CONCLUSION
CHAPTER VI

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6.1 Introduction:

Technology has been hailed as harbinger of societal development in the 20th century and oncoming 21st century. The basic features of such impact of technology is not only rise of invention in technology but also the speed at which they were converted to socio economic utilities. The effective process in this conversion is the mode of transfer of information and skills and use of technologies themselves from the point of generation to the point of use. It has been to fascinating at the study in the field of information science.

Among developments in the 20th century information technology has contributed tremendously to the societal development. The evolution of information technology has influenced the field of library and information handling and gradually replacing traditional methods of library organisation and management by modern tools, techniques and technologies information technology has brought revolutionary changes in information storage and retrieval. The electronic storage devices including optical storage are facilitating
storage of large amount of information in a very small storage media resulting in easy transformation and access to information. It illustrates for quick communication of information in different forms such as text, pictures, voice, graphics etc., Information technology has influenced almost every human being in their endeavor either directly or indirectly, Library and information centre are no exception to this. The concept of the networking, developments in telecommunication and satellite technologies have given opportunity have brought global information together and made it possible for searching, identifying and accessing, the information in any corner of the world.

Though the use of information technology in libraries has changed the very concept of librarianship, library and informational profession and the whole scenario of library and information centers, particularly in developed countries, and its impact on libraries and library profession in developing countries is yet to be realised fully.

It is true that no library, whether in developed or in developing countries afford to lag behind in reaping the benefit of advances in information technologies but in practice, libraries particularly in education institutions in the developing countries are finding it hard to keep pace
with this transformational environment. Firstly, financial crunch, secondly non-availability of skilled/trained manpower, Thirdly inherited administrative and organizational problems are some of the bottlenecks in utilizing the information technologies in libraries. It is in this context the researcher felt it necessary to understand the state of affairs of use of information technologies in University libraries in India and the issues therein.

6.2 Issues studied and analysed.

The main objective of the study was to know the availability of different technologies in India, and assess the use and acceptance of these technologies and also to identify the hardships that libraries are facing in using these technologies.

In particular this thesis aims to analyze the issues associated, with availability, procurement and use of information technology in university libraries. The issues analyzed relate to information storage technologies, information transmission technologies and both information storage and information transmission technologies. The analysis further includes the issues relating to special incentives for motivation and promotional activities for staff as well as users training, orientation etc, to promote
to adopt and to nurture the use of information technology. This principle aim as set in the background will consolidate and analyse the advances in the field of information technologies and related areas.

6.3. Methodology

Methodology adopted for this study was survey through mailed questionnaire. The questionnaire designed for the purpose was mailed to all 213 university libraries including libraries of Deemed-to-be-universities and Institutions of National Importance. Having received filled in questionnaire from 112 university libraries, each issue relating to information technologies, their procurement use etc, were analyzed and presented in the form of thesis.

6.4 Finding of the Study

Some of the finding of the study are summarized as follows:

1. Nearly 1/3 libraries have less than 50,000 documents and about 18% respondents have collection ranging between 50,000 and 1,00,000 documents. There are 9 (8% of the total) libraries possessing more than 4,50,000 documents each. The collection in remaining 48 libraries range
between 1,00,000 to 4,50,000 documents and they account for 42.84% of the total respondents.

2. There are 84 libraries possessing non-print documents of different forms and remaining 38 have not possessed any non-print documents. This means about 34% libraries possess only printed documents. Even among those having non-print media, 25 libraries have less than 100 items of non-book materials and these accounts for about 22% of the total. Thus large number of libraries are yet to move towards modern information storage media.

3. There are 74 libraries that have microform collection, of which 51 have microfisch, 30 have microfilm and 9 libraries possess microcards.

