management systems.'

The open systems interconnection's (OSI) five function areas include performiance management, fault manaagement, configuration management, accounting management,and security management. Farris (1993,p53) provides a LAN management matrix which highlights the International Standard Organisation (ISO) functional areas against four areas of the network (Table 1). The content of this table serves as examples of specific tasks under each of the five mangement areas discussed below.

2.1 Performance Management

2.1.1 Description

This function aims to ensure maximum network performance using various monitoring methods. It consistsof two aspects, monitoring and control. Monitoring is concerned with tracking down the activities of the network. Control refers to the modifications that need to be done to upgrade network performance.

This is done by setting acceptable and problematic performance level indicators for devices and communication lines in the network. The network managers then collects and analyses this information (usually statistical reports) regularly to determine the efficiency of the network's resources.

2.1.2 User Needs

Users require a reliable network service with response time that satisfies the specifications of their applications. The performance report derived from the monitoring tools should enable the network manager to handle users' queries on such details, anticipate possible problems with the network and apply the corrective measures necessary. This therefore, avoids or reduces network downtime.

2.2 Fault Management

2.2.1 Description

Network problems are inevitable. It is therefore vital to handle them systematically. The fault management function involves discovering what the fault is segregating the defective part of the network to ensure that the rest can continue to operate;'reconfiguring' the network without the faulty component, and fixing that component to bring back the network to its orginal condition.

2.2.2 User Needs

Faults need to be remedied as fast as possible and the users informed promptly about the problem. Efficient tools of detecting faults are necessary to ensure an effective level of 'fault resolution. Another alternative that can give the network a level of 'fault tolerance' is by adopting redundant devices and substitute communcaiton lines.

Fault mangement does not end with the repair of the defective component. There should be a thorough check up, which determines that there is no additional problem as a result of the fault and that it is indeed resolved.

2.3 Configuration Mangement

2.3.1 Description

This function deals with configuring, controlling and managing the devices and "logical subsystems" in the network. The initial tasks involve deciding on the purpose of a device and then designing the other properties that it needs to operate.

Stallings (1993, p 6) puts emphasis on the initialisation and closing down of particular network components, updating and maintaining the condition of each part and its relationship with other components.

2.3.2 User needs

The current configuraiton of network resources and the changes introduced in it should be known to the users. The information helps them use the network facilities to the fullest or suggest that modifications be adopted to suit their needs. User feedback, assessment of network performance, 'network upgrade, fault recovery or security checks' may lead to reconfiguration of the network.

2.4 Accounting Mangement

2.4.1 Description

This function evolves around tracking down user activity or network utlisation. Since the use of thenetwork entails cost, accounting management provides a utility to appropriate network cost to the accountable unit. This may or may not involve actual transfer of cash. but the resource utilisation data remains very important for several reasons. This data helps the network manager determine whether users are 'abusring their access privileges' and 'making inefficient use of the network' (Stallings, 1993,p5) It also serves as basis for projecting network growth.

2.4.2 User Needs

Only users who are granted the authorisation can access the accounting information.The network manager determines which types of accounting information should be made available atwhich level and when.

2.5 Security Mangement

2.5.1 Description

This function involes controlling and monitoring access to the network and otehr network management-related information. Level ofsecurity may be classfied as login/password security, trustee security, directery security and file directly Login/passward security involves the assigning of username and password to each network user. It therefore limits those who can log in to the file server. Trustee security defines the user's rights in a particular directory these writes include reading and/or writing to open files, opening files, creating new files, etc. Those who are given these rights are called trustees. Directory and file security controls their rights of trustees in using a directory or file.

2.5.2 User Needs

Security is concerned not only with the protection of the devices in the

network, but primarily the software and user information stored in it. It is vital for users to known that proper security measures are in place.

3 Trends of Network Management

The driving forces which brought about the changes in computing in general are the same factors, which influence the trends in network management. These include the wide spread use of inexpensive, high power PCs and workstations. and installation of departmental LANs and the need to locally control and ensure maximum utilisation of distributed application.

The significant developments in network mangement are exemplified in the prevailing network management standards and the advent of distributed network management.

3.1 Network Management Standards

This section deals with two main standards corresponding to OSI and Transmission Control Protocol/Internet Protocol (TCP/IP)-based networks. The de facto standard for network management in SNMP (Simple Network Management Protocol)

Turnbull (1990, p94) stresses the role of the OSI Network Management Forum in promoting 'standards for multi-vendor networks, and to speed the availability of conforming products and services into the market." However, despite the advantages associated with OSL, it has tobe applied and proven before it can command popular acceptance (Kauffels, 1992, p 261)

SNMP on the other hand is considered as the other prominent architecture, which has become the main de facto standard protocol for multi-vendor network management. It is bound to spread because : (1) it is the 'natural product' for the large TCP/IP community, which strongly promotes their protocol; and (2) it is 'controlled by industry and four industrial gurus' which respond promptly compared with international standardisation procedures (Kauffels, 1992, p 261)

3.2 Distributed Network Mangement

The movement from centralised, mainframe-based networks to the decentralised, heterogenous environment reflects the changes in natwork management; the role of the administrator and the users. The heterogenous decentralised systems encourage more participation from the user than before. Network management functions are also advancing towards, dis-

tributed systems and will adopt open standards and definitions (Broooks, 1990, p 237, Stallings, 1993, p 12)

A distributed management system replaces the single network control centre with inter operable work stations located on LAN distributed throughout the enterprise (Stallings, 1993, p. 12) Distributed network management provides the network manager the capability to manage the complex set-up and maximise the existing resources for the benefit of the users. There are however ertain requirements to maintain order in utilising the system, resulting into a 'hierarchical architecture'. Stallings identifies two elements which should be present in this hierarchical architecture. There are two basic demands in the network, namely the distributed management stations and one central workstation. The distributed ones have restricted access which should be determined by the limited resources available to them. The central work station on the other hand has general control over all levels of access rights and every resource available in the entire network.

The distributed approach reduces 'network mangement traffic overhead'. provides 'greater scalability', and a more robust system which lessens the impact of system failure.

4 Conclusion

This overview on network management covered the various OSI,s Specific Management Functional Areas. While these functions are heavily biased on technical components of the LAN, stress on the importance of users is clearly put across.Satisfying users needs in the primary objective of all network mangement tasks. Also highlighted is the parallel development between network management and networking in general towards distributed approach.

Table 1: LAN Mangement Matrix ISO Network Mangement Areas

Area of Responsibility	Performance	Fault	Configuration	Accounting	Security
Servers	Server statistics monitoring	Server error detection and notification	Naming service adminstration	Usage statistics reporting Server documentation disk space.mgt	Backup File auditing Virus protction Login control

Contd.

Contd.

Area of Respons	Performance	Fault	Configuration	Accounting	Security
Workstations	Activity monitoring Node preformance Disk and file compression	Remote control Tracking and repair Offline notification Repair tracking	Hardware and Software inventory Distributed file up dates Windows.INI file update	Asst Management reporting Software Installation report	Backup File auditing Virusprotection Access and logout restrictions
Services and Application	Transaction volume accounting	Urage problem tracking and reporting Access Problem notification	Menu Configuration Printer Mgt. Scripting Mail Directory maintenance	Software metering License agreement maintenance Mail and Fax usagereport	Login Startup Menu Walk-Away security Encryption
Connectivity	Protocol Monitoring Hub and router monitoring	Concentractor and Hub error diagnostics	Network mapping and writing aids Network Design and analysis tools	Packet through out reporting	Encyption Network access control

Source : Farris.J.1993 Saber Lan Setup Guide, p.53

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Planning for the Free Flow of Information: A Case Study for Industrial Information Diffusion

D RAMA KRISHNA

ABSTRACT

The role of information in industry is crucial. The non-availability of timely and relevant information threatens the very existence of the industry. With the growing emphasis on quality and standards of the finished products, the responsibilities of industrial libraries becomes multifold. The prevailing spirit of competitiveness and compliance with industrial standards makes the role of Librarians critical in evolving quality products. This paper discusses the role of information in industry its nature, origin and retrieval and the various constraints and bottlenecks one encounters while gathering information.

1 INTRODUCTION

The mission of an industrial information system is not very different from that of other systems. It is responsible with providing a means for preserving information that may be of value to the industry, maintain a retrieval process that promises a timely and accurate recall of the stored information, and providing tools for manipulating the stored information. However, there are some very important differences between an industrial information system and public or an academic system. The important difference being, an industrial information system must involve in its collection, the technical information generated internally by the industry. Much of this information is proprietary in nature and must be protected from untimely or unauthorised disclosure. Another difference is that of time, failure to obtain the needed information at the right time will result in a substantial economic penalty to the organisation. An over-riding aspect on the operation of an industrial information system is

that it has to be cost effective. This pressure, to be cost effective has made industrial information managers seek out services from many sources as they make every effort to avoid unnecessary repetition of effort either in operation or development. Therefore the assertion that relevant and accurate information, delivered when and where required and in a compatible format, is the major asset of an industrial information center. Since it forms the basis for competitiveness. Information for decision making in an industry varies from being measured in terms of costs and benefits. The greater the uncertainty the greater is the risk of negative outcomes. If the benefits and costs of outcomes can be expressed in terms of fiscal valves there is a simple way of finding out how much it is worth paying for relevant information.

2 Characteristics of Information

The important decision within an industry relates to planning, designing, manufacturing and marketing of products. A very large quantity of information is required by decision makers involved in the above stated areas to keep the uncertainties related to outcomes of these decisions under check. The information shall be

- Relevant
- Accurate
- Timely
- In a suitable format and
- Cost effective.

The major portion of information used in an industry comes from out side. It's typically from journals, books, govt. reports, patents, standards etc. In order to serve the industry, the information center must not only make the desired external information available, but it should also device mechanisms to create awareness about its appearance. This mechanism is an amalgam of an acquisition policy and an alerting program to make individuals aware of information being received in the center. The acquisition policy guides in collection development of the center. User's suggestions are weighed heavily when making acquisition policies. Another approach is by maintaining records of the usage of material. This indicates the relative use of the items and frequency of requests for the items not available in the center. This information is utilised to determine how well the acquisition policy suits the changing needs for information in the center.

Another important function of the information system is to provide means by which the member of the center can be alerted about the

appearance of new information which is relevant to them. This is done by way of digests, News letters, Information—packaging, abstract and indexing services and ultimately the individual bears the responsibility of being aware of new information. However, many information centres provide ways to assist the individual in keeping up with current developments. Another function of an industrial information system is to provide ways for identifying relevant information in response to specific queries. The volume of data to be searched is over-whelming however there are number of tools for retrieving information like abstracting and indexing services to cite a few services, INSPEC, CAS, SCI, Engineering index etc., In addition to access to commercial data bases, on line services have become almost common place in industrial information systems. Advances in photo copying has facilitated the distribution of information to a very great measure with ease & reliability. The focus of most information systems has been the retrieval of references that relate to documents presumed to contain the needed information. As the volume of published information is increasing, the number of documents that needs to be retrieved has greatly increased. Now technology is available to allow for the retrieval of specific information rather than references to documents.

The industrial information systems should also provide access to information such as hand books, Govt. reports, patents, standards, etc., that is non readily accessed through commercially available indexing and retrieval services. Standard cataloging procedures should be used to provide access to the material. These procedures vary to suit the needs of a particular organisation. This is necessary since a typical collection in an industrial organisation is specialized in a relatively narrow area of technology and depth cataloging is required to provide an effective retrieval mechanism.

A major portion of an industrial information system should be directed towards internally generated information. Since most of the information is proprietary, all efforts to store, index and retrieve should be done internally. This warrants an information storage & retrieval system which is oriented towards the subject specialization of the organisation since internal information cannot be processed outside the organisation. Over the years many industrial information systems have developed their own approaches to the storage and retrieval of internal information. With the developments in the areas of information technology, the complexities and capabilities of these systems have also increased. However an essential and integral component of these systems is the human effort that has to be expanded to characterize the information.

3 Characteristics of a typical Industrial Information System

An industrial information system is an integreated system that has evolved to meet the specific requirements of its users in an industrial environment. A typical industrial system contains the following elements. A central collection of journals and periodicals in the areas of interest to the organisation . A central collection of books, monographs, hand books, A variety of indexes and abstracts to access external literature product finders, manufacturers catalogues, tradce directories etc., etc. A store of internally generated information. A system for the storage and retrieval of specific data, a system for accessing patents and standards. A system for alerting individuals and groups in the organisation about generation of nascent information.

4 Need for communicating Industrial Information

Communication of Industrial information forms part of the Technology transfer process. It contributes to the development of industry and practical application of industrial know how. It is necessary for the design, selection, installation and improvement of processes, materials, equipment, services and methods, and for the successful adaptation of technology to local conditions and to catalyse indigenous technology development programs. Exchange of industrial information can assist in overcoming the lacunae that exist between developed and developing countries and to contribute to the strengthening of indigenous technological capabilities of developing countries. It enhances the marketing capabilities and competitiveness of industries and their products and can help to minimise the diversion of scarce resources in protracted search for the needed technology.

Therefore the capability to develop timely, complete, reliable and relevant information to the users should be the primary aim of industrial information services. The efficiency and effectiveness of information transfer depends to a great extent on the mechanisms for productive interfacing and closed interaction between information systems and users.

Such interactions are intended to motivate users and potential users, assist in the identification of specific needs and opportunities, specific formulation of requests, identification and selection of appropriate sources of information, and retrieval and repackaging of information to meet industry needs and presenting in a format that can be readily applied, advise on the utilisation of information and organise backup and feed

back to ensure the provision of information services at all levels. Technical enquiry service for instance extended and supported by advisory and extension services for small entrepreneurs is typical of such service. A response to a technical enquiry may need complete packaged information covering not only the technological aspects of the problem but also the technical feasibility, economic viability profitability, appropriate to the aims and objectives of the industry etc. Evidently such an information system must have an in-built flexibility to respond to different information needs and changes. The quality of the service should help to win the confidence of the users of the system.

5 Constraints in information Diffusion

Diffusion of information in an industry may be hampered by more than one factor. Language, industrial secrecy, privacy, high cost of acquisition and poor communication. Language barrier is one of the primary impediments for the flow of information, especially scientific and technical information. Ninety percent of this information is presented in a wide range of languages. In the context of the international character of information language barrier is a serious handicap for the effective flow of information. The most traditional and accepted practice of overcoming it is translation i.e., translation from one natural language to the other. But time and economics of translation is a still a greater problem to overcome especially in developing countries. The best solution will be opting for machine translation or establishing an international network for translations with regional or sectoral centres for quick dissemination of translated data or information. This requires an international effort and approach. The problem of inadequate finance is common to libraries and information centres.

Libraries are usually the last organizations to receive funding through the grants and subventions and first to loose them when the financial conditions are bad. The situation gets bad with escalating costs of scientific and technical journals. To alleviate this situation it is necessary to increase funding of the centres or to integrate the library budget with that of the organisation or industry. Another way is for the effective sharing of resources among a group of libraries in such a network system linked by an efficient communication system. New design and production ideas develolped in small enterprises remain unknown because of inexperience in promoting and disseminating the know-how. Users of information regardless of their location.

Level of development and needs often found to be unaware of the

existence of the value of technical information that can be of practical use. This may partly be due to the inefficiency of the information handling system serving them and partly due to the lack of communication mechanisms in the systems and services.

6 Planning for the Flow of Information

Planning for the free flow of information requires indentification of causes which retards its flow, how to overcome these problems within the existing economic and infrastructural ambience and to examine the formal and informal channels of information flow in an industrial center which deserves attention.

Firstly, there are the users of information, two aspects of information flow and information needs should be known. What channels exist for its flow what are the sources of information, what barriers exist in curtailing the flow of information. More specifically there may be a need for information on how documentation contributes for information flow. What kinds of information is relevant, the mode of information transfer and how precisely and timely information should be. The study of information needs constitutes one of the crucial problems of modern information transfer. Out of a broad spectrum of aspects of this problem, those which once solved can favourably influence this transfer should receive maximum attention on the part of the information specialists, bearing in mind that the main contributor is the user himself. The study of information needs aim at establishing a correlation between what users wants to receive vis-à-vis the system performance and the factors influencing the stated aspects on the other. The conceptional model of menzel showing the relationship of the user to the communication channel will be useful in assessing the information resources will serve as indicators of user needs. Over everything else a policy is required to guide the information center in meeting its users requirements. In order for these inter-relationships to function effectively, efficient communications systems are necessary both within the information center and in between information centres. Information technology and other communications technologies require to play a crucial role in the provision of efficient communications capabilities. If the maximum benefit from successive infotechnology based communications are to be derived industries should carry out appropriate adjustments. Appropriate policies are necessary to hasten the pace of appropriate organisational adjustment so that maximum benefits could be reaped from these technologies for realising the objectives of the organizations. In order to integrate these

technologies into the infrastructure of an industrial information center it is necessary to consider suitable institutional arrangements, to adopt systems approach and develop a proper planning frame-work. Adequate financing must be ensured for the system to sustain its programs. Above all qualified personnel are also required to provide an efficient service to the users. The process of information flow that supports productivity, are certainly not yet well understood or modeled and it will be necessary for the industries to involve in studies in order to identify the specific information related factors affecting the industrial growth and the priority areas for the development of information infrastructures. The magnitude of the study will be enormous and a highly selective and cost effective approach should be adopted. Due to economic and operative consideration absolute informatisation for providing a general infrastructure to the industry is not possible in a short term. Motivating such studies would be the central concept of information handling capabilities of an industrial information system. This would result in the development of detailed models of suitable information services and systems of information networks with similar objectives and goals to meet the needs of a variety of end users like R & D Personnel, Technologists, Engineers, Managers of the Industry, Entrepreneurs, Industrial Consultants, Decision makers etc. The type of information needed is also varied raw data and statistics, equipment availability, marketing data, patents, specifications etc., etc. It has to be continuously updated and obtained from a variety of sources, at regional, sectoral, national and international levels. It has to be purveyed through informal channels like oral communications to formal channels like computer printouts. It must be spelt out that this program is much broader than the development of conventional documentation services like abstracting and indexing services.

7 Conclusion

The main conclusions I would like to infer here are that industrial informatuion is not a uniform commodity. It exists in different formats kinds and available in different ways means and to different levels of requirements of users. The accessibility of this information is restricted in many cases by specific reasons like linguistic, stralegic privacy etc., and not least by the fact that only after a determined compilation, processing and repacking is it of any use in any particular demands. Many of the problems and barriers with respect to the flow are characteristic to technological and industrial information systems to varying degrees in almost all the countries. Inter-alia under utilization of infor-

mation resources. Therefore improved acces to information is of little use unless a capacity to assimilate generated information is developed. Strong information transfer policy should be developed to guide the programs of dissemination of information.

The problem of industrial information flow must be specified as a structure of areas for which the actual needs can be studied operationally and information dissemination services are created on a economically sound basis.

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Planning in the Management of University Libraries of Andhra Pradesh: An Analysis

D CHANDRAN

ABSTRACT

Presents the importance of Planning function in the university library system. Analyses the planning function in the select university libraries of Andhra Pradesh, in terms of their resources like manpower, finance, services, collection etc.. and elicits the opionions from the university librarians. Suggests the ways and means for systematic planning for the developmental needs of university libraries in order to improve the services.

1 INTRODUCTION

The university system has vital role to play in the society in prusuing the goals of the educational system. The function of the university to-day is not only to enable the students to attain academic excellence but also to contribute directly to national development, to furnish intellectual and moral leadeship at large. Further the prime necessity for university, a good library with a balanced and adequate collection is to satisfy the needs of the university faculties and help to promote advanced study and research programmes.

It is to be stated that university libraries are confronting with a set of barriers. Among the major obstacles to university development in some countries in general, and India in particular, the following are worth mentioning:

- Lack of clearly defined university library objectives;
- Lack of physical facilities;
- Failure to appoint competant library staff and
- Enforcement of rigid administration regulations.

Hence, the planning function in the management of university library system. University libraries in recent decades have become major organisational enterprises, which have to respond to increasingly wide of of influences, both from within academic community and from society at large. As such they just identify missions, priorities, goals, objectives, allocate resources etc. and develop strategies for meeting changing circumstances. In this context proper planning is considered as an effective means of helping libraries to define themselves and develop strategies for libraries survival and success in the dynamic and rapidly changing environment.

Planning occurs every day in an organisation. Hence, it a continuous effort in any organisation. As the planning is the lay factor in any organisation and the university library is no exception. The university library needs planning and control in every activity in the university library like, acquisition, maintenance, technical processing, resources, circulation etc.

2 Planning Function

The word planning has its root in Latin 'planum' which means flat surface. The word has used during seventeenth century to mean drawing a form on a flat surface such as map or blue print, as claimed by Oxford English Dictionary. In modern days, it encompasses a broad scope of human activity because of which is some times difficult to represent its role in single definition. In modern management , there is not universally accepted planning procedure vocabulary, or model. In his proposal for the same planning effort, Cornell Library Director Davide Kraser stated '. . . it is important to note that to-day's concept of planning came into the general arena of management only a scant decade ago . . .' Simple as it may sound recognition of planning as 'an impersonal organisational structure for determining future action was not postulated till 1961.

James L Pierce defined planning as 'the construction of an operating system, comprehensive enough to cover all phases of operations, and detailed enough that specific attention may be given to its fulfilment in controllable segments.'

According to Lebreton and Henning 'Planning is the process of detemining the courses of action. . . .

3 Nature and Scope of Planning

All planning is decision making process and but not all decision making is planning. It provides an overall theme which gives greater consistency

of action, direction of decision-making and integration of co-ordination of effort. It is an instrument that is used by wise but not wise alone.

Louis A Allen segregates the major activities of planning in seven characteristics.

- Forecasting (predicting what is going to happen);
- Developing objectives (Commitment to achieve a result);
- Programming (developing the sequence of steps necessary to achieve the result);
- Scheduling (developing the time sequence necessary to carry out the programme steps);
- Budgeting (allocating corporate resources);
- Developing procedures (specifying standards for the work to be performed) and
- Developing policies (specify the broad mean to accomplish the desired end).

4 Objectives of the Study

The present problem is to analyse the planning function in the university libraries of Andhra Pradesh. Hence, a study has been conducted with the following objectives:

- To trace the origin and development of university libraries in India in general, and those in Andhra Pradesh in particular;
- To analyse planning function in the select univesity libraries in Andhra Pradesh in terms of their components, objectives, goals, buildings finance, manpower, physical facilities etc;
- To seek the librarians' opinion about the importance of planning function in university libraries;
- To elicit their opinion with regard to inclusion of various factors in the planning document and
- To suggest the ways and means for systematic planning to the developmental needs of the university libraries in order to improve the provision of information services.

5 Database and Methodology

At present 21 universities are exist in Andhra Pradesh out of which, 16 have been selected for the study (12 state, 3 deemed to be, and one central university) as others are at infant stages. The database for the study constitutes a questionnaire, interview and study of primary and secondary sources of information on the topic concerned and other related literature.

6 Planning in University Libraries of Andhra Pradesh

The planning practices of the librarians in their respective libraries have been obtained on the following key issues.

(a) Administration; (b) Collection; (c) Services; (d) Personnel; (e) Facilities; and (f) Financial support.

The information collected on the practices by the librarians in the survey has been analysed and interpreted in the following paras.

6.1 Planning of Administration

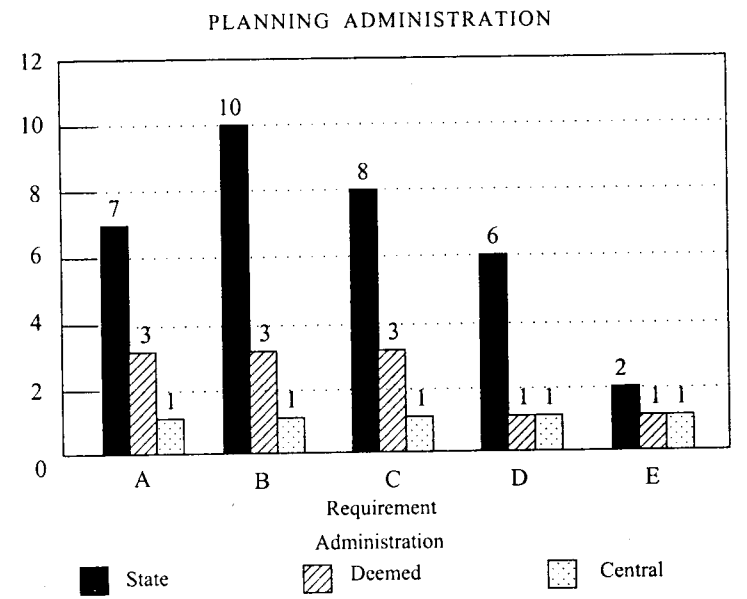
Planning administration is reviewed on the following counts:

- For the maintenance of records and services;
- For developing library programmes;
- For maintaining qualitative collection;
- For bringing sense of unity and
- For publicizing planning process.

The librarians were asked to offer their opinions on the above reasons to which they feel necessary while planning administration and the responses are given in Table 1.

Table 1: Planning Administration

S. No	Description	Type of University			
		State	Deemed	Central	Total
1	To maintain better physical records (documentation) of use of resources and services	7 (43.75%)	2 (12.5%)	1 (6.25%)	10 (62.5%)
2	To develop and administer programmes of library resources and services, which support the goals and objectives of the university effectively and efficiently	10 (62.5%)	3 (18.75%)	1 (6.25%)	14 (87.5%)
3	To maintain quality of collections and servcies and improve efectiveness with state or declining total financial resources	8 (50.0%)	3 (18.75%)	1 (6.25%)	12 (75.0%)
4	To foster a greater sense of unity and direction among library units	6 (37.5%)	1 (12.25%)	1 (12.25%)	12 (50.00%)
5	To publicise the planning process and assess extent to which it has been integrated to publicise the planning process	2 (12.5%)	1 (6.25%)	0 (0%)	3 (18.75%)



A Maintenance of Records & Services
B Developing Library Programmes
C Maintenance of Qualitive Collection
D Bringing Sense of Unity
E Publicizing Planning Process

Fig. 6.1

From the above table out of five reasons stated in the table 1 first three reasons have been favoured by a large number of librarians ranging from 62.5 per cent to 87.5 per cent, which shows that there is much awareness among librarians towards the need for planning administration.

6.2 Planning of Collection Building

The following areas of planning of collection building are to be considered:

- To draft a Collection Development Policy;
- To get access to electronic media;
- To improve maintenance facilities;
- To ensure collection evaluation;
- To augment foreign collection and
- To evaluate library material vendors.

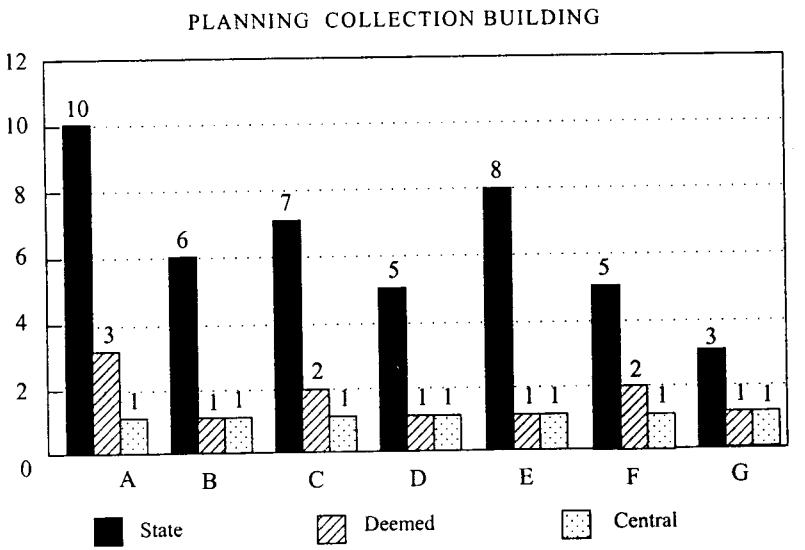
The librarians were asked to offer their opinions on the above areas while planning collection building in their resepective libraries. The opinions have been presented in the Table 2.

TABLE 2: PLANNING OF COLLECTION BUILDING

S. No.	Description	Type of University			
		State	Deemed	Central	Total
1.	To formulate comprehensive objective collection, development policy including gift policy	10 (62.5%)	3 (18.75%)	1 (6.25%)	14 (87.5%)
2.	To provide greater access to electronic media like on-line bibliographic database searching, computer software, compact disc technology etc.	6 (37.5%)	1 (6.25%)	1 (6.25%)	8 (50.0%)
3.	To improve stack maintenance and greater emphasis and physical preservation of collection i.e. including periodic weeding of holdings, regular schedule for binding, restricted access to mutilation of prone material.	7 (43.75%)	2 (12.5%)	1 (6.25%)	10 (62.5%)
4.	To Conduct a comprehensive analysis of collection to give greater emphasis on acquiring and providing bibliographic and physical access to non-book material including audio-visual resources.	5 (31.25%)	1 (6.25%)	1 (6.25%)	7 (43.75%)
5.	To increase the rate of growth of the function to build special collection, to encourage more class room faculty participation in the collection development.	8 (50.0%)	3 (18.75%)	1 (6.25%)	12 (75.0%)
6.	To increase purchase of relevant foreign publications.	5 (31.25%)	2 (12.5%)	1 (6.25%)	8 (50.0%)
7.	To improve and evaluate the performance of library material vendors.	3 (18.75%)	1 (6.25%)	1 (6.25%)	5 (31.25%)

It is seen from the table 2, that 14 out of 16 (87.5%) librarians felt that the planning of collection building is required to formulate a better collection developement policy which would take into account, changes in the academic programmes, priorities and would also consider the additional resources obtained through resource sharing network. Futher this may be interpreted as the need for formal written collection development policy suited to the specific needs of the libraries. This seems to have been recognised by the majority of the librarians.

It is futher stated that the collection building form an important aspect in the University libraries and for that matter any library. The



A Draft Collection Development Policy
B Access to Electronic Media
C Improve Maintenance Facility
D Ensure Collection Evaluation
E Augment Foreign Collection
F Avaluate Library Material Vendrors

Fig. 6.2

librarians are more conscious of collection development policy, acquisition of different types and forms of materials, collection evaluation and collection maintenance.

6.3 Planning Library Services

The following factors are to be considered while planning library services.

- Better services to library materials through automation;
- Development of computer-based information retreival systems;
- Emphasise on bibliographic instruction;
- Public relation programmes;
- Resource sharing;
- Professional and ethical standards;
- Performance appraisal of services by users and
- Off-campus services

In the survey, the librarians were asked to offer their opinion with regard to the factors to be considered while planning of services and responses are given in Table 3.

TABLE 6.3 PLANNING LIBRARY SERVICES

S. No	Description	Type of University			
		State	Deemed	Central	Total
1	To provide bibliographic access to all library materials through computerisation of bibliographical records retrospective conversion and development of online public access records	7 (43.75%)	3 (18.75%)	1 (6.25%)	11 (68.75%)
2	To develop and / or acquire and install a computer-based integrated library system providing on-line access to the acquisition processing, circulation, binding, inter-library loan and periodical records	7 (43.75%)	3 (18.75%)	1 (6.25%)	11 (68.75%)
3	To place greater emphasis on bibliographic justification	4 (25.0%)	1 (6.25%)	1 (6.25%)	6 (37.5%)
4	To initiate or to imporve public relations programmes	4 (25.0%)	2 (12.5%)	1 (6.25%)	7 (43.75%)
5	To place greater emphasis on user satisfaction of reader services	10 (62.5%)	2 (12.5%)	1 (6.25%)	13 (81.25%)
6	To provide library services to off-campus university faculties.	7 (43.75%)	3 (18.75%)	1 (6.25%)	11 (68.75%)

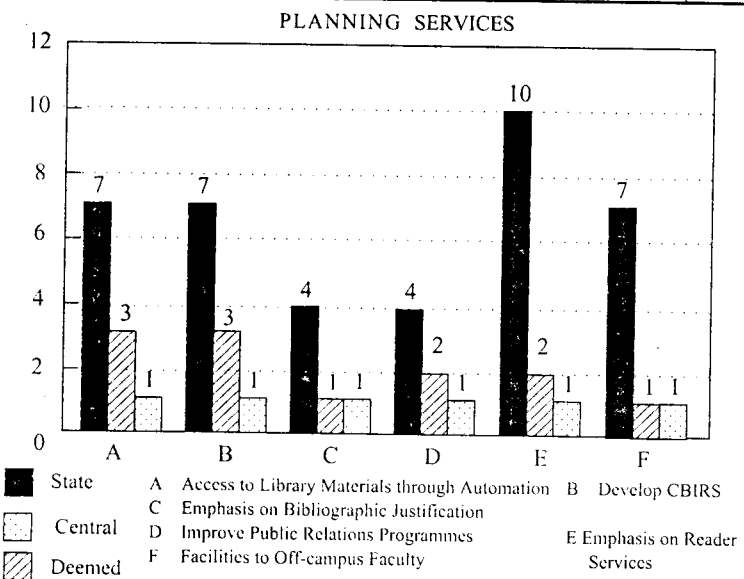


Fig. 6.3

6.4 Manpower Planning

Manpower planning in university libraries required to fulfill one or more of conditions, such as,

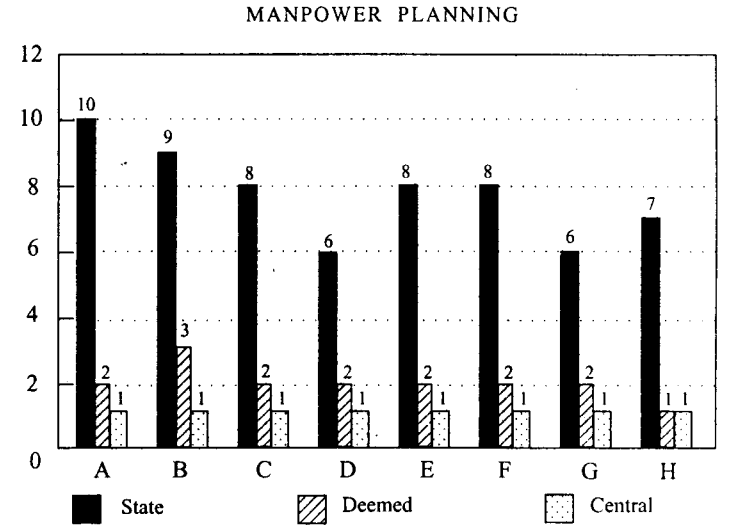
- Professional development;
- In-service Training;
- Staff evaluation;
- Better recruitment;
- Staff Development;
- Promotion of institutional leadership and
- Review of staff pattern.

In the survey the librarians were asked to offer their opinions as to why manpower planning is required. The responses are tabulated in Table 4.

Table 4: Manpower Planning

S. No	Description	Type of University			
		State	Deemed	Central	Total
1	To provide more support for professional development of librarians including travel funds financial support etc.	10 (62.5%)	2 (12.5%)	1 (6.25%)	13 (81.25%)
2	To provide for in-service training for staff	9 (56.25)	3 (18.75%)	1 (6.25%)	13 (75.0%)
3	To develop criteria for evaluating performance of librarians	6 (37.5%)	2 (12.5%)	0 (00.0%)	8 (50.00%)
4	To recruit best qaualified library staff	8 (50.0%)	2 (12.5%)	1 (6.25%)	11 (68.75%)
5	To establish formal staff development programme	8 (50.0%)	2 (12.5%)	1 (6.25%)	11 (68.75%)
6	To provide institutional leadership in the profession through R & D activities and participation in professional organisations and meetings.	6 (37.5%)	2 (12.5%)	1 (6.25%)	9 (56.25%)
7	To review staffing pattern periodically	7 (43.75%)	1 (6.25%)	1 (6.25%)	9 (56.25%)

From the Table 4 it is seen that the highest number of respondents, that is, 13 out of 16 (81.25%) have felt that the manpower planning is required for sub-professional development and in-service planning. This is followed by 11 librarians out of 16 (68.75%) for best recruitment, and staff



A Professional Development
B In-Service Training
C Better Recruitment
D Staff Development Programmes
E Promotion of Professional Leadership
F Periodical Review of Staff Pattern
G Staff Evaluation

Fig. 6.4

development program. On the other hand only 9 librarians felt for a review of staff pattern and institutional leadership. In addition to this 8 librarians out of 16 feel that criteria for evaluation of performance be developed From the above analysis following can be interpreted.

(a) There was less unanimity among the librarians as the reason for the manpower planning. (b) The reason, where, a majority of respondents favoured the institutions may be because they might have what in their planning

The idea of favouring the in-service training in manpower planning assumes significance in view of the proposed participation in the networks such as, INFLIBNET.

6.5 Planning of Physical Facilities

There are a number of reasons, as to why the physical facilities are to planned. The areas are as follows:

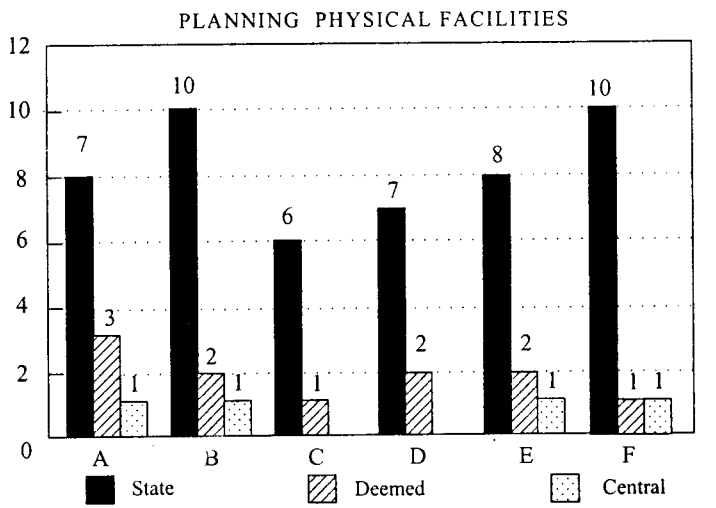
- Expansion of building;
- Better security arrangements;
- Off-site storage facilities (compact shelving);
- Sound preservation and conservation facilities;
- Updating the equipment and

– Better utilization of building/library space.