4. The collection of microfilm, microfiche and microcards in each libraries vary between 45-960. Thus compared to print media it is most neglegable. Out of 30 libraries possessing microfilms, 14 have less than 100, 5 libraries have microfilms numbering between 101-200 and they account for 46.66 % and 16.66 % respectively. And there are 6 (20%) possessing more than 900 microfilms. out of 51 libraries possessing microfiche 27 (52.9%) have less than 100 and 9 (17.65%) libraries have more than 900 microfiche; out of 9 libraries possessing microcards 7
(77.78%) have less than 100 and only 1 (11.11%) have more than 900 microcards.

5. There are 16 libraries possessing audio cassettes and 33 libraries having video cassettes and they account for 14% and 29% respectively of the total respondents. While the least number of the audio cassettes in one library is 68 and the highest number of audio cassette in another library comes to 486. There are 13 libraries that have less than 100 audio cassettes and they account for 81.25% of the total respondents.

6. There are 21 libraries with less than 100 video cassettes and they account for 63.64% of the total and hardly 4 libraries have video cassettes numbering between 401-500 and they account for 12.12% of the total.

7. Out of 112 libraries only 28 libraries have CD-ROM collection, they form 25% of total respondents. Of the 28 libraries having CD-ROMs 21 have less than 10 CD-ROMs and only 2 libraries have more than 90 CD-ROMs and they represent 75% and 7.14% respectively. The collection of CD-ROMs range between 11 and 50. Thus the libraries have just begun to move towards CD-ROM collection and large of libraries are yet to fall in line.
8. It is found that 67, out of 112 libraries have computerized their operations, while remaining 45 libraries have not. They account for 59.82% and 40.18% respectively.

9. Libraries have different types of computers with different models and varied memory capacities. There are some libraries having more than one computer, the highest being 5 computers in 2 libraries. Out of 67 libraries having computers 34(50.72%) have 486 DX computers, 28(41.86%) have PCAT-286 and 26(38.0%) have 386DX computers. Other types of computers that the libraries have include 386 SX, 486 SX, 586 SX, ALPHA DEC 2000, ALPHA DEC 3000, DEC 2000 AXP, HP 2000 AXP, HP 3000 XE and MAGMUM 586.

10. The University libraries in India though begun to enter into computerization in early 1980's, its spreads to majority of libraries only after 1989. While during 1980 and 1985 only 2 libraries acquired computers, during 1986-88 four libraries had computers and this number increase between 1989 and 1991. to 30 with an addition of 24. further during 1992-94 another 25 libraries moved to computerization and by 1996 there were 67 libraries
possessing computers. Thus, after 1989 more libraries started moving towards computer applications.

11. Though the number of libraries installed computers are less in number. They are using computer for various purposes; Some are using for almost all library operations and some are attempting to extend computer applications from 1 activity to other depending upon their infrastructure ability and. The purpose for which the libraries have used computers include office correspondence (74.64) acquisition, (38.87%), serial control (38.87%), cataloguing (38.87%), budgeting (22.39%), circulation (23.89%), E-mail (55.23%), On line (38.82%), CD - Roms (38.87%).

12. While variety of computer softwares are being used by different libraries, the use of CDS/ ISIS, is found in majority of libraries (55%), it followed by LIBSYS (25%) and dbase (7.5%) other softwares used by libraries include Oracle, integel - SQL , SLIM -1 , SLIM -2, and TECHLIP in addition many libraries have developed in house softwares.

13. The library expenditure towards purchases of computers vary from Rs.42.000 to Rs.9,75,000. About 18 (26.87%) libraries have spent less than Rs.1,000000, 13 libraries
have spent an amount ranging between Rs.1,00,001-2,00,000. 12 (17.91%) libraries have spent between Rs 2,00,001-3,00,000 and 11 (16.46%) libraries have spent more than Rs. 9,00,000. Remaining 13 (19.40%) libraries have spent Rs. 3,00,000-9,00,000. Thus the amount spent by majority libraries on computers is very small.

14. There are 28 libraries that have created Bibliographical databases to their collection of these 19 (68%) have created database for less than 30,000 documents and 3 (10.03%) have created database for more than 90,000 documents. The remaining 6 libraries have computerized catalogue of books numbering between 30,001-90,000. When compare this data with that of total collection of libraries with leaves us to infer that they remains still huge collections for which catalogue data base need be created.