The librarians were asked to offer their opinion on the need for planning physical facilities and the responses are given in Table 5.

TABLE 5: PLANNING OF PHYSICAL FACILITIES

S. No	Description	Type of University			
		State	Deemed	Central	Total
1	To renovate or expand existing facility and / or to plan for construction of new facilities	8 (50.00%)	3 (18.75%)	1 (6.25%)	12 (75.00%)
2	To improve security for resources and personnel	10 (62.5%)	2 (12.5%)	1 (6.25%)	13 (81.25%)
3	To develop off-site storage facilities (compact shelving)	6 (63.5%)	1 (6.25%)	0 (00.0%)	7 (43.75%)
4	To plan and develop facilities for preservation activities	7 (43.75%)	2 (12.5%)	0 (0.0%)	9 (56.25%)
5	To conduct comprehensive review of total utilisation of library's space	8 (50.00%)	2 (12.5%)	1 (6.25%)	11 (68.75%)
6	To plan the updation of equipment and other electronic gadgets	10 (62.5%)	1 (6.25%)	1 (6.25%)	12 (75.0%)



A Expansion of Building
B Better Security Arrangements
C Sound Preservation Facilities
D Sound Preservation Facilities
E Updating of Equipment
F Utilization of Library Space

Fig. 6.5

While planning physical facilities, 13 out of 16 (81.25%) prefer to develop off site storage facilities and 12 out of 16 (75%) have given option to improve the security resources personnel. While planning physical facilities of the library, 11 out of 16 (68.75%) librarians favour space for updation of equipment and electronic gadget, and 16 out of 16 suggest to review actual utilisation of library's space. In all the librarians, might have facted the need for improvement in planning physical facilities.

6.6 Planning of Financial Support

In the present trend of inflation, planning of financial resources poses problems to the librarian. He must be cautious in planning available resources for a balanced utilization. At times, efforts are to be made to mobilise the resources. The various ways through which librarians can mobilise funds are:

- Philianthropy;
- Corporate grants;
- Part of research grants and
- university funds.

The librarians were asked to offer thier opinion on the planning of financial support and the responses are given in Table 6

Table 6: Planning of Financial Support

S. No	Description	Type of University			
		State	Deemed	Central	Total
1	To seek alternatives or funds from philanthropists, government grants, and other corporate grants	9 (56.25%)	3 (18.75%)	1 (6.25%)	12 (75%)
2	To obtain appropriate share of over-head funds generated by	7 (43.75%)	2 (12.5%)	5 (31.25%)	14 (87.5%)
3	To identify exisitng library funds	8 (50.0%)	2 (12.5%)	1 (6.25%)	11 (68.75%)

From the Table 6 it is clear that 14 out of 16 (87.5%) librarians feel that appropriate share of overheads be generated; secondly it is seen that the majority of the librarians 12 out of 16 (75%) felt need to seek alternatives of financial support as a part of financial planning and out of 16 (68.75%) librarians felt that financial planning requires to augment existing library

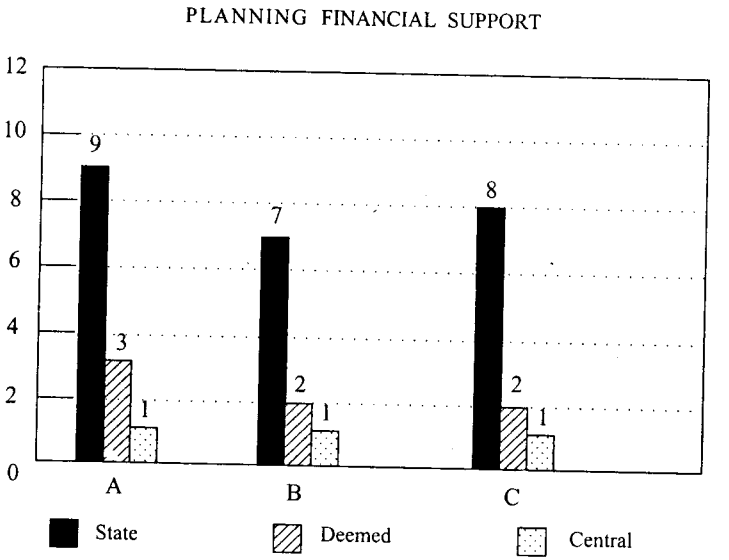


Fig. 6.6

funds. The reason may be the allocation of budget under the various heads is based on demand rather than the routine.

By and large, there is an awareness among librarians, that the existing library grants are not sufficient to meet the growing demands of the library, hence, most of the librarians felt that a better financial planning to achieve additional support of grants may be given due weightage to the points listed in the table 6

7 Conclusion

The university libraries are being operated in the context of rapid and potentially dynamic changes such as social change, technical change, economic change, and political change. These forces for change are influencing the internal management dynamics of libraries and their

parent organisations and in turn thier services. Therefore, the librarians should consider the areas such as, buildings, participating in the network—INFLIBNET in the Indian context; application of information technology; and better physical facilities. It is not out of context, to identify certain constraints that come in the way of library planning, especially in the Indian context.

- Paucity of need based document collection;
- Lack of adequate budget to meet the increasing cost of library materials and organising them for use;
- Lack of provision and equipments for acquiring a wide range of specialised materials;
- The cost of storing in frequently used materials that accumulate when a library tries to be self sufficient;
- Improper recognition of the actual protential users and services to them;
- Lack of physical fiacilities in terms of space, furniture etc.;
- Administrative rigidity which poses difficulty in erecting and recruiting right type of professional staff to meet the changing and complex information needs of users;
- Non-realization of the importance of resource sharing withing the university and among other library systems and
- Lack of newness in the professionals vis-a-vis curriculum of the library and information education programme.

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ANNEXURE–I

List of University Libraries in Andhra Pradesh under survery

S No	Name of the University	Location	Year of Esst.
State owned Universities			
1	Osmania University	Hyderabad	1918
2	Andhra University	Waltair	1926
3	Sri Venkateswara University	Tirupati	1954
4	A.P. Agricultural University	Hyderabad	1964
5	Jawaharlal Nehru Technological University	Hyderabad	1972
6	Kakatiya University	Waranagal	1976
7	Nagarjuna University	Guntur	1976
8	Sri Krishnadevraraya University	Anantapur	1981
9	Dr B.R. Ambedkar Open University	Hyderabad	1982
10	Sri Padmavathi Mahila Viswavidyalayam	Tirupati	1983
11	Telugu University	Tirupati	1985
12	University of Health Sciences	Vijayawada	1986
Deemed Universities			
13	Central Institute of English and Foreign Languages (CIEFL)	Hyderabad	1973
14	Sri Satyasal Institute of Higher Learning	Prashanti Nilayam	1981
15	Rashtriya Sanskrit Vidyapeeth	Tirupati	1986
16.	Nizam Institute for Medical Science	Hyderabad	1989
Central University			
17	University of Hyderabad	Hyderabad	1974

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Regional Libraries in the Contemporary Information Society: A Critical Analysis with Special Reference to Andhra Pradesh

P V MALLESWAR

Abstract

The enlightened citizen is said to be the most valuable asset of the society, which cherishes democratic values and the preservation of basic human freedom. To achieve this, libraries are a primordial need. In recognition of this, every where in the world, civilised states emphasise and invest on the establishment of libraries and information centres.

1 Introduction

Information is becoming a vital raw material in our rapidly changing information society and many a time referred to as ' information is power'. Lots of information is being generated in various fields of universe of knowledge, which is being recorded on different formats, for the purpose of communication. Various types of libraries and information centres have been established to acquire, process, store and disseminate this information to those who are in need of it. Regional libraries are one among them.

2 Regional Libraries in India

Regional libraries are not a new feature of the public library system in India. Nor are they quite recent things in the development of library services. Before States reorganisation, the need for establishing regional

libraries to serve the needs of the linguistic groups was felt by the then State Governments. States like Maharashtra, Assam and Karnataka have Regional Libraries established as early as 1940's . Even before independence the Government of Bombay appointed a Committee headed by Shri AAA Fyzee in the year 1939-40 for the purpose of exploring the possibilities of the establishment of Provincial Central Library in Bombay as well as three Regional Libraries at Ahmedabad, Poona and Dharwar obviously for the spread of library service in the then province. The Committee recommended that the functions of the Regional Library will be approximately the same as that of' Central Library with the difference that its sphere of action will be limited to its region; it will be under the general guidance of the Central Library and it will essentially have to develop the library movement in the districts. The establishment of a regional library for Vidarbha region at Nagpur comes as an example, collaborating the principle of regionalism which may have formed the basic consideration in all subsequent establishment of such libraries.

Dr S R Ranganathan, the father of library science in India, had suggested Regional Libraries only for bilingual states and as Mrs S K Rait has pointed out, he had not given any clear expression to the subject of Regional co-operation. He had infact described the formation of the Regional Libraries in Great Britain along with the one National Central Library and thought the National Central Library alone should discharge the duties. Even as late as in 1964 while formulating his 15 years library development programme for plan periods 4-6, he had only conceded the necessity that might arise by saying, "ultimately but not present, each State may find it helpful to establish a few Regional Central Libraries to serve as a reservoir library .....".

3 Advisory Committee report on Libraries and Regional Libraries

The Advisory Committee on Libraries was appointed by the Government of India in the year 1957, recommended the establishment of Regional Libraries as one of the links in the National Library System. It recommended that "the District Libraries would in turn be linked up with the regional libraries and through them with tile National Central Library culminating in a link-up with the library system of the world". It also recommended for the establishment of Regional Libraries for bilingual states with the objective to serve the needs of particular linguistic groups and discharge some of the functions of the State Central Library assuming the same position, perhaps, for purposes of administrative convenience

and also, for reducing the pressure on State Central Library. In the report it was stated that in bilingual states regional libraries will fulfill all the functions of the State Library and the Regional Librarians will take the place of State Librarians, except that the Library Department will lay down the technical process in the public libraries which shall be uniform throughout the State. The Committee must have felt it inopportune to spell more and that is how we find it conspicuously silent on other issues relating to this matter.

4 Regional Libraries in Andhra Pradesh

In 1953 Andhra State was formed with Kurnool as Capital carving out the eleven Telugu speaking districts from the composite Madras State. The State had the Madras Public Libraries Act of 1948, applied to the eleven Telugu Speaking districts of Composite Madras State. Andhra has to establish under the Act, a State Central Library, and consequently the State Central Library was established at Visakhapatnam in 1954-55. After the States reorganization Andhra Pradesh State was formed on November 1, 1956. At that time Madras Public Libraries act 1948 was in force in Andhra Area and Hyderabad Public Libraries Act 1955 was in force in Telangana area. Two acts meant for the same purpose are creating problem in administration. To sort out this problem an integrated Andhra Pradesh Public Libraries Act has been passed in 1960.

According to APPL Act 1960 the Andhra State Library situated at Hyderabad was declared to be the State Central Library for the State of Andhra Pradesh. After the formation of Andhra Pradesh, the State Central Library at Visakhapatnm was converted as the State Regional Library and shifted to Guntur in 1958. Till the end of 1963 this was the only State Regional Library functioning in the State.

Later, it was felt that the Zilla Granthalaya Sansthas cannot satisfactorily cater to the information needs, of the community not only because of their meager resources and finances but also for want of trained and experienced personnel in the field. In order to provide efficient library service in the regions of Rayalaseema, Telangana and Northern Coastal districts of the State and due to other regional considerations, four more Regional Libraries were established each at Tirupalhi, Warangal, Visakhapatnam and Nizamabad to cover the respective regions. In 1974, Shri Gowthami Iiblary at Rajahmundry was declared as a Regional Library. The following Table shows the establishment of these Regional Libraries and the districts in which they are expected to spread effective library service.

TABLE 1: YEAR OF ESTABLISHMENT AND DISTRICTS SERVED BY REGIONAL LIBRARIES

S No	Name of the Library and Location	Date of Establishment	District to be served
1	State Regional Library, Guntur	4.1.1955	Guntur, Prakasam and Nellore
2	Government Regional Library,	9.1.1964	Chittoor, Cuddapah and Ananthapur
3	Government Regional Library, Warangal	4.2.1964	Warangal, Khammam, Nalgonda and Mahabubnagar
4	Government Regional Library, Visakhapatnam	6.9.1965	Visakhapatnam, Vizianagaram and Srikakulam
5	Government Regional Library, Rajahmundry	4.8.1966	Nizamabad, Adilabad Medak, Karimnagar, and Hyderabad
6	Shri Gowthami Regional Library, Rajahmundry	19.2.1979	East Godavari, West Godavati and Krishna

5 OBJECTIVE AND FUNCTION OF REGIONAL LIBRARIES

The objectives and functions of Regional Libraries are spelt out by State Library Committee (1969) the first A P Libraries. Conference (1972), the Bhoji Reddy Sub-Committee Report in reorganisation of Regional Libraries in Andhra Pradesh (1974) the Ekbote Committee Report (1976) and the first A.P. Public libraries conference (1979). Based on their expectations and recommendations, the primary objectives and functions of RLs can be summed up as follows.

5.1 OBJECTIVES

1 The RLs have to operate as independent units within the state library system (Though intially the objective is Vice-Versa).
2 They should cater to the referene and research information needs of the community of the region they are located in.
3 They should provide access to literature available in that region by maintaining bibliographical control tools.
4 They should act as repositories of are book collection in their areas.
5 They have to act as clearing houses of information especially on the welfare and developmental schemes of Govt.
6 They have to take up a wide variety of information services to cater all kinds of information requirements in community of that region and strive to achieve user satisfaction.

5.2 Functions of Regional Libraries

The first A.P. Public Libraries Conference (1979) recommended the following function of the Regional Library.

The Regional Libraries function to achieve their objectives and to reach out to the expectations of the community, the Government and also the profession. The function of RLs may vary from one region to another, but the principle/ core functions are similar.

- The Regional Libraries have to concentrate on collection of material of reference and research work and rare books, particularly about the State of Andhra Pradesh .
- The Regional Libraries should not be lending libraries except to the institutions.
- They should publish bibliographies annually of all the books published in the State in Telugu language.
- They should strive to develop standards for various operations of the Public Library system, in association with the State Central Library.
- They should provide technical guidance to all the depertmental and private libraries in the region.
- They stlould prepare Regional Union catalogue.

6 Objective of the Present Study

Since their establishment the Regional Libraries are striving to perform their task efficiently. Although the Andhra Pradesh Public Libraries Act, 1960 has not mentioned any objectives or functions, various committees and commissions on public libraries, from time to time have prescribed the objectives and functions of the Regional Libraries. As already four decades passed since their inception, it has generally been expected that Regional Libraries, with support from Government might have reached a stage of relative maturity and play a vital role in the service of the community.

An attempt has been made to assess the facilities and services available and to critically evaluate them against the objectives and functions of Regional Libraries, suggested by various committees.

7 Methodology

The survey method was adopted with questionnaire as a tool to collect data about the provision of library services. Two sets of questionnaires were served to librarians of Regional Libraries (RLs) and users of these

libraries to find out the effectiveness of functioning of RLs. The first part of the survey has included all six RLs as sample while the user's survey has been restricted to three RLs, Guntur, Rajamundry & Visakhapatnam with a simple random sampling of 15% of the total members of each Regional Library owing to the natural limitation in a social survey. A total of 426 responses received out of 450 distributed i.e. A response rate of 94.66%

8 Findings of the Study

The RLs are expected to show 'high standards of service' than the District Central Libraries and function as model libraries. But in reality these RLs are unable to show any leadership to the District Central Libraries (DCLs) as the later have greater financial resources. Hence, the development of RLs is not on par with DCLs . The revenue of District Central Libraries are incomparably more when compared to Regional Libraries. Even in other infrastructural facilities like Staff, accommodation, sources the District Central Libraries are far better than Regional Libraries. So Regional Libraries are not in a position to provide any leadership on District Central Libraries. The District Central Libraries probably eclipsed the Regional Libraries. The Regional Libraries are unable to expand their services beyond their doors and are suffering from lack of funds, materials, proper accommodation and required trained staff. Neither these libraries are collecting and preserving the manuscripts in the region for the development of local history collection, nor they are providing facilities worth the name to the research scholars and historians. Even the basic collection in these libraries is inadequate.

The findings of the survey also revealed that these libraries not actually functioning according to their set objectives but they become more appendages to the Director of Public Libraries.

8.1 Major Findings of Regional Libraries Survey

- The Regional Libraries at Guntur and Rajamandry are accommodated in spacious own buildings while that at Vishakapatnam is housed in a rented building.
- Guntur has a professional staff strength of 8 members and supported by 3 para professional, and arround 20 supporting staff. However the Visakhapatnam has 3 professional, 1 semi and 6 supproting staff, while Rajahmundry has 3, 3 and 4 members in each cader respectively.
- The collection development did not show a consistent growth graph.

The figures are fluctuating during 1990-91 the collections added were 2018, 979 and 1712 at Guntur, Visakhapatnam and Rajahmundry, they were 917, 1025 and 1365 in 1993-94. There is a decreasing trend of collection due to lack of support from Government.

- The main source of income for RLs is grants from the State Government. The study indicates that there is no criteria followed to provide the grants hence the amounts vary arbitrarly from library to library. The budget alotted for reading materials during 1990-91 is Rs 70,000 Rs 50,000 and Rs 60,000 to Guntur, Vishakapatnam and Rajahmundry in that order. However the amounts static to Rs 70,000, Rs 26,000 Rs 50,000 in 1993-94. This indicates the pathetic financial position of these libraries.
- The use of these libraries is quite encouraging. The number of visitors in 1990-91 was 2,54,176; 15,714 and 1,47, 726 at Guntur, Vishakapatnam and Rajahmundry and 2,81, 890, 50,188 and 1,75,460 respectively during 1993-94.

  Further, the figures of average number or books consulted indicates that during 1990-91 3,24,501, 6,352 and 92,000 books were used while in 1993-94. 3,12,745, 43,564, and 1,20,500 were consulted. This shows an increaing trend in the utilization of these libraries. However the periodical collection are meagre as the figures did not cross even 150 Journals.
- The libraries are extending the loan service and in fact this is the only active service in operation. The number of registered borrowers is also on an increasing trend, which again supports the usefulness of these libraries. It is due to note that there is no facility for inter library loan.

Reference collection are good at Guntur & Rajahmundry with rare and research collection, hence their referenece service is satisfactory, supported by reprographic service. However Visakhapatnam is lagging far behind in this regard.

8.1.1 Major Finding of User Survey

- The users visit to the library is frequent i.e., daily or atleast once in a week; and the number of hours they spent is longer i.e., more than an hour which indicates that there is demand for the services of Regional Libraries. The purpose of visit varies with examination preparation being the top priority in that order followed by knowledge seeking, recreation and improvement of professional skills.
- However, the users expressed the need for more number of workiing

hours, especially at Rajahmundry & Visakhapatnam Regional Libraries.

- Text books, Reference books are the information sources of much demand followed by novels & other light reading material. Periodicals is the third priority. This may be in accordance with the type of information sources made available at Regional Libraries. However, majority of users are not satisfied with the adequacy of sources. Further they are not satisfied with the method of organisation of the reading material.
- Lending service is more popular at all the three Regional Libraries followed by Reference, News paper/ Current periodical section and reprography. The type of services available are limited and the users are satisfied with the operation of available services.
- With regard to physical facilities, the users of Guntur and Rajahmundry are satisfied while users of Regional Library Visakhapatnam are not. This correlates with the availability of permanent, spacious accommodation in the case of Gruntur & Rajahmundry. However, the users of three libraries under study are dissatisfied with the furniture & fittings and opined that they are very poor and not comfortable .

The above findings indicates that the Regional Libraries are not able to achieve effective performance due to lack of adquate finances, services, staff etc. User satisfaction is the ultimate measure to prove the effectiveness of a service organisation, and these libraries could not achieve it: as they are dissatisfied with physical facilities, source, services etc. Hence there is a need to draw attention for strengthening ofthese libraries.

9 Suggestions

After an in depth study of the provision of facilities and formation services by Regional Libraries and seeking the opinion of users on available facilities and their expectations from the system, the researcher has find out certain lacunae in the system.

According to the Review Committee Report (1977), a Regional Library should.

- Collect and preserve manuscripts available in the region for research purpose.
- Prepare a union catalogue of books available in public libraries in its region.
- Serve as a link between the state central library on one hand and all kinds of libraries in the region on the other.
- Provide inter-library loan facilities to other libraries.

The Regional Libraries in Andhra Pradesh are performing none of the above important functions that they are supposed to do. There is no co-operation between Zilla Granthalaya Samasthas and these Regional Libraries. The Zilla Granlhalya Sansthas and the Regional Libraries are functioning individually. The Regional Libraries are serving as any other public library with the facility of lending books for home reading, resulting in the duplication of work. Hence the following suggestions may be considered for the improvement of Regional Libraries in the State.

- Instead of letting them to hang independently outside the State Library System, the Regional Libraries should be integrated into the State library system through legislation.
- These regional libraries are neither reference libraries nor regional libraries as it is understood in England. It will be more useful and economical if all the libraries in the region are linked with the Regional Library to share their resources on a co-operative basis. The Regional co-operation is helpful in compiling union catalogues, devising subject specialisation schemes, attempting regional self-sufficiency in respect of current material. The expenditure on libraries in the region can also be reduced to some extent, if the purchase of books, their classification and cataloguing are centralised at the Regionai level. The funds thus saved can be utilised for better library facilities to the people of the region.
- The Stale Central Library and Regional Libraries should be statutory authorised to organise inter-library loan in the state and the regions respectively along with the scheme of availability of tickets. In practice no Regional Library is providing inter library loan service. If there is any inter library loan service, it is only due to the personal interest of the library staff. This situation situation lack of union catalogue and inter library loan code. Inter Library loan code with necessary rules and regulations should be developed and should be approved by the Government.
- Bibliographical service is the heart of any library service. The serious readers and particularly the students carrying research would find it difficult to get help from the Regional Libraries, which are supposed to be reference libraries. Hence these libraries should be equipped with upto date bibliographies of all types and also have to of current awareness services.
- At present the state has no union catalogue of its own. The catalogue existing in each district is also not complete, because it does not take into account the books available in the district in the other libraries.

The State Central Library and Regional Libraries have failed to provide leadership even in the technical field in so far as the question of preparing bibliography and union catalogue are concerned. Hence, all this technical work ought to have been centralised and entrusted to the State Central Library which with the co-operation of the Regional Libraries can prepare bibliography and union catalogue for the State. At the moment, according to the Act the work is entrusted to the Director of Public Libraries. The Directorate do not have technical personnel to discharge the statutory obligations placed on it. It has to lean on the Stale Central Library. In these circumstances it is proper to leave the work to the State Central Library and complete it in co-operation with the Regional Libraries.

- The position of Regional Libraries in the so called 'Piramidical Structure' of library system in the state is not clearly and properly visualized. These Libraries have failed in the fulfillment of their aims and objectives for which they have been established. It is high time for the Government to review the working of these Regional Libraries and take necessary steps for their rejuvenation the concerned authorities must take suitable steps to strengthen these Libraries. The Regional Libraries should share some of the functions for the State Central Library such as supervision, technical work etc.,
- A Point of concern is that the financial pressure has become so severe, that even the Government is not in a position to raise the financial grants frequently, to make the libraries self sufficient. A viable alternative to over come this complex situation is to market the library services. The era of free service has gone due to pressure of financial resources of the libraries. Libraries, though non-profit organisations, have to institute Fee-based services. The State Government and the Director of Public Libraries should take initiative to charge for library services as for doctor's consultation or for lawyer's advice. Some of the basic services can be subsidised, while for others, incremental charges can be collected. Instead of depreiving the users of adequate literature and services, it is of great advantage for them if the same is provided at a nominal fee.

For, example, the Current Awareness Bulletins, SDI lists for users appearing for various competitive examinations like Civil Services, Commission Examinations etc., can be prepared and provided to the users at nominal fee. Further reprography service is already provided at nominal fee. Moreover, the services of NICNET and other data bases can also be availed if incidental charges are collected. By

collecting charges for the service, uninterrupted, high quality services can be provided.

- Legislation is the commitment on the part of Government in the service to the public and the library ligisfation is not an exception to it. It will define clear cut powers and duties in a library system.
- Another appropriate and permanent measure to over come the financial constraints and to achieve the efficient performance of the Regional Libraries of the State is to develop Andhra Pradesh Public Library network (APPLNLET). In this age, characterised by Knowledge explosion, no library can claim to be self sufficient and capable of meeting from its own collection all the information needs of its users. Some concrete and organisational efforts have to be made to integrate and co-ordinate the existing facilities in these libraries for effective use. One of the methods by which the complex situation can be approached is that resource sharing can be implemented effectively in the development of a Public Library Network.

10 Conclusions

Emergence of new information environment, a result of knowledge explosion and the accelerated growth of new technologies prompts the libraries towards networking. Instead of remaining as an array of- isolated libraries working independently, the Regional Libraries of Andhra Pradesh can accomplish, through implementation of Andhra Pradesh Public Library Network, a more effective user service. Though the costs incurred on the system in the initial stages would be a bit high, the dividends that can be earned, when the system in operational, would be innumerable and cost effective.

This survey may be regarded as an initial step towards the development of the Regional Library System. Serious considerations of the data gathered, analysed and the suggestions made will perhaps be a good starting point for in depth studies in this area. The results may help to take more meaningful steps for improvement of the situation.

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Relevance of Total Quality Management for University and College Libraries: An Overview

HARISH CHANDRA

Abstract

The present paper underlines the importance of Total Quality Management (TQM) for University and College libraries in India. It conceptualises the TQM and also discusses in detail the need and potential benefits of TQM. It further suggests various methods to bring quality in library and information services offered by University and College libraries.

1 Introduction

Quality has been the prime concern since the inception specially in the area of management, science and technology to provide maximum satisfaction to the beneficiaries about the services, goods and products all over the world. During the current competitive era, institutions and individuals are committed for the quality and also to ensure the total satisfaction among consumers. This has given rise to the concept of TQM which has now been accepted as the guiding force in the organizations all over the world including India. University and College libraries are not an exception to this. The recent developments in the area of computer and communication have drastically affected the methods and systems of the collection, processing, storage, dissemination of information and its products to the end users. It has been experienced that presentiy users in the area of higher education are in dire need for the quality based library and information services. Due to this fact, Government of India allocates huge funds for higher education with the

objective to ensure quality in education. The table given below indicates the budget allocation on higher education.

TABLE 1: PLAN AND NON-PLAN BUDGETED EXPENDITURE ON UNIVERSITY AND OTHER INSTITUTES OF HIGHER EDUCATION: STATES AND UNION TERRITORIES

(Rupees in Thousands)

Programme	1993–94 (Actuals)		1994–95 (R.E)		1995–96 (B.E)	
	Plan	Non Plan	Plan	Non Plan	Plan	Non Plan
Direction & Administration	33906.00	202664.00	40372.00	217934.00	53163.00	270019.00
Assistance to Universities	541879.00	7333356.00	755643.00	7713179.00	742158.00	7775673.00
Government Colleges	483651.00	5371446.00	658142.00	5961923.00	795340.00	6672863.00
Non Government Colleges	365903.00	11218175.00	551982.00	12654207.00	485922.00	13115591.00
Scholarships	17947.00	115913.00	41352.00	116829.00	39911.00	117763.00
Other Expenditure	113697.00	94872.00	301427.00	97183.00	189725.00	138328.00

Source: Government of India, MHRD Analysis of Budgeted Expenditure on Education 1993–94 to 1995–96, 1997, pp. 45–50.

2 CONCEPT OF TQM

TQM has been in practice in developed countries for a long time due to high demand for continuous quality improvement from consumers as well as the desire of corporate world. Currently, it has been noticed that due to high impact factor of TQM, it has also entered very fast in the corporate world of developing countries including India. Before discussing it's application in library environments, it is essential to know some definitions given by management Gurus which will facilitate easy understanding of TQM concept. Some of the management experts like Jurow & Barnard[2] define TQM as a system of continuous improvement employing participative management and centered on the needs of customers. Stamatis[5] says that TQM is a philosophy and a 'common sense' approach to the elimination of wasted time, energy, and materials. He further states that TQM is a way of thinking as well as a relatively simple analytic approach with which it is possible to eliminate most of the useless movements and to adopt more productive and useful actions. TQM aims to bring people together for discussion, exchange of ideas, developing an alert open minded people effective procedures to eliminate waste. The British Standard BS 7850 further defines TQM as a

management and company practices that aim to harness the human and material resources of an organisation in the most effective way to achieve the objectives of the organisation. Pursuant to this, various institutions like IITs are actively engaged to re-orient and re-design the existing organizational efforts, programmes, policies, systems, procedures to deliver the quality based services and products to the users. In this direction, our Director has constituted a task force on TQM to implement and introduce TQM in the entire activities of the Institute including the Central Library. Accordingly, we have initiated steps to improve the services, systems, procedures and products. This trend establishes that it is the high time for the university and college libraries to initiate and adopt the TQM philosophy and practices.

3 Need for TQM in University and College Libraries

It is an established fact that library is the nerve centre for academic and research activities. Accordingly, University and college libraries are considered as the heart of higher education system in India. Siwatch[4] states that university libraries are very essential to achieve the objectives of university education providing sufficient help in conservation of knowledge and ideas; teaching, research, publication, extension services, and interpolation of results of research. The library exists not merely to help the institutional functions of the university but a great deal to aid research. The library, therefore, performs a variety of functions helping students with text books, parallel studies, acquiring reference books and periodicals, by providing a large number of bibliographical tools, up-to-date literature on every subject for students, teachers and research workers as well as by maintaining an efficient reference and information service. This statement underlines that university and college libraries system need to have quality based services to the users which can be achieved with the help of TQM. In addition to this, there are various other factors, which motivate university and college libraries to apply TQM in their respective environments. Some of them are discussed here.

3.1 Changing Environment

As we know that currently, we are passing through a transition period and noticing various changes in all areas including library and information science theory and practice. The computer and communic ation technologies are largely affecting the systems techniques of

information storage, processing, retrieval, dissemination and distribution. Presently, users need fast, comprehensive, updated information and documents for satisfying their information needs. This can not be achieved unless and until university and college libraries have strong Information Technology (IT) infrastructures and resource. It is better if the library professionals are also well exposed to use IT tools and infrastructures effectively and efficiently. Now a days Indian University system has come forward to interact with industries for mutual benefits so that R & D carried out in Indian University system is fruitfully utilised for the benefit of the society. For example, realising this fact, IITs are already actively interacting with industries on various new emerging areas. Similarly, university and college libraries need to respond to this changing environment positively and progressively.

3.2 Quality Conscious Users

It has been experienced that with the passage of time and changing environment, the information needs, usage pattern and system of literature search have drastically changed. There are various factors like shortage of time, document explosion, global competition, information thrust, information over load motivate the users to have pin pointed, comprehensive and quality based library and information services. Due to these factors, university and college librarians need to redesign and reorient their entire efforts to meet the expectations of users for quality based services.

3.3 Information Marketing

It has been observed that university and college libraries are facing resources crunch, affecting the collection building strategy and various services. Due to this reality, globally, the marketing tachniques have been adopted to generate resources to meet atleast the maintenance cost of the basic library services. It is further stated that the marketing alone can not be adequate without having quality-based services as the quality in services is the basic attraction for the users in all areas including University and College libraries.

3.4 User's Satisfaction

The above discussions make it very clear that there is an urgent need to provide quality based library and information services which will enhance the existing image of the entire Indian library profession. Sirkin[3] suggests the following ways a library might use the principles of TQM to enhance the library services:

- Create service brochures and information kits;
- Conduct a user survey about library services;
- Improve signage;
- Change hours of operation;
- Provide a more convenient material return;
- Simplify check out of materials;
- Use flexibility in staff assignments;
- Cooperate with local government;
- Ask vendors to give product demonstrations;
- Give new staff through orientations;
- Create interdepartmental library advisory groups;
- Improve the physical lay out of the library;
- Track complaints;
- Develop an active out reach program;
- Open satellite offices;
- Publicize new or changed services;
- Develop user and staff training materials;
- Target services to specific groups;
- Offer electronic document delivery and
- Follow the mission statement.

4 Methods to Ensure Quality in Library and Information Services

In addition to the above-suggested ways, university and college libraries may also adopt various methods to ensure quality in library and information services to the end-users. These methods are the basic MUNTRAS for bringing total quality in the systems, procedures, services, resources. This also has great potential to change the nature and attitude of library professionals for bringing a visible change in serving the users professionally and happily.

4.1 Well Defined Quality Policy

Quality policy is the pole star, which guides the institutions and individuals to care and work for quality in services. All institutions committed for quality first need to formulate their quality policy, which requires to be well demonstrated to the users and staff. For example IIT Madras formulated the quality policy before getting ISO 9001 certification. One of the components of IIT Madras Quality Policy is to achieve excellence in the support services of the Institute through continuous improvement and teamwork. Accordingly, Indian university and college system need to

have a well-defined and demonstrated quality policy for services including libraries.

4.2 Focus on Users

Globally, users are main focus in all quality efforts and practices. The products and services are designed keeping in view the users needs, conveniences, suggestions and future expectations. University and college libraries need to have a major focus for users so that the basic objective of the services is achieved.

4.3 Demonstrated Systems and Procedures

The systems and procedures manual is extremely useful tool to bring quality in services because it helps the professionals to know their assigned nature of work, various systems and procedures to be adopted for achieving the target. ISO also directs the institutions to prepare a detailed systems and procedure manual before awarding ISO certificate. This document is treated as a controlled document. In this direction, for ensuring quality, the Central Library of IIT Madras has prepared a detailed systems and procedures manual which has been audited by external and internal quality auditors.

4.4 Quality and Auditing

Quality auditing helps the institutions to maintain quality standards in all areas including library services. We have seen that annually, due to audit visit, libraries keep all records properly for auditing and also reply instantly the audit querries are raised. Similarly, there is an urgent need to have periodic quality auditing, which can be conducted by external as well as internal quality auditors. This process has great potential to assist university and college libraries to have checks and also to maintain quality in their services.

4.5 Document Control and Traceability

The proper documentation of the activities, services, procedures and systems adopted in the university and college libraries is the key to bring quality in library services. Effective and efficient documentation control and it's fast traceability add more and more to ensure quality to the users and staff.

4.6 Well Defined Roles and Responsibilities

ISO standards prescribe to clearly define and describe the roles and responsibilities of the staff in the systems and procedures manual, which is a basic tool to add quality in services. In view of this fact, the libraries need to have well defined roles and responsibilities of the staff to avoid potential confusion and contradictions. This will help to ensure total quality in the services for the users.

4.7 Participatory Decision Making

During literature review, it has been noted that management expects and prefers participatory decision-making as it is more effective and binding. It helps to secure staff commitment for the implementation of the decisions taken collectively in an organisation. It is suggested that university and college librarians need to adopt this technique for the implementation of TQM in their respective environment.

4.8 Continuous Improvement

It is a fact that TQM is neither a quick fix nor a onetime job. On the contrary, it takes time as well as it needs continuous efforts for further improvements in services. We need to have a permanent in built mechanism in Indian university and college libraries system, which will certainly ensure total quality in library services.

4.9 Users Feedback System

Users feed back system is very much essential for the implementation of TQM in university and college libraries. It has been experienced that users give real feedback about the services provided by the libraries. For securing users feedback, the Central Library of IIT Madras has designed a specific form duly notified to the users about it's availability. Designated staff records the feedback received from the users in the relevant records and the action initiated is also reported to the concerned users. Internal Quality Audit, External Quality Audit and Surveillance Teams periodically audit the feedback system. In addition to this, we also organise periodic staff users meet to get feedback. The staff users meet is also addressed by a distinguished librarian, teachers of library and information science, computer expert etc.

4.10 Education and Training

Continuous education and training of staff facilitates the utilisation of the resources, services very effectively and efficiently. As we know that

the present era is an era of change. We need more exposure to handle the new tools and techniques for providing quality based library and information services. It has been observed that ILA, INFLIBNET, DELNET, NISSAT, INSDOC are making efforts to provide training opportunities to library professionals. Libraries need to identify their specific training requirement for the staff as well as users. This will help them to implement TQM.

4.11 Common Involvement and Commitment

TQM can not be implemented only by librarians but by the entire staff working in respective libraries. It requires common involvement and commitment. TQM philosophy and practices give equal importance to all people concerned and the librarians need to provide leadership.

4.12 Formation of Quality Circles

Presently, there is strong need to form quality circles in libraries, which will help not only to implement TQM but also to monitor it very effectively. In view of this fact, the Central Library of IIT Madras has formed quality circle for specific activities like classification. The members of this group meet periodically to discuss the classification problems pertaining to micro and macro documents and also assign the class numbers for complex documents after having adequate professional discussions. This arrangement ensures real quality in classification of documents and also more professional interaction.

5 Benefits of TQM for University and College Libraries

We have seen that TQM has great potential in all areas of libraries in India. Libraries in developed countries have already initiated the process for implementing TQM. The implementation of TQM in university and college libraries will ensure the followings:

- Users will be satisfied and feel better treated;
- Excellence in library services will be achieved;
- Excellent documentation of systems and procedures will be possible;
- Substantial improvement in interpersonal relations will be visible;
- New organisational climate and culture will be generated;

- Respect for system will be generated and users can see visible continuous improvement in the services and
- Employees will develop sense of belonging, which will ensure more involvement

6 Conclusion

It can be concluded that TQM philosophy and it's practice in university and college libraries are very much relevant during current era. It has great potential to bring drastic and pragmatic qualitative changes. It is absolutely essential to implement TQM in Indian University and College libraries

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Resource Crunch in Universities and Changing Roles Through Strategic Management

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ABSTRACT

The paper aims to explore options and possibilities for securing additional sources of financial support for university system through strategic planning. There is an urgent need for increased levels of funding to universities to facilitate expansion in enrolments, strengthen teaching, research and service functions. The overview emphasises broad strategies to achieve cost efficiency through cost analysis, diversification of funding sources to reduce dependence on governmental support to achieve greater efficiency and effectiveness to succeed in the overall strategic plan. Mobilization of additional financial resources include transferring more financial responsibilities to beneficiaries, expansion of commercial activities by universities, cooperative programme with government agencies, industry and commerce and better utilization of resources. Sharing experiences and ideas through overall strategic management eventually resolve the impending problems for the survival of university education system in India.