15. Average uses of computerized catalogue per day range between 5 and 98. There are 8 (28.57%) libraries with less than 10 users of computerized catalogue, per day and 10 (35.72%) libraries have users ranging between 11, 30 and 4 libraries have users ranging between 31 and 50. There are 6 (21.42%) libraries where in more than 90 users use library catalogue per day. Thus, majority
libraries have just begun to create databases for their collection.

16. All 28 libraries possessing CD-ROM have CD-ROMs containing abstracting journals, whereas 2 libraries have bibliographies in CD-ROM form and only one library subscribes to texts of learned journals in CD-ROM form. Thus, libraries are primarily subscribing to abstracting and indexing periodicals in CD-ROM form.

17. The CD-ROM users strength in different libraries varies from 5 to 49. There are 9 libraries with less than 10 CD-ROM users per day, 8 libraries having users between 11 and 20 per day, and 9 libraries having users range between 21-30. There are only 2 libraries that have more than 45 users per day. Thus, this moderate number of CD-ROM users in this beginning stage, leads us to infered that the demand for CD-ROM would grow further with the increase in the number of users and as well it with its wider coverage.

18. The large numbering of 85.71% users of CD-ROM have expressed their satisfaction on their use whereas only small percentage of (14.29%) users feel that they are not satisfied with the CD-ROM service.
19. Out of 37 libraries having e-mail facility, 30 provide E-mail service, through NICNET, Remaining 7 libraries extend e-mail through VSNL. The users of e-mail service in libraries vary from 2 to 46.

20. There are 17 (45.95%) libraries out of 37 that have less than 5 E-mail users, 8 (21.62%) libraries having users strength between 6 to 10 another 8 (21.62%) libraries having users strength between 11 and 30 per day. There are 4 (10.81%) libraries with more than 45 e-mail users per day.

21. More than 93.3% librarians opined that they are satisfied with the e-mail service provided by their library and use of E-mail service by their library users. Only about 2.7% librarians expressed that they are not happy with their users.

22. There are 24 libraries providing On-line information service facility and this on-line service is used for 3 purposes, namely-Information search, document delivery through e-mail and document delivery through FAX.

23. There are 21 libraries using on-line facility for information search, 20 libraries are using it for
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document delivery through e-mail and 9 libraries are using this facility for document delivery through fax.

24. Out of 24 libraries that have on-line facilities, 17 have an access to 'BIBDATA' database, 8 libraries have access to CAS on-line, 7 libraries have access to BIOSIS and 6 libraries have access to INSPEC and SCISEAR database. Other databases that are accessed by different libraries include MATHSCI, MEDLINE, AIDS TRAIL, FORESTRY, POPELINE, REGISTRY AGRIS, AIDS DRUG and ERIC.

25. Majority (66.67%) libraries have kept open On-line service to users during all working hours of their respective libraries, few (33.33%) libraries have restricted this service to users for particular period. This period varies from one hour to four hours on working days.

26. There are some libraries that collect charges from the users for on-line services whereas few libraries do not charge any fee to their on-line users.

27. Nearly 80% of librarians expressed their satisfaction over use of on-line service by their users. Whereas, about 20% librarians are not happy with the on-line users.
28. Out of 112 respondents only 9 libraries have FAX facility of these 9 libraries with FAX facility one library receives on an average 2 Fax messages per day, one more library receives between 3-4, messages per day, 3 libraries receives between 5-6 messages per day and 3 more libraries receive more than 10 messages per day. On the other hand one library sends on an average 2 messages per day 3 libraries send between 3-4 messages per day, 3 more libraries send more than 10 messages per day. In view of the fact that this service is of recent introduction its usage in future is expected to be on an increase in future.

29. Out of 9 libraries, providing FAX service 6 are not charging any fee towards this service where as remaining 3 libraries do charges fees to the users against service. Of these 3 libraries that charge against fax service, 2 libraries collect STD charges and one library charges actual charge with surcharge to users. This means that the Fax Service in almost every library is in on infant stage and it has to be streamlined including charging towards against this service.
30. In 16 libraries possessing audio tapes, users strength vary between 3 and 48 per day and of these 16 libraries, 9 (56.25%) have below 5 users per day.

In 33 libraries possessing television and video cassettes the users strength vary from 3 to 45 per day. Out of these 33 libraries, 13 (39.39%) have less than 5 users per day, 8 (24.24%) have user, strength between 6-10 per day. Thus, the data reveals that the use of television and video cassettes, is better compared to the use of information in other forms and it is expected to be on an increase.

31. Out of 30 libraries possessing microfilms, 22 libraries have users strength of 10 and less than 10 per day. Of the remaining 87 libraries, 7 have users strength between 11 and 16 per day and one library has more than 18 users per day.

32. Out of 51 libraries possessing microfiche, 14 (27.45%) libraries have 2 users per day and 7 (13.73%) libraries have more than 18 users per day. The users strength in remaining 30 libraries varies between 3 to 18 users per day. Thus, the use of microfilms and as well as microfiche is moderate and not much encouraging.
33. There are 82 libraries equipped with photocopiers. Of these, 48 have one Xerox machine each 22 have two photocopiers each, 9 have 3 Xerox machines each and remaining 3 have 4 Xerox machines each. The majority (52.67%) libraries have installed Modi Xerox machine, followed by it are Canon-1210, HCL and Toshiba. Other Xerox machines installed in libraries include Cannon-1215, Minotat-4102, NASH, Kill Burn, RICO etc. Some libraries have appointed vendors on contract basis to provide Xerox service to users.

34. Number of users of Xerox service per day vary from 28 to 462. In 46 libraries accounting about 56% of the total the average number of users of Xerox service per day is below 50. It is followed by 14 (17.07%) libraries that have users ranging between 51 and 100 per day. There are 2 libraries having Xerox users over 450 per day. On an average, libraries provide Xerox copies ranging between 125 - 1980 per day. While 28 libraries provide less than 200 copies of Xerox per day. There are 8 libraries providing more than 1800 copies per day and 5 libraries providing Xerox copies ranging between 1401 to 1800. This huge quantity of Xerox copying ensures that Xerox service is one of the major activity in many libraries.
35. The amount charged to users towards Xerox service vary from 30 paise to Rs. 1 per day. While only one library charges 30 paise per copy, 2 libraries charge Rs. 1 per copy. The majority (56%) of libraries charge between 41-60 paise per copy and this is generally accepted. Further the Xerox charges vary from library to library depending upon size, reduction and enlargement, type of materials xeroxed, and also the customers served such as, teachers, students, research scholars and general public.

36. There are 12 libraries with one computer trained staff member, 15 libraries with 2 trained staff, 14 libraries with 3 trained staff, 7 libraries with 4 trained personnel, 9 libraries with 5 trained personnel and 10 libraries with more than 5 trained personnel in computer handing. This is the situation in 67 libraries where in computer is installed. In other libraries where the computer is not installed there are no trained staff in computer handling and it is ensured that on one hand financial inadequacy, on the other hand lack of trained manpower are the basic hurdles in not installing computers in many libraries.
37. Out of 67, these are 27 (40.30%) libraries providing training facility to library staff and in 40 (59.7%) libraries there is no training facility.

6.5. SUGGESTIONS:

The finding of the study lead to following suggestions for improvement of present situation in university libraries in India:

1. It is necessary that the U.G.C. established certain norms to orient library collection from present almost print media to non-print media, particularly with an emphasis on newer technologies. This would help libraries especially those that are lagging very much behind in using technological advances either for information storage or for dissemination.

2. Guidelines are also necessary for equipping computers and other information technologies that are required for proper information handling and retrieval. These guidelines shall also be set by the U.G.C.