1 THE OVERVIEW

Of the many problems faced by universities in India, some of the most serious and deep seated problem is relate to funding. Current levels of funding are clearly inadequate and there are severe limits to possible major increases in funding levels from existing sources. Yet, enrolments in universities continue to expand at a rapid rate in response to strong student demand and pressure for higher education to perform a wider range of functions. Thus, there is an urgent need to identify and attract new sources of funding and to achieve cost efficiency to prove greater effect for scarce resources.

The resource crunch has been crippling the ongoing teaching programmes and research activities. Capital expenditure on universities, reflect government priorities and has relation to economic conditions. This makes planning difficult and often leads to serious pressure on limited facilities. Efficiency of universities should not be constrained by inadequacies and should derive the profitability through strategic management of review of strengths, challenges and focussing efforts by means of assessment, vision, values with due emphasis on long term objectives and accountability of all academic and research programmes.

2 The Crux of the Problem

The India university education system is mostly government sponsored and its experience is no match to private institutions being managed in some countries. Finance for university education comes from a variety of sources—and these include direct grants from Central/State governments, subsidies from governments via student financial assistance, special research grants, tuition fees and other student fees, endowments and gifts, income generated from commercial activities and funds from foreign sources. The universities are unable to provide adequate resource to meet essential needs. The situation is becoming more difficult over the next decade with the operation costs increasing manifold bringing pressure on government budgets and this is leading to strong competition for limited resources. By far, the most important single source of finance is direct government grants and aid and detailed in the following Table 1.

Table 1: Resource Ratio for Maintenance Central Universities

University/Source	Government Central%	State%	UGC %	Fees %	Endowments %	Other %	Total %
Aligarh		0.05	93.3	5.91		0.74	100
BHU	0.49	0.03	91.6	0.62	0.08	7.18	100
Delhi			88.68	9.88	0.62	0.82	100
JNU			95.75	0.59		3.66	100
Jamia			94.9	4.24		0.86	100
Hyderabad			94.2	2.03		3.15	100
Pondicherry			90.05	9.66		0.29	100
Visva Bharati		0.04	97.6	0.56		1.8	100

There is an urgency to deal with these resources problems and expenditure and find solutions through strategic plans viz.

a Achieving increased cost efficiency

b Cost analysis

c Better management practice

d Better utilization of equipment and other resources

e Recurrent cost reduction on students

f Postponement of capital facilities to some extent

g Attraction of funds through additional sources

h Tapping the potential of research contracts and financial aids

i Sharing experiences and ideas to combat increasing costs

The annual maintenance expenditure of Banaras Hindu University of Rs. 9.20 crores during of 1981-82 has gone up to Rs. 41.80 crores by 92-93 - a steep increase of Rs. 32.6 crores in a span of 12 years. Similarly University of Hyderabad maintenance budget has gone up from Rs. 1.3 crores to Rs. 8.6 crores showing increase over 6.3 times. While this is so, the enrolment in the 12 year span remain more or less static. The item wise services expenditure in some Central universities shows that on an average over 35% of the recurring expenditure are spent on teaching staff salaries and 12.8% utilized on support staff wages and thus 47.8% spent on salaries alone leaving a balance on the other items of services. Interestingly the overall students intake and the resultant degree awarding numbers remain static over a period of 12 long year. This may be termed as a stunted growth and does not accommodate changes in tune with the growing needs of university system.

3 Finances from University Grants Commission

The finances of the University Grants Commission, the university funding government run agency, also does no seem to be encouraging as is evident from the Table 2 wherein the non-plan recurring grants have grown from Rs. 308.09 crores in 1992-93 to Rs. 450.00 crores in 1997-98.

TABLE 2: UNION GOVT. NON-PLAN GRANTS TO UNIVERSITY GRANTS COMMISSION 1992-1993 TO 1997-98

Rs in crores

Year Estimate	Budget Estimates	Revised Budget Previous year	% increase over
1992-93	247.09	308.09	18.48%
1993-94	288.82	336.95	9.37%
1994-95	323.00	345.59	2.56%
1995-96	341.82	427.49	30.45%
1996-97	465.00	465.00	3.14%
1997-98	450.00	450.00	-3.22%

Govt. of India sanctioned Rs. 95 crores additionally during 1997-98 for Central Pay Commission scales to Central Universities

Though 18.48% increase recorded during 1992-93 over 1991-92 non-plan allocation, the increase was marginal (3.14%) during 1996-97. A remarkable deficit of (-) 3.25% was the distinguishing feature during the year 1997-98. Much of the maintenance grant allocations are spent on staff wages, leaving hardly any for developmental activities of universities. Because education is a highly labour intensive industry, salaries and wages accounts for a major proportion of total recurrent expenditure. Often, it is quite high 80% to 85% in government run universities, whereas it is over 55% on private sector managed institutions in many developed countries including some Asian countries, like Korea and Philippines. In these Asian countries, unit costs are considerably less favourable in private institutions resulting in less generous staffing allocations and concerns about quality of programmes.

Often there are striking differences in funding levels and cost patterns. Universities generally, are funded at a substantially higher level than colleges. Depending on the discipline mix and staff and student ratios, universities' unit costs vary considerably. Operationally open universities are less cheaper than traditional universities, education varies considerably in many countries and it appears to vary considerably and reflect government priorities and commitments and economic conditions. Proliferation of colleges, in India, has been the serious problem and devoid of desired effect.

4 University of Hyderabad Funds Status

Much of the recurrent allocation pattern of the University of Hyderabad as depicted in Table 3 has been utilized on routine services and around 50% allocation spent on teaching and non-teaching salaries and rest of the grant expended on other routine services like hostels, hospital, student facilities, library etc. Though statistically higher percentage of utilizations noticed year after year, much of the grant has been going towards escalation and inflation and hardly any amount spent towards developmental and innovative research activities.

Table 3: Maintenance Budget Allocation and Expenditure Pattern for University of Hyderabad during 1995-2000

Activity	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
Total Budget/ Rs. in lakhs	1224.63	1550	1480	2615	2290
Admn.	222.40	240.49	265.90	352.34	382.80
	18.15%	15.52%	17.97%	13.47%	16.72%
Academic Depts	420.64	486.24	442.79	807.03	873.13
	34.35%	31.37%	29.92%	29.92%	38.35%
Examinations	9.12	9.50	13.29	17.00	17.00
	0.74%	0.61%	0.90%	0.65%	0.74%
Library	73.07	132.28	116.88	196.28	208.84
	5.97%	8.53%	7.90%	7.50%	9.11%
Student facilities	3.01	2.60	5.76	7.28	7.64
	0.25%	0.16%	0.39%	0.13%	0.33%
Scholarships	7.62	9.00	8.36	10.00	11.50
	0.62%	0.59%	1.77%	0.38%	1.99%
Hostels	70.93	80.13	90.83	127.06	145.29
	5.79%	5.16%	6.14%	4.85%	6.34%
Other Depts.	418.00	589.76	536.19	1098.01	638.80
	34.13%	38.04%	36.23%	41.99%	27.90%

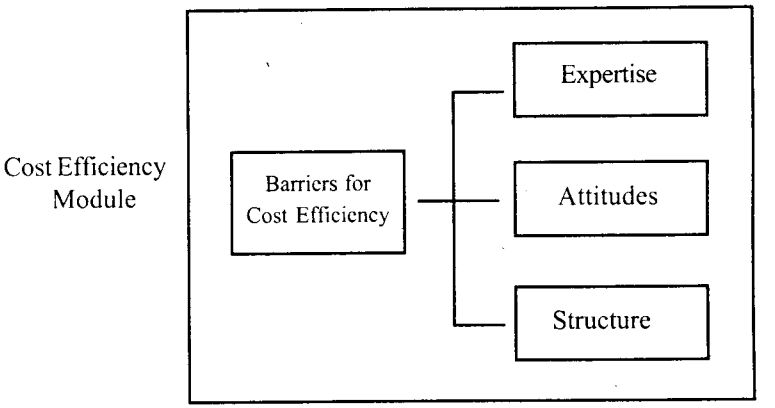
Figures in Lakhs of Rupees & percentage figures indicate the allocation percentage in the total budget

5 Broad Strategies

Competition for scarce resources and influences are pushing institutions and systems to achieve greater cost efficiency and effectiveness and to secure financial support from new sources. It is necessary to consider a realistic view of the emerging scenario and ensure appropriate funding and cost efficiency to derive the best out of the university system.

The concepts of efficiency and effectiveness are essential and related to objectives. Scarce resources expenditure by specific units in a university forms the basis for cost centre analysis and reflect absolute or

real costs. Trend data is important for analysis of costs, as any single year may have typical characteristics. Adoption of broad strategies eventually increases (a) efficiency, (b) effectiveness, and (c) helps better utilization of resources. Among the broad strategies the following might be useful to a large extent.



5.1 Development of Appropriate Management Information and Data Systems

- Students enrolment by course, dept, year of study etc.;
- Staff- level and category of employment, tenure, retirement and performance measure;
- Activities - research and consulting, funds allocated, no. of staff and students, publications, parents, intellectual associations, etc.; and
- Cost- cost of centres, departments, faculty, library, administration, residences.

Relating different variables and to specific unit costs of producing a graduate to a science graduate or first year course unit cost of one discipline to another- would help developing good information system and to expert cost analysis.

6 Cost Analysis

Cost objectives are to be derived from overall objectives of the university system—the most obvious being teaching and research. The costs are attributable to: (a) salaries, wages and benefits, (b) supplies, utilities, consumable, contract services, (c) non—capitalistic equipment, (d) travel

and indirect costs include, (e) support services, (f) administration, (g) repairs and maintenance and general facilities (h) library services. These costs should be rational and equitable including depreciation on equipment and facilities. These costs should be rational and equitable including depreciation on equipment and facilities. Teaching costs and institutional costs help as a matrix and provide work effort to various teaching programmes and support costs.

7 Budgeting Approach

Programme budgeting determines the priorities of cost objective by cost centres and resources are allocated on this basis. This takes account of costs and benefits. This is also known as performance budgeting with due emphasis of objectives, support and achievements. Comparative data on costs and expenditure is a useful projection and in relation experiences and greatest achievements in cost reduction help the development of successful institutional system. Strategic planning identifies strengths of an institutional system and help broadening the goals and objectives. Decentralized approach likely to achieve flexibility and responsibility and ways to achieve cost savings for incentives systems.

8 Efficiency Through Cost Reduction

Greater efficiency is necessarily be achieved through

(a) Better utilization of teaching facilities. Massive and expensive investments made on facilities and their scope to improved usage for teaching, tactical delay in launching capital projects optimum utilization of physical facilities including lecture halls, research space, office accommodation, library, computer centre etc.;

(b) Maximum usage of facilities and their maintenance in good order ensures good management;

(c) All equipment should be used in good working order for a minimum period of 10 years and replacement should be considered at a deserving level;

(d) Research management plans ideally achieves maximum outputs and envisages measures for research performance; and

(e) Usage of new technology in teaching, administration and research activities brings forth efficient and effective management.

Thus university's labour intensive activity and its exploration to improve efficiency leads to better utilization of resources, academic and administrative staff and their impact improves performance quality. Strategic plans increase staffing flexibility. Computerization and word processing offer possibilities for major savings on staff costs and increased outputs. External studies viz distance education learning is a growing area and it appears to offer substantial savings and through the means of major technology application. External studies invariably persuade universities, indirectly to decrease the course units offered and help resolve financial crunch to a large extent.

9 Summary

The financial crunch crisis facing university education in India demands strategic plans of cost efficiency and to secure new and additional sources of funding to overcome serious current as well as future financial problems. The severe strains of inadequate buildings, lack of up-to-date facilities and equipment and under—staffing compounded by serious lack of financial sources, increasing enrolments pressurises strategic management and achieving cost efficiency through cost analysis and other means. Strategic planning envisages achieving greater cost efficiency and attract additional financial support through better utilization of buildings, equipment, teaching programmes, evaluation of teaching efficiency, improved planning, application of improved management methods, improved training of administrators and managers. Strategies centres around increasing student fees, generating income from commercial activities and selling highly specialised technical services, cooperative programmes with industry and commerce, better utilization of university land for resource generation, means to attract gifts and endowment funds, and attraction of funds from overseas etc.

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Standardisation and Quality: In Indian Libraries

RAJNI RAINA

ABSTRACT

With the fast changing world, the nomenclature of the libraries also underwent change and became Information and Documentation Centres. This change in nomenclature has necessitated the change in the services provided by these I&DCs/Libraries. In India, we talk of quality and standardisation but we have not been able to live upto the expectations of the readers/users. The satisfaction of the reader is possible only when we provide him the expected service i.e.Quality Service. The article discusses why the quality in library service is necessary and how the application of the standards i.e. ISO 9001 can be successfully applied to the libraries which is service oriented. The article has given certain steps or suggestions, which, if implemented, can improve the quality of services provided by the I&DCs/Libraries.

1 INTRODUCTION

Libraries were there in the ancient times also though the nomenclature varied. The libraries those located in the ancient churches or temples which had a rich collection of manuscripts were rather storerooms for the use of the affluent few.Libraries in the real sense came into existence after the industrial revolution. The formation of Library Association e.g. the American Library Association gave an impetus to the library movement. It is the only Library Association which has been given the accreditation power.

Accreditation means recognition to an institution which meets the prescribed minimum standards or the rules laid down by the competent authority. Indian Libraries have not been able to satisfy this clause (i.e.

these are not accreditated) as no Indian Library Association has got the accreditation power nor have the Library Association been able to lay down the minimum standards for setting up the Libraries and more important—the criteria for providing quality service conditions by Library and Information Centres. The technical institutions have been able to take lead in getting accreditation authority. But no serious effort has been made for the Library and Information Service professionals for satisfying the readers. This has become all the more important as the word 'Library and Information Services' has assumed much larger scope than the simple and the traditional word 'Library'. There are libraries in each and every Government Department/Organisation without the ability to provide the services upto the satisfaction of the users. The result is that the profession has not been able to come upto the level whrere the authorities will be forced to think that the L&IC are the basic services of the institution. This lack of minimum standards in services has reduced the quality of Library and Information Service sector. Information nowadays is not always in the book format only but also in the electronic format. It is estimated that the 50 per cent of the abstracting services will be available in the electronic form by the year 2000 and 25 per cent of the periodicals will be in the electronic format. But these figures are only for the Science and Technology. With the rapid changes in the technology and information sciences, the need for standardisation and quality in the Library and Information Service is felt adequately in the collection and dissimination of information.

2 Pre-requisites of Standardisation and Quality in Library:

Everyone has been talking of standardisation and quality,and globalisation has made it all the more important for information flow and marketing. McGraw-Hill Dictionary of Science and Technology has defined the term Standardisation as follows:

'Standardisation is the process of establishing by common agreement engineering criteria, terms, principles,equipments and components.' These are in a layman's language—a sort of rules for running a particular organisation/institution. These standards are only the guidelines and not a penacea to quality. Standards lay down the basic frame work for smooth execution of the functioning of an organisational set up, hence they ensure:

- good quality of service
- to satisfy the needs of the users/reader
- and helps us in identifying some problem areas in the library

Standardisation helps in establishing better communication between the reader and the library in terms of services. While Quality is in confirmation to certain requirements (requirements laid down by the rules/standards), it is defined as the ability to satisfy the implied needs. In case of Library and Information Centres, quality implies the satisfaction of the readers. The Librarian/Information Officers should identify reader's requirements and set certain goals be achieved thus reducing dissatisfaction of the readers. To achieve these goals and quality in service to the readers some rules e.g. ISO 9001 can be applied to the Library and Information profession. Various studies have been carried out abroad for implementing these standards to the libraries and India should not lag behind in this field, if it is to bring quality revolution in L&IC services. However, we have to bear in mind that the quality of service in Information and Documentation Centres rests with the leader/Information Officer who ought to be a good leader, must have balance of leadership, technical skills and management skills as well. Quality and Standardisation are the two sides of the same coin. One cannot survive without the other. If we have to provide quality in Library and Information Service, we have first to streamline or follow certain standards which are pre-requisites for quality in service.

3 Application of ISO 9001

Various organisations are publishing standards on national and international level. International Organsation for Standardisation has published Quality System Standards. These standards are ISO 9000 series and out of which ISO 9001 relates to the service field and it is this standard which can be a model for library and information sector.

ISO 9001 requires:

- need based system analysis of the services provided/likely to be provided as per the culture of the organisation
- provide adequate resources (i.e. reference tools/material to be available)
- trained personnel capable of carrying out the processes.

3.1 Why Quality?

Each Department/Organisation has been established to fulfill ertain purpose or aim. The Library and Information Centres should recognise these objects and carry out its functions keeping in view these objectives. Library and Information Centres or Library and Documentation Centres

have to emphasize on the authorities that these are an integral part of an organisation and some steps should be taken to improve its services. For improving the services there must be a plan or a design which will be helpful in achieving the objectives. In the I&DC Librarians/Information Officers donot have to maintain the quality manual for achieving excellence in our product.The end product is the service professionals provide to the readers. For achieving excellence in the service some set standard rules in the form of a manual or more accurately in the language of ISO 9001 series the 'Quality Manual' is to be followed by the libraries. It is only by improving the services the librarians can impress the authorities that the library is the basic need of any organisation.

3.2 How to Achieve Quality?

Japan was the first country to bring about the revolution in the quality field and was follwed by other western countries. In the industrial sector, India too followed these footsteps and in 1996 about 1800 Companies got ISO 9000 certificates and out of which 54 are only software companies. This should be an example for the Library and Information professionals which should follow in academic, public or special libraries or Information Centres. Following points followed by a brief description are given which can help in promoting the efficiency of organisational services to a great extent:

- Environment of the Organisation
- Know the reader needs
- Designing a customised service to satisfy reader's immediate needs
- Faultless delivery service
- Providing suitable facilities and time to the readers
- Providing reliable equipments i.e. computer and software etc.
- Efficient administration
- Helpful and courteous staff
- Efficient backup service e.g. reprographic service,reference service
- Monitoring and evaluating the readers complaints and suggestions
- Feedback loops to bring improvement in procedures/operation
- Education/training of existing staff and orientation of the new staff
- Employee well being
- Remove barriers that rob people of their right to be proud librarians

- Involve everyone in the I & DC to work to accomplish the tasks
- Employee participation in decision making
- Team work and good performance (e.g. giving of incentives)
- Positive climate for career growth
- Worklife and interfacing personal life have needs that should be recognised.