3. During VIII and IX plan period, the U.G.C. is providing special assistance to some libraries. This special assistance programme be extended to all University libraries to Computerised and modernize their activities.
In doing so, The U.G.C. should insist on host institutions to utilize such financial assistance with a specific period and only for the purpose for which it is provided.

4. In view of the financial crunch, the U.G.C. shall include in its guidelines that a portion of the amount received by the scholars/teachers in the university under various projects would go to library fund. This could be about 3 to 5% of the total project amount and such fund received by the libraries from the projects be spent particularly on newer technologies including storage media such as CD-ROM, video discs etc.

5. There is a need for change in staffing pattern in University libraries. Apart from the existing cadres, viz. Assistant Librarian, Senior Assistant Librarian, Selection Grade Assistant Librarian, Deputy Librarian and Librarian, there shall be posts like Library Assistants, Senior Library Assistants and Technical Assistants down below the Assistant Librarians to carry on routine Jobs. Thus, these cadres shall find place in new staffing pattern.

6. The U.G.C. should insist on host institutions (i.e. Universities) to fillup the professional posts as soon as
they fall vacant. The maximum specified period for any vacancy to be filled up shall not be more than one year.

7. There is a need to give intensive training programme to working librarians particularly in using computers for information handling and dissemination. To ensure this, in place of Orientation Programmes and Refresher Courses organised by Academic Staff Colleges for Librarians in Colleges and Universities, the U.G.C. shall provide opportunities for special training in specific areas. For this purpose, the U.G.C. shall recognise 5 Centers of Training. They shall be either Post-Graduate Departments in Library and Information Science in well established universities or Academic Staff Colleges fully equipped with computers, E-mail and Network facilities. The working librarians shall be deputed to these training centers to undergo training in specific areas instead of undergoing Orientation and Refresher Courses. Undergoing these Training Programmes be made compulsory for promotion from one cadre to the next higher cadres is done in case of Orientation Programmes and Refresher Courses. Once this kind of programmes are made available to library professionals, they need not participate in Orientation Programmes and Refresher Courses organised by the Academic Staff Colleges.
8. Apprenticeship programme for a period of one year after the post-graduate degree in library science on payment of stipulated amount (say, equivalent to JRF) in line with house surgeonship in medical sciences be made compulsory for students under going P.G. Courses. The detailed scheme shall be worked out for this purpose. This has 3 major advantages.

i) Libraries that are suffering from inadequate staff would overcome this problems by utilizing the services of such apprenticeship.

ii) The upcoming students of Library and Information Science will be exposed to practical environment and will have hands on training in library work so that they will be fully equipped to handle independent libraries with confidence when they are appointed elsewhere.

iii) This programme shall bridge the gap between the library and the Department of Library and Information Science. Both would use the resources for mutual help and for healthy benefit and growth. Thus, this will help for growth of the Department and as well as the library.

9. There shall be a review of the progress of the libraries and funds utilized by different libraries. The team
consisting of one experienced working librarian, one senior teacher of Library and Information Science and two experts from other disciplines and one U.G.C. Official would visit University Libraries at least once in two years to evaluate the progress made by specific library and to recommend for further development/assistance. This evaluation be made compulsory and be conducted rigorously.

6.6 Conclusion:

Libraries in University Sector are supportive system in the pursuit of higher education and research. The advance in technologies have no doubt brought drastic changes in several fronts, but their influence particularly on teaching and learning at university and at college level in developing countries like India is yet to make a mark. Though there is a trend towards change in using technologies in teaching and learning its impact is rather slow. However, since recent fast this slow process is being hastened and a sea change is expected vary soon. Thanks to U.G.C. for initiating various programmes to modernise libraries and also to train library staff to support to library system. There is however a need to have a re-look into the programmes already initiated and over came the limitation by incorporating required changes, so that the objective is realised fully, and libraries become
real learning centers. The role of University administration, the librarians and the library professionals and also that of the State Government is equally important in bridging the present gap. The findings of this study summarised in preceding section and the suggestions made if considered in right spirit shall certainly help in taking libraries to meet challenges of 21st century.