3.3 Environment of the Organisation

Each Department /Organisation has its own objectives and to fulfill these objectives, it recruits the staff. Information and Documentation Centres have to function in view the particular type of the organisation e.g. if it is scientific Department, the I&DC has to render and organise its services keeping in view the scientific background and needs of the readers.

3.4 Know the Reader Needs

I&DC staff should try to understand the needs of its readers and try to help them in meeting reader's demands/need efficiently and expeditiously without wasting the time of the reader/user or the staff.

3.5 Designing a Service to Meet their Needs

The staff of the I&DC has to recognise the needs of the reader (what they want) and guide them to the proper and correct sources. Librarian should recognise that their job is to provide information to the readers pinpointedly and expeditiously. The computerised service/software should be desinged in such a way which will speed up the services and help to improve the quality of the service.

3.6 Faultless Delivery Service and Proactive Service

Services are to be rendered in such a way that the needs of the readers are fulfilled as the ultimate aim of the I&DC is to satisfy the reader. Professionals should remember that they have to find a right book for the right reader and vice-versa. We have to render services to the readers not only for the present needs but also for his anticipated /future needs.

3.7 Providing Suitable Facilities and Working Hours

Readers should be provided with adequate reading space,light and proper time for consulting the Library and Information Centres.

3.8 Providing Reliable Equipments

Reader of the I&DC or L&IC should be provided with a user-friendly and reliable library information systems/software for use. This has become more important because more and more Indian Libraries are in the process of computerisation/automation.

3.9 Efficient Administration

Librarian should try to overcome the bureaucratic hurdles. Sometimes, in most of the Government/Departmental libraries readers run here and there because of the various administrative hurdles. The readers should be attended first and given priority over other issues. Rules are for the smooth functioning of the organisation and for the benefit of the staff but not for creating hurdles.

3.10 Helpful Back-up Service

Readers should be provided with the back-up services e.g. Xerox copies of the articles or the reference service etc. whichever is demanded by the readers.

3.11 Monitoring/Evaluating Readers Complaints and Suggestions

There should be a complaint/suggestion box in the I&DC and these complaints/suggestions should be reviewed in consultation with not only library staff/library committee but also by the active participation of the reader/users for the redressal of their complaints or implementing suggestions.

3.12 Feedback Loops to Bring Improvement in Procedures

Librarian should try to get feedback from the readers in the form of questionnaires/interviews etc. which will help these professionals in evaluating their services. These questionnaires should be reviewed by the library committee. Some benchmarks should be evolved for providing services e.g. time taken for information retrieval or the time taken for the journal renewal and the receipt of the journals in the I&DC.

3.13 Education/Training & Orientation of the Staff

The new appointees should be made familiar with the working of the organisation, the readers and the books. In the libraries in the western

countries, this type of information is provided to the applicants at the time of interview or applying for a particular post. Training has been given less importance in the library profession. The Library Professionals should formulate some programmes for the training of the employees, if the profession is to bring quality in the service.

3.14 Employee Well Bring

The well being of the staff is very important. We should take steps to see that the interests of the employees are saved. They are satisfied and try to solve their problems.

3.15 Remove Barriers that Rob People of their Right to be Proud Librarians

In India L&IC or I&DC are thought to be leissure places in many government organisations and sometimes clerks are employed or transferred to run the I&DC. The I&DC professionals should oppose such moves because such moves are really adverse in general and to the efficient delivery of services in particular. The Library and Information professionals should feel proud in serving the community and the profession as well.

3.16 Involve Everyone in the Library and Information Centre to Work to Accomplish the Tasks

Everyone in the I&DC should be involved in accomplishing the task fixed by the higher authorities for fulfilling the objectives of the organisation of which it is a part and parcel.

3.17 Employee Participation in Decision Making

When there is any major policy change, the staff/employee should be encouraged to take part in the decision making process. This way the staff will have a feeling of being an important part of the organisation.

3.18 Team Work and Performance

I&DC should always work as a team and those whose performance is good, they should be given incentives or rewards to boost up their morale.

3.19 Positive Climate for Career Growth

I&DC staff should be given proper promotional avenues: otherwise the staff member will suffer from loss of morale.Selection and promotion should be purely fair and on merit.

3.20 Work-Life and Personal Life have Interacting Needs that should be Recognised

If there is any problem whether personal i.e. related to promotion etc. of the offcial, the librarian should try to solve that and help the staff member to overcome the problem. This, though not directly related to the work-place or the service,has a direct bearing on the productivity of the staff. Hence it is equally an important factor for promoting the services of the organisation.

These are some of the basic requirement or the standards for different types of libraries e.g. academic,special or public. However the allied parameters would depend upon the nature of the organisation. Whatever be the type of the library, the aim of the organisation and the need of the readers, the ultimate aim of the professional is to satisfy the reader and it is here where the quality of service is assessed.

3.21 Assessment of Quality

Here, it will be argued as to what is the criteria and how to measure or assess the quality.Certainly Librarian will have to recheck what they have achieved.The following are a few steps to check or assess the quality:

Inspection: Inspection is a criteria to determine whether the books are acceptable to the organisation or the users or not.At the time of purchasing books from suppliers Librarian can check whether these are the titles needed by the library or not: and the alien or the duplicate titles can be returned. Inspection should be done by a senior member or the experienced member to avoid errors. The aim here should not be to find faults but to improve the productivity or the service.

Quality Control: Errors can be detected in internal process e.g. checking of book purchase requests or incoming books. This may be called a detection step. There are three ways of purchasing books for the Library & Information Centres.

- On standing order
- On demand
- On approval

Some L&IC or I&DC get books from certain reputed publisher whenever they publish any new publication. Librarian cannot check the duplication or send back the publication. The publication is to be retained in the library or the I&DC. However this system is not commonly adopted. The most widely used system is that books are either procured on demand by the reader or on approval.In both the cases, the ultimate scrutiny is done by the user and the committee only: and it is here that the Librarian has to be very careful in procuring books. Librarian has to scrutinize the purchase of the book right from the requisition stage or from receiving the book in the library on approval

- check who has requested the book if it is already in the Library
- check the year of purchase and edition
- if it is not in the library check whether the book is already ordered
- check the order slips and confirm its latest edition available in the market
- if is already ordered/received in the Library, check the book in the processing section
- check its price, conversion rate, supplier etc.
- all these steps are detection steps and it is here librarian can keep the collection upto the satisfaction of the readers. This procedure is to be followed continously and it is this continuity which provides quality assurance in our service.

Total Quality Management: There should be total commitment by the library management &the I&DC staff to achieve the goal fixed by the authorities, the library staff should provide dedicated service to readers, work as a team and break the inter-departmental barriers and give priority to the needs of the readers. There should be training and developmental programmes for the staff for upgrading their knowledge and skills.

4 Conclusion

Quality in every field is necessary in view of the globalisation and Library and Information profession is not an exception: and it has to be achieved in our services also if we have to survive and surpass the barriers in providing the service. For this, training of the library and information personnel is very important and the department/organisation should recognise to lay aside its resources for training activity and the staff should identify their own immediate training needs and the long term training needs. Staff should have a feeling in achieving/realising the goals of the department/organisation and should take pride in their

contribution to the goal. Library and Information Centres should take steps or evolve measures to make I&DC service play a very positive role in the organisation and society. Library Associations should come forward and provide short/long term training courses to the professionals on a much higher frequency.

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Strategic Planning of Information Technology in Agricultural Universities

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ABSTRACT

The existence of an information management strategy gives long term confidence in the direction of development, cost-effectiveness measured over a long term and stability in infrastructure of the SAU and its operations. The paper views that the delay in achieving the objectives of Agricultural Research Information system Program is the lack of a foolproof IT strategy and argues that in the process of developing information strategy; information component should be well understood if benefits are to be derived from that. It explains information technology and its application in an SAU in the wider issue of information systems and information management which are IT based. The study establishes that in strategy evolving factors which ensure optimal choice of target applications and impact on the choice of successful applications implementation are to be recognized. Hence a framework and an understanding of the scope and aims of the strategic planning exercise by librarians, information scientists and all others who are involved is essential.

1 INTRODUCTON

In agricultural sector a significant development in post independence period was establishment of agricultural universities in the States. The idea of establishing agricultural universities in states was contained in the report of the first Education Commission headed by Dr S Radhakrishnan. The concept of an agricultural university was based on the promise that research, teaching and extension activities should be fully integrated and geared towards the solution of the farmers problem.

There are presently 29 SAUs in different parts of the country. The basic objective of ICAR support to them was to improve agricultural and research standards within each agro-ecological region—as three fourth of India's population has been living in the rural sector and in their economic development lies the development of the country.

Agriculture and related fields also experience developments of an unprecedented speed which results in information explosion. The optimum utilization of the developments and the knowledge so generated necessitates efficient information management that can enable quick and timely availability of required relevant information. Thousands of scientists working under State Agricultural Universities (SAU), Colleges, Regional Agricultural Research Stations, and Krishi Vigyan Kendras under it are engaged in agricultural research and transfer of information and knowledge to the farming community of the State.

2 Importance of IT

Information Technology (IT) is here used as a generic term for convergence of computers, telecommunications, electronics and information/knowledge organization and retrieval techniques developed in library science and the resulting technologies - is now in many senses of capital importance. There is a sheer size of IT industry and expenditure on IT in the SAU's, traditional universities and other institutes. The high availability of goods and services on the IT market, needs to be addressed as a more central issue in management thinking and work organizations than ever before. Together with rising expenditure trend it also rises ever more urgent questions, including: what are organizations doing with IT, are the equipments and systems acquired satisfy the specific requirements of applications planned, how are we disadvantaged without IT, how can performance and/other competitiveness be improved with library and information science and technologies.

On size of organizational expenditure and on rising trends in the expenditure alone, the financial aspects of IT have become a critical management responsibility and focus for attention in work SAUs and other organizations. IT is of capital importance in a deeper sense. This is its large potential impact on organizations. How IT is applied can have massive implications. Many agricultural research institutes, other universities and organizations in developed countries are already highly dependent on IT. This needs priority attention from those responsible for managing SAU's and other universities and institutes. Information based assets and the capabilities they offer, embodied in people, technology

and/or their combination may well form a core competence in many organizations, producing ways of differentiating the organization in terms of both offering and performance.

Another meaning contained in the phrase of capital importance presents itself. Given the large and rising expenditure on IT and its potential critical importance, clearly the evaluation and control of IT investments becomes a vital management task. There is a more fundamental issue that arises at this point. IT is used hereto refer to the supply of information based technologies. What matters however is how IT becomes translated into Information Systems (IS), that is organizational applications, more, or less IT based delivering on the information needs of the organization and its stake holders. It is the evaluation of IS investments that becomes of capital importance. It is reinforced still further when the evidence on all issues of information management strategy are taken into account.

- there is very wide questioning and uncertainty about whether IT/IS investments are actually paying off. The abandonment of earlier VSAT and equipments which have become obsolete even before they are installed by some institution is an example.
- there is accumulating evidence of difficulties in and also of indifferent IT/IS evaluation practice.
- much management attention: focus on the critical prioritization and feasibility stages of IT/IS projects, even if less attention is paid to subsequent possible evaluation stages and evidence and hence weight is upon getting evaluation at these early stages. Yet there is much evidence showing inappropriate techniques and poor processes being used.

There is a lack of understanding of IT as a major capital asset in SAUs and other organizations. While the annual expenditure on IT may receive detailed attention amongst senior managers as well as IT directors, there is little awareness of the size of the capital asset that has been bought over the years. IT and the information assets underlines is merely seen as a balance sheet item, a fixed asset. Too often like people IT is seen as an expense, and treated as one. If the cost of accumulating such a potential asset were understood, information asset may well be less under managed than they are at present. Clearly, improved evaluation and control again have rules to play here in bringing the critical issue of the cost of this IT/information asset as well as its potential value, to detailed attention of management.

2.1 Situation in Agricultural Universities

Information being the most important resource for development in agriculture also SAUs require efficient information systems. ICAR Research Institutes and other organizations engaged in agricultural education, research and development also require information systems. Hence in 1995 ICAR established Agricultural Research Information System to strengthen the research information base with funds from National Agricultural Research Project. It has two main components, creation of infrastructure for providing electronic connectivity and creation of Management Information System and computerized electronic databases of Indian research findings in various fields of agriculture and allied areas. The ARIS project has provided support to all SAUs for their information system development. These information systems at SAUs are intended to serve the following groups of users.

- Those at managerial level in agricultural research institutes, Vice Chancellors, Deans and Directors of the SAUs, Secretaries of Agriculture and Rural Development Departments etc.
- Scientists working in extension and development departments of the above institutions and
- farmers who require information on input/output prices, market information, location improves varieties, cattle feed, improved techniques and methods etc.

If the SAUs which have received the ICAR support under ARIS for information system development had good Information Technology Strategy and the funds were utilized effectively the information systems at SAUs would have achieved

- a campus network and digital library accessible throughout the campus and also a WAN if it is multi campus institution and had completed at least two years support under ARIS;
- improved research planning supported by the information flow;
- facilities for ensuring the avoidance of duplication of research and extension projects and programmes;
- better coordination and linkages among rural development agencies and banking institutions;
- effective information sharing mechanisms and
- electronic interface among development agents and farmers.

But we can find that none of the SAUs have effectively utilized the funds. Average Support already received by each SAU comes to about

one crore which is more than sufficient for maintaining a 24 hour accessible site with library information and other data about the university. But not even a single SAU has developed such a site that is accessible. Such sites using mainly state government funds and due to the enthusiasm of IT processionals who accidentally happened to be their when managers with good IT awareness were there have come up at one or two agricultural universities but could not be launched due to the interests now playing in utilizing of funds for IT which is French and German to decision makers. As this enables going on spending without achieving any results commissioning any system at optimal cost is a threat. All these points towards the need for an IT strategy in SAUs.

In the State Agricultural University (SAU) formulating a strategy for Information Technology (IT) is essential for the optimum utilization of the resources spent for Information systems as well as the information resources available to it which will in turn result in the effectiveness of the functioning of the university. The importance of strategy formulation for Information Technology can be achieved only when its technological issues are viewed in a wider context of the SAU where they are to be applied. Forming an overall information system management strategy will cover Information Systems (IS) and Information Management (IM) as well as technological strategies all of which are to be considered together.

Preparing an integrated information management strategy brings into consideration. three main issues; information technology, information management and information system. These three aspects together form an integrated strategy on information handling in an SAU. If we examine the above factors in detail, we can understand that their dimensions, their subsystems etc. are not similar. But the management and cultural and organizational dimensions cut across them.

3 Quality of Research

Information Technology's contribution to quality improvement, efficiency and effectiveness of higher education and research is a widely accepted fact. The elements in educational and research system that can be highly influenced by the use of information technology are quality improvement, avoiding repetition, up-to-dateness, cost effectiveness, effective teaching, convenient learning, avoiding loss due to duplication in research, variety of support services, operational feasibility and improved management.

The possibilities offered by IT for transfer of information has now

made learners to question the obsolete methods and outdated contents of courses offered, as well as research projects suggested from above which indirectly affects quality improvement in education and research in agriculture also. Agricultural education and research systems like others are made up of a variety of functional activities. They are library and information service provisions, teaching, research, extension, development, finance, personal policies etc., which are crucial. Ensuring co-ordinated strategies to support these aspects of an SAU is of significance in preserving a healthy academic and research environment over time. Alternative option to academic administrators is to operate on a day to day basis with little strategic support to their decision making. This will result in short termism, which is divisional or localized sub optimal policy and has a risk of failure in long term. An examination of the functioning of our SAUs can show that they lack strategic thinking. SAUs like other universities are also usually administered by political opportunists who are appointed for a very short term, and the staff, students and public has no say until it will be too late. In many SAUs we can see such inefficiency, and loss of investments in IT which have resulted from the failure to plan long term and to appreciate the wider context in which information technology should be managed.

Information technology related strategies are very important requirement in an SAU also; for education and research management policy for the survival in a world in which tons and tons of knowledge products are out every nano second. The need for co-ordinated strategic thinking should pervade in an SAU's administration and should be applied as much as to other domains as to library and information system management and technology. Teaching methods, research projects, library and information services, personnel, finance, and organizational strategy should be developed parallel to IT strategy if there is to be a balanced development. There will be no result oriented system without a strategy. But despite the fact that information and the document holdings of the library form part of the most vulnerable assets of an SAU or agricultural research institution, they are frequently the victims of adhoc planning and piecemeal development rather than being incorporated into strategic thinking. Perhaps with the present concern and enthusiasm in education and research systems for Information Technology; various information systems have been established. INFLIBNET, ERNET, ARIS etc. are founded on a realization that coordination of information, its acquisition, organization, dissemination and utilization are crucial to a university or research system's timely response to developments and changes going on all around and the resultant needs of the society.

Systems like ARIS and INFLIBNET have Management Information System (MIS) as part of them which respond to the senior educational and research administrators to have required management information at their control through an effective mechanism for accessing and coordinating functions across departments and campuses. These MIS also requires to be viewed in the context of a broad integrated information system. MIS can not be set up independent of other departmental information systems.

4 Need for Strategy

The existence of an information management strategy gives long term confidence in the direction of development. It enables support for long-term educational research and development goals and targets. Information management strategy enables cost-effectiveness measured over a long term and stability in infrastructure of the SAU or agricultural research institution and its operations. With a strategy; development is not limited to short term. It goes on as continuing incremental improvement of systems, services and operations built on a secure base and a solid structure.

In the process of developing information strategy; information component should be well understood if benefits are to be derived from that. Otherwise results can be negative. A misdirected information management strategy based on insufficient analytical work lacking realism or narrow in its genesis but too broad in its application, and without involvement of library and information science professionals, can disregard major aspects connected to information segment which is vital, can cause conflicts of interest, confusion and disaster in the long run. An information technology strategy is well developed when the process is linked as should be the outcome with other management strategies of the SAU especially library and information service management strategy which is to form the main component.

Information technology and its application in an SAU is wrapped up in the wider issue of information systems (IS) and information management (IM). IS and IM may be more or less IT based. In strategy evolving we have to recognize and apply our self to a whole range of factors which ensure optimal choice of target applications impact on the choice of successful applications implementation, and provide the chance for the long term realization of the chosen developments. Hence a framework and an understanding of the scope and aims of the strategic planning exercised by librarians, information scientists and all others who are involved is essential.

5 Information Technology Manager

Important issues in information strategy formulation in an SAU are who should form it, when it is to be done and how. Choice of the person who will conduct the formulation exercise is crucial. Many barriers may be imposed on the manager who will be entrusted with research and strategy formulation for information system management. This may be related to his experience and expertise, rank, sphere of influence or accessibility to vital facts or opinions. This can happen even if they are higher level officers next to the Vice Chancellor of SAU or Director of ICAR Institutes. If the task is to be completed successfully it needs to be managed by University Librarian or Director of LIS in universities or Deputy/Asst. Directors of Library, Information and Documentation Divisions in research institutes or some one with a broad range of competence similar to them who have wide access in the University at all levels. In India Nagpur University and some others have accepted this fact and are far ahead of others in IT implementation.

If competent Librarian with good exposure to developments in IT is not present in the system and can not be made available immediately a consultant from outside the organization can be considered though such a person can never be a substitute for the University Librarian or head of library/documentation divisions.

Many unexpected problems can restrict the scope of the strategy in broader context. The reasons can be poor' choice, inability of Librarian or for manager, of terms of reference etc. and lack of understanding at Vice Chancellor/Director level above. The complexity of SAU's or other institute's organizational set up also will be an affecting factor.

6 Components of IMS

There will be bidirectional relationship between Information Technology (IT), Information Management (IM) and Information System (IS) Strategies which are the components of Information Management Strategy. In different SAUs or research institutes different plans will be there. In some decision making will be from top down. i.e. IS to IT. Requirement are intimated to IT managers from above without considering the benefit of the system integration, use of new technologies and development of long term architectures. In a few organizations in India bottom up initiative can be found. Initiative and control of IT development plans are kept to the unit of Library and Information Systems and the higher level is concerned only with budget approaches. A balanced scenario in

which top down initiatives are mixed and combined with technical initiatives, innovation and bottom up service development where a continuous exchange of views takes place is more advisable.

There are many situations where the IT function is fully integrated into the planning process. It can significantly influence the quality of research and education of an SAU as well as its position in the State's development. This may be through the timely availability of information on current research, efficient processing and speedy dissemination made possible by the information system.

The relations between information system and information management components and between information technology and information management components are to do with the issues of absorption of policy directives into the organizational structure, cultural impact and cultural constraints on new systems and the impact on and the impact of management in the SAU. Relation of information system to information management involves consideration of the impact of application systems on organizational topology/management relationships and roles whereas IT and IM interact at the level where Information Technology and Information Technology functional area are itself folded and incorporated into the organization.

6.1 System Strategy (ISS)

Information System (ISS) Strategy describes the relevance of the educational objectives specific to an university, the academic culture, targets, its comparative position among other universities etc. to the development of information systems. It is most closely allied to and should be aligned with institutional strategy. It is influenced by the positioning of the University other universities and institutes in the region with same areas of specialization, etc. and the way in which these aspects are considered by the top management as well as information management. It is formed on the basis of perceived opportunities short and longer term. It should facilitate the connection between political crisis and operational activity. The emphasis in determining information management Strategy is at top most level in University. This top down view should be closely linked to the bottom up analysis and contribution based on presently perceived capabilities and resource availability. Beyond the library and information scientist, information system strategy formulation is not the sole responsibility of the executive nor of the other end. But access to those who determine the direction in which university should move is essential. The executive that may be a group or person

which determine the direction in which university should develop will be forcing upon their political will on the institution. Information systems strategy is associated with the interpretation of political imperatives and transformation of them into operational activity.

6.2 Management Strategy (IMS)

Information Management Strategy (IMS) is concerned with management and staff, operational control activity, organizational structure and planning. It is related to the topology of management, which means relationships, manner and scope of information technology, operational control and the way in which IT affects or will affect the functioning of the SAU. This strategy is not restricted to libraries or IT departments alone, but also applies to way of management procedures, in user departments influenced by IT. In educational and research institutions like an SAU information technology has to be seen as impacting on and fully integrated with the academic and research administration, teaching, learning methods, support services and many functions. Formulating IMS can result in reevaluation of existing departmental and functional responsibilities, organizational set up and procedure's interdepartmental boundaries, channels of communication, nature of work of scientists, teachers and librarians and their responsibilities. IMS can challenge organizational structures, existing methods of control, management responsibilities and departmental protectionism. How, desirable changes can be identified and how they take place, is a matter of planning and management involvement which passes across departmental boundaries and beyond the library and information service or IT department.

6.3 Information Technology Strategy (ITS)

Information Technology Strategy (ITS) will describe the operational imperatives of Information Technology Department. In SAU's IT Departments should be modernized library and information service management units. It will be concerned with the heart of the information and knowledge resources, the engine, and the services or products it generates, and the mechanisms that are behind them. It includes consideration of the communication systems for access and down loading information, digital storage facilities, packages for organizing and managing huge quantum of information, search enquires and normal computing and data processing facilities and application programmers which are essential in all departments. Issues involved in IT strategy formulation are complex.

Here also the exercises has to go beyond an SAU's library boundaries for completeness. Technological in turn, security and the channels of communication with users are all integral parts to be considered.

IT strategy is also deeply concerned with content, its definition, its flows, utilization, value, availability and security. It is strange that the content, its characteristics and usage is so casually considered and handled in most of the SAUs and other universities and research institutes , not to say in so many institutions whose concern itself is IT. Reports generated by Management Information Systems support many executive decisions. These may be operational decisions, decisions on academic and research programmes, development decisions, budget etc. Even though all that may affect an SAU's standing or repute there is frequent evidence of inconsistency in data definition, presentation and storage of this basic resource which underlies and underpins the reporting system that contribute to university's success or failure.

In most of the SAU's there is a tendency to identify IT strategy, with considerations of hardware/software purchase, software development, OS, communication protocols and other technical matters being at forefront of management planning. Some SAUs have formed Directorates of Information Technology for centralizing computer purchase and after that are trying to frame objectives for the directorate to make it stand. They are important but they are only tools of the system.

7 Importance of Strategy Formulation

Study of strategy formulation gives an understanding of the exercise we have to do, a frame work for the application of real and worthwhile analytical techniques that are both top down and bottom up in their approach. They can give a checklist for the practitioner. They can point out the interaction between conventional IT domain and the users that should be studied and managed in the migration process from the system concept through to implementation.

By determining strategy for an IT system, the hardware architecture, the communication facilities, application priorities, data definitions and so on; one is not by that alone presenting a comprehensive strategy for the handling of an SAU's information system. There are many things more than that. There will be an overlap between IT application selection and the need to support SAU's objectives. IT enables marketing of information services as well as the information support promotes the marketing of consultancy services and products of the SAU. There will be a clear and acceptable projection as to the pay off, the return on the

investment or the pay back period very much like in any productive organization.. In the initial phase of IT evolution benefits are of the immediately obvious. As the impact of IT becomes more and more and systems becomes more sophisticated benefits begin to be questioned. Business IT strategy becomes essential in SAU also if proceeding with IT is to be justified. As an SAU achieves success with IT and IT begins to impact and also underpin, it becomes critical and even the most important factor supporting university's activities. It will be come a critical aspect to

- make possible increase in efficiency of organization, teaching, learning, research extension, development and all other activities and function;
- prevent costly disastrous or misfortunate discontinuities either in the processes, technological upgrading or communications;
- bring in up-to-date course content, methods of teaching, research projects on aspects essential for the community etc. without the technology being a constraint and
- ensure quality of education, research and systems alignment.

In an SAU or other organization that has not experienced in any depth the potential of IT opportunities development at the initial stage can give high motivation and an exposure to the advantage of IT. But when an SAU reaches IT maturity advantages will reduce. Strategic planning of information systems in an SAU will avoid need for beneficial chance elements for success. In strategic environment one is better able to steer around some of the traditional stumbling blocks to successful implementation of information technology.

7.1 Planning Model

For describing the way in which the process of information system development can be aligned to university's goals a structured model of the strategic planning process can be helpful. A model prepared by KAU to the library and information management system consists of two levels. First is dimension of the university in its totality. The second is the operational or departmental level which is the statutory department of the university for managing library and information services. The time scale will depend on various factors, like the willingness of executive to recognize the need for long term thinking, the relevance of utilizing new technologies in education, research, extension and development activities and the pace of change peculiar to the SAU considered. First for

topdown approach at top most level an understanding of the present activities of the university, its strength, weakness, the environment in which it operates, the academic culture, projects and functioning is essential. This is a difficult task. Then with the help of this top level plan, understanding of the unwritten and documented objectives of the university projections and views of various influencing factors; a plan is to be drawn. Then the third stage is to be defined for five or more years hence. Here maximum bottom up IT to IS input becomes possible. There will also be input to the systems from outside, like other universities and research institutes, software developers and scientists. The output from the model is migration path. It will begin from a well defined point which will define the present set of systems, the existing organization and management characteristics. It will broaden out overtime, but with a consistent architecture supporting the options at extremes. The migration path will be flexible in its definition and responsive as one progresses through time. An information system strategy will not be static. It has to be revised periodically in order to update the assumptions and to respond to internal as well as external changes.

8 Important Factors

Of the various factors the following should be recognized as important by the person are group analyzing and preparing the strategy.

- ITS and IMS the components of Information system.
- The individual or team preparing strategy should have skills for presentation that will be accepted and should recognize the interaction of various issues which stretch beyond simple consideration of the technology.
- The increased level of risk associated with systems investment if any not considered during strategy formulation.

Broad management perspective of the activities of library and information system, as well as activities of all other departments of the SAU is essential for strategy formulation. This require second level managers that is those in the level of Registrar, Comptroller, Directors whose functions cut across department, Director of LIS, University Librarian or Deputy Directors who deal with information and documentation etc. But these managers can be least spared from their normal duties. Of these the most apt manager will be Director of Library Information System, University Librarian or Head of Library/Documentation Division for it is their responsibility to manage the library and information services of the

university or institute. Ninety five percent of the information stored will be under their control. It will be their responsibility to extend services across administrative or subject departments under other managers of his equivalent status. 90 per cent of the use of computers and communication systems will be to provide such services or access services of their unit. Hence, Heads of Library or Documentation Divisions are the apt persons to formulate Information Technology Strategy or to lead the team managing it. They have the liaison with the executive and are members of the Academic Councils, Boards of Studies and management group of the SAU or the university or institute so that they will be able to understand the need of the system and formulate it with total concept and according to the actual requirement.

The putting up of scientists from other fields except library and information science, information technology or computer science or other people from lower level of some unit which has nothing to do with information services or have the required specialization will affect the university's successful existence and will also waste crores of rupees spent for information technology aspects. Strategies also can not be developed on an additional duty basis. This attitude of giving an indifferent unimportant role to information strategy can not be changed unless the people at the top who still regard library and information systems as an unimportant appendage necessitated by conditions to get grants, and it as something to be introduced as lot of funds for that can be flown in are to be educated to understand the power of information. Another thing librarians have to note is they have to under go the metamorphosis into information managers absorbing current technology. If they are to retain credibility they should be able to provide solid services using IT to the scientist and students at different stages of development according to the capacity of each development stage. The aim of long term information system plan is not for delivering a fully integrated system in a prescribed period. The plan should be able to cope with short term requirements of education, research and extension, harness available possibilities and meet existing mandatory requirements efficiently for all such things. But a long delay for the fully developed information system will also waste resources spent.

8.1 Flexibility and Adaptability

Successful implementation of strategic planning and the expected functioning of the system at an SAU will necessitate flexibility and adaptability which should be there in the sense listed below.

- as there is no fixed formula applicable to all SAU's, universities or institutions, the strategic planning exercise to be conducted should be very carefully considered;
- the proposed strategy should be flexible and should permit adaptation to changes necessitated in changed situations and time and
- the final design presented should be such that it is not invalidated by any predictable changes in university's strategic emphasis or foreseeable development in technology to be used mainly in its library and information systems.

8.2 Priorities

The following criteria can be used for assessment of applications and projects that should form part of the eventual strategic plan.

- in regulatory terms i.e., to meet requirements of a statutory regulatory order or in defensive terms i.e., as a response to current situations and developments is the project mandatory. Is the project providing infrastructure for other parts of the strategic plan;
- is the internal dependence to be recognized in the ordering of projects and
- is the organizational changes anticipated or required which need system development.

The real value of strategy formulation for Information Technology in an SAU is to be found in the context of the university's information management strategy. The overall message of strategic planning in the information system arena is the need to take an holistic view of the role and term validity in its development into practical working systems. The users are not just recipients of new applications but they are party to application planning and development and will be affected directly by organizational changes and management restructuring that may need to flow from these developments. Even within strategic framework short term imperatives can be handled effectively.

9 Lessons to be Learnt

A review of the existing information systems in SAUs and other organizations can point our attention to the following aspects.

- the record on controlling and measuring IS investments has not been impressive. This is shared by most universities and other govt. and private organizations. Managers find it very difficult to justify the

costs for purchase, development and use of IT.

- controlling of IT investments is done only at Library and Information Service management Divisions which actually require it but in other divisions in effect huge quantum of unnecessary investments are made which remains spread and invisible.
- the difficulties in measuring benefits and cost are found in universities, government and private institutions, to be major constraints to IS investment.
- there is a strong correlation between control and measurement of IS and higher effectiveness with IS however measured is there.

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User Needs and Evaluation of Library Resources with special Reference to the Libraries of ICSSR Institutes in Madhya Pradesh

SUNIL SINGH CHANDEL

Abstract

The present paper is based on the opinion of the users of the libraries of ICSSR Institutes in Madhya Pradesh. Dr. Baba Saheb Ambedkar National Institute of Social Sciences (BANISS), Mhow and Madhya Pradesh Institute of Social Science Research (MPISSR), Ujjain are two ICSSR Institutes in Madhya Pradesh. The survey was conducted to know the users' views regarding the available information & resources in the libraries for their use and the effectiveness of the services rendered by the libraries to the users.

1 Introduction

The Indian Council of Social Science Research (ICSSR), is an autonomous organisation under the Ministry of Human Resource Development, Government of India, New Delhi and was established in July 1969. ICSSR is an apex body working in the field of social sciences. It provides grants, inter alia, to the social science research institutes for research and development activities. There are 27 research institutes working in India spreading over in 15 major states of the country.

2 Baniss

Dr Baba Saheb Ambedkar National Institute of Social Sciences (BANISS) was established in 1988 in Mhow, which is the birth place of Bharat Ratna Dr. Bhim Rao Ambedkar.

The BANISS library is named after the name of Mahatma Phule in

1998. Earlier it was known as Dr. Baba Saheb Ambedkar Information Centre. The BANISS's library has a good collection on Ambedkar's thought, development of scheduled castes, scheduled tribes and backward classes, rural development, women and social justice.

3 MPISSR

Madhya Pradesh Institute of Social Science Research (MPISSR) was established in 1983 at Ujjain and came under the umbrella of ICSSR in 1993. MPISSR's library is an infant one but has a reasonably good collection of documents like books, periodicals/journals, monographs, working papers, theses, dissertations, abstract papers and annual reports. Most of the material is on the thrust areas of the Institute i.e. rural development, panchayat raj, tribal development, environmental studies, scheduled caste studies, and social problems.

A statement of the facilities available in the two libraries is being given hereunder

TABLE 1: LIBRARIES UNDER STUDY

S No	Infrastructural Facilities	BANISS Library	MPISSR's Library
1	2	3	4
1	Books	16000	4000
2	Journals	160	70
3	Phone	07324-72350 07324-73186 07324-74377	0734-510978
4	Fax	07324-73645	0734-512450
5	E-mail	bannis@hotmail.com	mpissr@vsnl.com
6	Xerox Machine	1	1
7	Computer	2 pentium II	4 pentium II
8	Printer	1	2
9	Scanner	1	1
10	Software for library	CDS/ISIS	NIL
11	Computerisation of library	Partially	Not Computerised
12	Working days	5	6
13	Working hours	10 am to 5 pm	10.30 am to 5.30 pm
14	Library building	Independent	A part of the main building is used as Library

Contd.

Contd.

1	2	3	4
15	Users- Faculty	8	5
	Research Scholars		
	M. Phil	20	-
	Ph.D.	65	6
16	Staff	Professional (0)	Professional (1)
		Non - Professional- 4	Non-Professional-0
17	Cataloguing	AACR II	AACR II
	Classification	DDC	DDC
18	Lending service	yes	yes (Restricted to library premises only)
19	Resource sharing	yes	yes
20	Bibliographic service	Women, SC, ST, Ambedkar's thought	District Planning & Administration, ST
21	Reference service	yes	yes
22	Newspaper clippings	yes	yes
23	Indexing	BAIC Index	NA*
24	Current contents list	yes	yes

NA* = Not Available

The need for information is an objective demand of the user i.e. *information need is oriented towards reality, practice and task.*[1] The various related terms with need are want, requirement, desire and demand etc. Users are one of the most important constituents of a library. Therefore, it is necessary to know their views regarding library resources and services and to what extent they are useful for them. A survey study can prove to be useful one to know their requirements to make an overall evaluation of the various aspects relating to the libraries and suggest based on that the steps to be taken to make the libraries more efficient.

4 Methodology

The scope of the study is the libraries of ICSSR Institutes in Madhya Pradesh i.e. Mahatma Phule Granthalaya of BANISS, Mhow and MPISSR library, Ujjain. To know the users' opinion about the use of library resources and the services provided by the said two libraries, a survey study was carried out. As the present study is a micro study of the libraries, an attempt has been made to select only 10 users from each of these libraries. Therefore, a sample of 20 users was selected and questionnaires were administered. Data thus gathered were tabulated and thereafter analysed and interpreted accordingly.

5 Visits by users

The following Table gives information about the visits by Respondents in the two libraries:

Table 2: Visits by Users in BANISS and MPISSR

S. No.	Visits	Number of Respondents		
		BANISS	MPISSR	Total (Percentage)
1	Regular	7 (70)	10 (100)	17 (85)
2	Seldom	3 (30)	0 (00)	3 (15)
	Total	10	10	2 (100)

The above table shows that 70 percent of the respondents visit regularly the BANISS library. Where as 30 percent are not visiting the library regularly, whereas 100 percent users from MPISSR library fall under the category of regular users.

Thus, it can be stated that data relating to the visit of the users is encouraging in both the libraries. It is quite obvious that the majority of the users are making good use of the library.

6 Relevance of Available Reading Material

The satisection will the reading material has been analysed and presented the Table 4

The respondents response to the relevancy of the reading material has been tabulated in Table 3.

Table 3: Relevance of Reading material in BANISS and MPISSR Libraries

S. No.	Relevancy	Number of Respondents		
		BANISS	MPISSR	Total (Percentage)
1.	Highly Relevant	6 (60)	8 (80)	14 (70)
2.	Relevant to Some extent	2 (20)	2 (20)	4 (20)
3.	Not Relevant	2 (20)	0 (00)	2 (20)
	Total	10 (100)	10 (100)	20 (100)

The above table displays the views expressed by the users about relevance of the reading material available in the libraries. It can be seen from the table that 60 percent and 80 percent respondents from BANISS and MPISSR's library respectively have revealed that the reading material is highly relevant to their needs. At the same time 20 percent respondents from both the libraries viewed reading material is relevant to some extent only. There are 20 percent respondents who have mentioned that available reading material is not relevant to them and all such respondents are from the BANISS library.

TABLE 4: SATISFACTION WITH THE AVAILABLE READING MATERIAL

S No	Satisfied	Number of Respondents		
		BANISS	MPISSR	Total (Percentage)
1	Yes	6 (60)	8 (80)	14 (70)
2	No	4 (40)	2 (20)	6 (30)
	Total	10 (100)	10 (100)	20 (100)

The above table illustrates that 60 and 80 percent respondents from BANISS and MPISSR libraries respectively are satisfied with the reading material available there. It can be noticed from the table that 40 and 20 percent respondents in BANISS and MPISSR respectively showed their dissatisfaction over the available reading material as they found it as not adequate.

Information is a powerful tool for the development of the society. It is a valuable commodity required for the planning, directing, controlling, decision making, motivating, forecasting, research and development activities to ensure productive and gainful operation in the respective areas. Information is available in different forms like books, periodicals, newspapers, microfilms, audio-visual materials, CD-Roms etc. The continuous growth of information has resulted into proliferation of the literature. This has laid the library personnel in a very difficult position and also their access to all theses sources of information and make the best use of them for its clientele from different disciplines.

Books, periodicals/journals, theses/dissertations, newspaper clippings etc. are various documents normally used to obtain the required information by the users of the libraries. The following table contains the responses of the users as to which source they used most.

7 Information Sources and Their Use

The data was also gathered about the use of information sources and the same has been analysed and presented in the Table 5.

Table 5: Use of Information Resources

S No	Use	Number of Respondents		
		BANISS	MPISSR	Total (Percentage)
1	Books	10	10	20 (100.00)
2	Periodicals/Journals	08	07	15 (75.00)
3	Theses/Dissertations	06	05	11 (55.00)
4	Newspaper Clippings	07	08	15 (75.00)
5	Govt. Publications	06	04	10 (50.00)
6	Non-Book Material	02	02	04 (20.00)
7	Grey/Unpublished Material	04	05	09 (45.00)

Books are being used the most as the source of reading material by the users as 100 percent respondents have mentioned books as the main source. On an overall basis 75 percent respondents using Journals/ Periodicals and Newspaper clippings. Non book material is being used only by 20 percent users.

Those respondents who do not use the information sources gave reasons for not using them. Most important and common reason mentioned by the respondents was non availability of required material in other forms of sources which they are not using. The table also illustrates that the use of non-book material like CD-Roms, cassettes is poor. Non-availability of resources is the main cause for not using same.

The use of theses/dissertations, government publications, grey/unpublished material is more or less the same by the respondents of both the libraries.

The areas identified by the respondents of the BANISS library on which enough reading material is not available are human rights, religion, gender studies, child development, labour studies, social justice, scheduled tribes etc. At the same time users of the MPISSR library mentioned the following subject areas on which availability of material is not adequate. The areas thus identified are: psychology, philosophy, scheduled caste, population studies, forensic science, political ideology etc.

Majority of the respondents i.e. 60 percent have expressed that large volume of the available reading material is in English language. As

Madhya Pradesh is Hindi speaking state it becomes difficult for the users to make full use of the material.

Sixty five percent of the respondents stated that the number of books issued at a time is not justifiable.

Seventy percent of the respondents gave their opinion that desired books in their subject are not available. Thus it is suggested that the new books should be acquired by involving the users as well.

Ninety five percent of the users expressed that library hours are suitable to them. It can be inferred from it that the suitability of library hours to the users is playing an important role in making the use of the library by the users in a desired manner.

Library is a service institution and provides services and facilities to the users required for the research, training, teaching and consultancy programmes, etc.

Proper planning of the services being provided by the libraries needs to be done systematically for the optimal utilisation of information. Providing right information to the right user at the right time is the principal aim of the library for which suitable measures are being taken by the professionals.

In the following Table various services provided by the libraries and responses there about the users have been presented.

TABLE 6: USE OF SERVICES

S No	Use	Number of Respondents		
		BANISS	MPISSR	Total (Percentage)
1	Abstracting	0 (00)	0 (00)	0 (00)
2	Bibliographic	6 (60)	2 (20)	8 (40)
3	Indexing	5 (50)	0 (00)	5 (25)
4	Documentation	6 (60)	4 (40)	10 (50)
5	Lending	9 (90)	6 (60)	15 (75)
6	Resource sharing	7 (70)	4 (40)	11 (55)
7	Reference	8 (80)	9 (90)	17 (85)
8	Reprography	7 (70)	9 (90)	16 (80)

Providing abstracting service is an important activity for the dissemination of information. 100 percent respondents from both the libraries under study have expressed that this service is not available.

Bibliographic service is very important for information control. 60 percent respondents of BANISS library use bibliographic service

whereasas 20 percent users of MPISSR library use bibliographic services. The respondents who have not used this service expressed that the service was not required by them. 50 percent respondents of the BANISS library use indexing service being provided by the library whereas 50 percent do not use the same as desired information is not available in BAIC index. At the same time respondents of the MPISSR library expressed that the service is not available in the library.

The use of different services being provided by the BANISS library is as follows: documentation service (60 percent), lending (90 percent), resource sharing (70 percent), reference service (80 percent) and reprography service (70 percent). At the same time the use of the said services in MPISSR library is 40, 60, 40, 90, 90 percent respectively.

Thus, it can be stated that the use of the services in the BANISS library is encouraging whereas the respondents who do not use the same services have given their opinion about the services that the service is not required for them. At the same time, respondents of MPISSR library are of the view that reprography and reference services are excellent whereas as lending service is restricted to library premises only. The use of other services is also poor in MPISSR's library. The reason for not using the same as it is not required by them.

8 Conclusion

Use of non book material CD-Roms for bibliographical searches should be encouraged and improved. Users survey should be conducted in both the libraries before the acquisitions/subscription of the new books, periodicals/journals so that better library resources are available for use by the respondents. Priority should be given to Hindi language in the subscription of new books, periodicals/journals etc. The users should be educated and introduced with the new information technology followed by the libraries. Library collection needs to be enriched in the following subjects: population studies, social and ethical problems, psychology, philosophy, scheduled castes and scheduled tribes related issues etc. There is a need to automise the library as early as possible. Proper training should be given to the library personnel in handling the users queries and retrieving information. There is a need to improve the library services according to the need of the users. There should be proper rules and regulation to enrich the library collection, and to improve the library services. Adequate skilled library staff should be recruited for the betterment of the library services.

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Library Vision 2010: Framework for National Policy on Libraries, Information Systems and Services

S M DHAWAN AND J L SARDANA

ABSTRACT

The paper mentions steps taken by government agencies, national professional associations and other organizations in formulating guidelines for national policy on library and information systems. It identifies the problems libraries have been facing in their growth and development. It identifies the threats, opportunities and challenges to the profession. Further, it looks at library vision 2010 in the context of problems and challenges to the profession. The vision perceives that library resource be recognised as a national resource. The vision underlines the need for developing the national resource at the level of resource libraries by subject, changing traditional libraries into electronic and digital libraries, training the trainer as well as the professionals and end users in using and adapting the new technologies. Furthermore, the paper outlines the framework for the national policy and places it in the context of directions to be pursued in realizing vision 2010. It is also placed in the context of knowledge and understanding of the contemporary problems and challenges to the profession.

1 INTRODUCTION

National policy on libraries and information systems and services has been the subject of discussion for the past few decades in the country. The subject has also generated a series of reports. These have come from the various committees appointed by the government agencies, and initiatives taken by professional associations at national level in the country. The subject has also been the topic of discussion at several

conferences held during the last decade. Despite such efforts, consensus on the subject is still eluding. In this study an attempt has been made to examine the reports and documents that have appeared on the subject till date and analyze and discover the reasons for ongoing debate on the subject. In the light of findings so made, the study plans to develop a vision for libraries in 2010, and relate the vision 2010 to national policy on libraries and information systems and services.

2 Developments on National Library Policy: An Overview

2.1 Advisory Committee for Libraries, 1957[1]

The Ministry of Education appointed an Advisory Committee for Libraries in 1957. One of the terms of reference for the committee was to recommend the future of library structure in India. The committee submitted its report in 1958. It recommended public library system at the national, state, and district level. It advocated library legislation and free library service to citizens of the country.

2.2 IASLIC Seminar, 1977 & 1979[2-3]

IASLIC held a seminar at Roorkee in 1979 on national policy for library and information systems at its 12th Conference. Earlier in 1977 it held a seminar on another theme related to national library policy at its 11th Conference. Its topic was 'Planning of national Information Networks'.

2.3 Raja Rammohan Roy Library Foundation (RRLF) 1981

The Raja Rammohan Roy Library Foundation (RRLF) appointed a committee in 1981 to draft a national policy on library and information systems. The committee submitted its report in 1982. Based on this report the Foundation prepared a draft policy statement on National Policy on Library and Information systems and submitted it to the Department of Culture, Government of India in July 1984.

2.4 ILA Conference, 1985, 1991, 1999[4-7]

The Indian Library Association held a seminar on 'National Policy for Library and Information Services' in 1985 at Jaipur. On behalf of the ILA a draft policy was submitted to the Government of India in 1985. Later in 1991 it held another seminar on 'National Information Policies and Programmes'. National policy on library and information services was also the topic of discussions and it was a sub-theme in the 44th All

India Conference held at Hyderabad in Feb. 1999. It was also a topic for discussion in the ILA Seminar at Vadodara in August 1999. Papers presented at these conferences and seminars contributed a great deal in crystallizing the ideas on the subject.

2.5 Planning Commission Working Group on Modernisation of Library Services Viith Viiith and Ixth Five year Plan

Planning Commission had appointed a Working Group on the Modernisation of Library Services and Informatics for its 7th Five-year Plan, 1985-1990. The Group submitted its report in 1984. The Report discussed the developments in the information technology and its applications in library and information services in India. Similar Working Groups were appointed for 8th Five Year Plan (1990–1995) and also for the 9th Five Year Plan (1995–2000).

2.6 Chattopadhya Committee on National Policy on Libraries, Information Systems and Services, 1985[9]

The Department of Culture appointed a committee under the chairmanship of Prof D P Chattopadhya in 1985 on drafting a national policy on libraries and information systems and services in the country. While formulating its recommendations the committee took into account the recommendations made by the ILA in 1985 and the draft policy document prepared by Raja Rammohan Roy Foundation in 1982. The Committee submitted its report in 1986. An empowered committee set up by the Department of Culture examined the Report and submitted its comments in 1988. No further action has been taken, on the report by the government.

2.7 Observations

There has been near unanimity amongst various committees with the regard to need for a national policy. All of them have voiced concern for library and information systems in the country and advocated the need for their improvement. They had hailed national policy as an instrument of change, seeking improvements on expected lines. In working out their recommendations, as given in various reports and draft policy documents, the committee members seemed to have been guided by certain presumptions and preconceived notions on the subject. By and large the issues addressed and directions suggested in the policy statements could

be summarized as follows:

- The library and information systems and centres are vital for achieving the national objectives of the country in providing social, economic, scientific and industrial progress;
- The financial support from the government is instrumental for the survival, vitality, and impact of libraries and information systems and centers;
- Library legislation and development of public library systems had been the major focus of attention in the recommendations made by various committees;
- Through their recommendations the committees had sent out an unwritten message that allowed the development of collections to take place exclusively at local level. The committee did not foresee any need for coordination between the libraries for collection development. This approach has indeed contributed to large-scale duplication in the collections between libraries in the country leading to gross underutilization of library grants;
- The committees had underlined the importance of information technology as a tool for library and information management;
- Through their recommendations the committees did try to address the problems libraries had been facing during that period; and
- However, these committees failed to address issues relating to future vision of the libraries and relate it to the national policy on library and information systems. Accordingly their recommendations failed to provide directions needed for leading the libraries into the future.

3 Framework for National Policy on Libraries, Information Systems and Services

3.1 Components of the Framework

The national policy must comprise following components:

- Statement on need for a policy;
- Statement of objectives of the policy;
- Action Plan for Implementation;
- Relate the library policy with national policies in related subjects such as IT policy, education policy, and science and technology policy.

The contemporary issues before the profession do influence the policy directions. The national library policy is also an instrument for the management of change. It can be used for shaping the future of the libraries. Therefore, the objectives of a policy must be stated after having examined carefully the contemporary issues before the profession, and after taking into account the future vision set out for the libraries. In other words before formulating a policy it is necessary to evolve a clear vision of the future of the library.

The action plan must identify the directions libraries are going to follow in future with regard to their shape, growth, and development; specify the priorities for implementation; identify the players for policy implementation. For example, governmental agencies, public sector agencies, private sector agencies, or professional associations at the national and state level. The policy could seek from the government its share of commitment to the development and promotion of libraries and information systems and services in the country. It could identify the roles that agencies in public and private sector could be asked to play, be it in the development of infrastructure, development of information products, or be it in the management and control of operations and services. It could also identify the roles that professional associations could play.

The library policy cannot stand in isolation since several other policies exist in the country. As such national library policy must be related with policies such as IT policy, science and technology policy, and education policy.

4 Issues Before the Profession

Looking at the current status of library and information centers in the country, it would be observed that they are still backward in terms of adoption of information technology. Effectiveness of the libraries in meeting needs of their clients is declining. Libraries are not able to acquire reading materials in sufficient measures. Financial constraints are affecting the growth and development of library collections. Libraries are lacking standards in terms of growth and development of infrastructure, management of library operations and services. Manpower planning and development is another crucial issue. Training facilities in developing skills and techniques in information technology are lacking in the country. Continuing education of staff working in library and information systems and centers has special importance in improving the quality of library and information services. Manpower training is an issue which needs to be addressed. Above all; the issue of identity and

status continues to dog the professionals. In summary the issues which need to be addressed in the national policy are;

1 Libraries are technologically backward;
2 Library collections are not comprehensive;
3 Financial constraints;
4 Lack of standards in the development of library infrastructure and in the management of library operations and services;
5 Manpower planning and development; and
6 Professional identity and status.

5 Challenges to the Profession

There are several forces at work responsible for driving change in the professional outlook and posing thereby new threats, opportunities, and challenges to the profession. These are summarized as follows:

1 Information technology;
2 Information explosion;
3 Economics of information;
4 Declining financial support from government to libraries;
5 Growing expectations of users;
6 Social status; and
7 Static library roles

5.1 Threats to the Profession

The perception of threats to the profession can be described on the following lines:

1 Survival of libraries, library profession;
2 Library as a subject is loosing its traditional identity; and
3 Diminishing importance of libraries in context of electronic publishing and information access on the Web.

5.2 Opportunities before the Profession

The developments in information technology are opening up newer and newer opportunities for improving the quality of information flow by offering new tools for information collection, storage, processing and access.

1 Information technology offers new tools to overcome barriers of time, space, and language in information access;
2 Electronic publishing is offering new opportunities for cooperative acquisition and management

3 Opportunities for identifying new library roles

5.3 Challenges to the Profession

The external forces of change have posed several issues before the profession. The challenges are how to address these issues. The challenges of immediate importance and relevance are stated as below:

1 Develop new skills and techniques for harnessing information technology for information access;
2 Develop infrastructure for harnessing information technology for information access;
3 Evolving such new models of information storage and access as can withstand the adverse impact of changing economics of information and information explosion on the library role;
4 Exploiting information technology for developing new information products and services suitable for marketing; and
5 Giving the profession a new identity and status

6 Library Vision 2010

6.1 Issues in Library Vision

The future of libraries has been an issue of great interest and concern to one and all. The ever-increasing impact of the information technology on the profession, the need to give the profession new identity and status, the need to evolve new library structures to cope with the ongoing financial crisis, and the need to adapt new technologies in library and information systems and services have made many a professionals to project future of the libraries as electronic, digital and even virtual libraries. In order to paint the future library vision it is important to identify and underst and the issues that need to be addressed in this regard. In brief, the issues in addressing the library vision are:

1 To give to the profession identity and status;
2 To improve bargaining power of libraries;
3 To evolve new models of collection development which optimize government funding;
4 To identify new sources of financial support for developing library resources;
5 To evolve new tools and techniques which ensure greater searching capabilities and remote access to complete documents;

6 What new roles can library take up in the context of emerging information environment; and
7 Should information be given free of charge

6.2 Role of Technology in Status Development

Technology has always been the harbinger of change. Its possession has invariably added to the status and credibility of the adopter. Technology is a source of power and authority. Technologically backward professions have never been able to enjoy status in the society. This applies as much to library profession, nursing profession, etc. Technology provides a useful tool for enhancing bargaining power of the profession. For example, engineering profession. In the interest of the profession and in improving the identity and status to the professionals it is imperative that information technology be adapted in greater and greater measure.

1 Technologically backward professions do not enjoy respectable status in the society. For example, library profession, nursing profession, etc.
2 Technology provides a useful tool in enhancing bargaining power of the profession. For example, engineering profession.

6.3 Role of Teaching Work in Status Development

The low status of library profession is to be attributed to the nature of work libraries perform. Notwithstanding their efforts in serving the users, the society still recognizes the library professionals as storekeepers of books. It is this stigma that is responsible for their low morale. The low status is not to be attributed to what goes into making of library science as a subject. If it were so the teachers in library and information science would not have enjoyed better status and credibility. The nature of work professionals perform in the libraries is instrumental in this regard. The professionals must, therefore, adopt new roles. It is, therefore, inevitable to bring about necessary changes in the library structure so as to pave the way for adopting new roles. Larger library systems putting up information infrastructure on an extensive scale can be expected to take lead in this regard. Such larger systems can be asked to take up training role especially in imparting knowledge and training in the skills and techniques of information technology, in teaching management practices in running library operations and services, etc. The resource libraries, which have been projected in vision 2010 as custodians of the national library resource by subject at natural level, will have to have information technology infrastructure. This would provide them suitable opportunities to take up the proposed roles.

1 Teachers in library and information science enjoy a better status vis-à-vis library professionals placed in a library set up;
2 Teaching work provides cutting edge in giving identity and status.

6.4 Role of Marketing Work in Status Development

Resource generation potential of a person accords him greater respectability and status in the organizational framework. For example, library professionals in the NCL enjoy much greater authority and power vis-à-vis the scientists. This has happened because of their high earning capacity by marketing information products and services and thereby generating money for the institution.

1 Marketing work accords greater status and visibility.

6.5 Library Vision 2010

Future projections on library and information systems in the coming twenty years should find basis in factors that hold the potential to accord greater visibility to the library, new identity to the profession, and credibility and status to the professionals. Accordingly, components of technology, teaching and marketing must be reflected in the future vision of the library.

The library and information systems by 2010 may be looked at as follows:

- Library resources be treated as a national resource rather than institutional resource;
- Resource libraries be developed by subject in the country. This will facilitate optimization of limited resources and avoid duplication in the collections;
- Electronic library era to pervade. Transition to electronic library era may proceed in stages from automated libraries to electronic libraries to digital libraries;
- Resource libraries will become Web accessible to enable end users and user libraries to access their resources and benefit by using their services;
- Information will be available at a cost. Resource libraries will have to generate funds by marketing their information products and services;
- Resource libraries will become the laboratories for experimenting new technologies for information access and storage;
- Resource libraries will become centers of practical training in

using information technology as a tool for information processing and management;

- Information marketing: Resource libraries to engage in new activities such as database production and their marketing;
- Alterative sources of funding: Approach public sector undertakings for raising funds for part financing the development of information infrastructure as required for shaping the traditional libraries into electronic libraries;
- End-user instruction: The library professionals will have to do teaching work in educating end-users on how to search information in the electronic information environment.

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