Information technology has virtually unlimited potential for variety of useful applications in libraries. It has become an integral part of all library information resources, operations and services. Libraries use IT to increase the efficiency, productivity and effectiveness of their operations and services. Because of the numerous advantages of accelerating pace of technological developments, the use of IT applications in libraries has grown tremendously in recent years. Today, the success of library is increasingly dependent upon the effective utilization and management of new technologies in libraries.

The study has been conducted to survey the “Impact of IT Applications on Technical & User Services in the University Libraries in Haryana and Punjab” and to access the views of library staff and users on the impact of IT on library operations and information services. The findings reported and discussed in the preceding chapters are being evaluated in the light of hypotheses of the present study. In other words the hypotheses of the present study are being tested whether they stand approved or rejected.

TESTING OF HYPOTHESES

Hypothesis-1

There exists difference in availability of Information technology infrastructure in the University libraries of both the states.

The data were collected to find out about the awareness and access of different resources by the respondents (table 13 & 14) in the various University libraries of Haryana and Punjab. It has been observed that:

1. Computer facilities are available in all the libraries of Haryana and Punjab. Out of 600 respondents 344 respondents use the computer facility in the Universities of Haryana and out of 300 respondents 139 use the computer facility in the Universities of Punjab.
2. 259 respondents in University libraries of Haryana and 82 in University libraries of Punjab use the internet facility.
3. Network facility is used by 73 respondents in University libraries of Haryana and 34 in University libraries of Punjab.
4. OPAC facility is used by 48 respondents in University libraries of Haryana and 49 in University libraries of Punjab.
5. It is also revealed from the analysis that OPAC is popular in MDU, PUP and GNDU s compared to other university libraries.

The library professionals of both the states were asked about the access of various facilities in their libraries (table 17 & 18).

- Regarding computers 10 out of 17 library professionals responded that they have enough number of computers.
- Only 8 out of the 17 library professionals accepted the facility of LAN available in their libraries.
- 14 out of 17 library professionals answered in affirmative regarding the facility of internet in their libraries.

Hypothesis regarding difference in availability of Information Technology infrastructure is accepted or we can say that the findings of the present study proved for this hypothesis.

**Hypothesis-2**

There is likelihood of significant difference in Information Technology applications in user services provided by libraries of both the states.

The followings are the major findings of the present study (table 7.1 to 7.8) related to IT applications in University libraries in Haryana and Punjab:

1. 95.4% of the respondents of University libraries of Haryana and 95.3% of University libraries of Punjab reported that information sources/collection improved due to shift to information technology.
2. Most of the respondents i.e. 95.9% of University libraries of Haryana and 93% of University libraries of Punjab mentioned improvement in information services due to application of information technology.
3. 84% of the respondents of University libraries of Haryana and 82.9% of University libraries of Punjab reported improvement in innovation due to information technology.
4. 90.4% of respondents of University libraries of Haryana and 93.5% of University libraries of Punjab mentioned improvement in use of resource/service due to application of information technology.
5. 92% of the respondents of University libraries of Haryana and 88.2% of University libraries of Punjab reported that helpfulness attitude improved with the application of information technology.
6. 90% respondents of University libraries of Haryana and 92.6% of University libraries of Punjab reported that staff competence improved due to information technology.
7. Most of the respondents i.e. 88% of University libraries of Haryana and 92.1% of University libraries of Punjab mentioned improvement in user-friendliness with the application of IT.
8. 91.1% respondents of University libraries of Haryana and 89.6% of University libraries of Punjab stated that IT helped to improve the efficiency.

On the basis of the results shown in table 7.1 to 7.8, the hypothesis regarding difference in IT applications in user services provided by libraries of both states is accepted.

**Hypothesis-3**

There is no significant difference in transaction processing systems of the libraries of both the states.

The followings are the major findings of the present study related to University libraries of Haryana and University libraries of Punjab with reference to transaction processing systems of libraries (table 8.1 to 8.12):

1. 82.8% respondents of University libraries of Haryana and 81.2% of University libraries of Punjab agreed that IT- improved the quality of services.
2. 73.1% respondents of University libraries of Haryana and 72% of University libraries of Punjab agreed that IT introduced new services.

3. 56.6% of the respondents of University libraries of Haryana and 68.6% of University libraries of Punjab agreed that IT introduced OPAC (online public access catalogue).

4. 51.2% respondents of University libraries of Haryana and 69% of University libraries of Punjab agreed that IT helped in increasing number of public access terminals.

5. 63% of the respondents of University libraries of Haryana and 55.3% of University libraries of Punjab agreed that IT enabled direct access to information.

6. 53.3% of the respondents of University libraries of Haryana and 57.3% of University libraries of Punjab agreed that OPAC is a powerful search facility providing combination of terms.

7. 53.3% respondents of University libraries of Haryana and 67.7% of University libraries of Punjab agreed that IT – OPAC has increased the success rate of finding more relevant materials.

8. 49.1% of the respondents of University libraries of Haryana and 53.7% of University libraries of Punjab agreed that Campus network enabled easy access to OPAC from remote locations (Departments).

9. 55.1% respondents of University libraries of Haryana and 58.5% of University libraries of Punjab agreed that campus network enabled many users to access OPAC simultaneously.

10. 56.4% of the respondents of University libraries of Haryana and 59.4% of the respondents of University libraries of Punjab agreed that IT has enabled borrowing, returning and reserving of documents quickly.

11. 64.2% of the respondents of University libraries of Haryana and 71.2% of University libraries of Punjab agreed that due to IT reference / information enquiries are answered satisfactorily.

12. 66.7% respondents of University libraries of Haryana and 65.9% of University libraries of Punjab agreed that IT -Enormously saved time and efforts.

On the basis of findings, the hypothesis is accepted because there is significant difference in the opinion of the respondents on transaction processing system.
Hypotheses-4

There exist significant differences in user satisfaction levels in libraries of the both the states.

The following are the major findings of the present study related to University libraries of Haryana and University libraries of Punjab on user satisfaction levels (table 9.1 to 9.10):

1. 60.5% respondents of University libraries of Haryana and 81% of University libraries of Punjab agreed that OPAC satisfies the user needs.
2. 67.4% respondents of University libraries of Haryana and 83% of University libraries of Punjab agreed that access to online external (outside) databases came into existence due to information technology.
3. 83.6% respondents of University libraries of Haryana and 79.1% of University libraries of Punjab agreed that internet access improved due to effective information technology.
4. 80.8% respondents of University libraries of Haryana and 82.9% of University libraries of Punjab agreed that the user needs are satisfied due to application of IT in reference (enquiry) services.
5. 72% respondents of University libraries of Haryana and 87% of University libraries of Punjab agreed that information technology succeeded in improving bibliography service.
6. 73.5% respondents of University libraries of Haryana and 72.9% of University libraries of Punjab agreed that the user needs are better satisfied due to application of IT in Current Awareness Service (CAS).
7. 68.8% respondents of University libraries of Haryana and 85.1% of University libraries of Punjab agreed that information technology succeeded in improving in Indexing / Abstracting services.
8. Most of the respondents i.e. 58.7% respondents of University libraries of Haryana and 69.9% of University libraries of Punjab agreed that IT satisfied the user needs by providing Inter-library loan.
9. 58.9% respondents of University libraries of Haryana and 71.6% of University libraries of Punjab agreed that reservation services with the help of IT satisfies the user needs.
10.87.2% respondents of University libraries of Haryana and 89.5% of University libraries of Punjab agreed that with the help of IT user needs are better satisfied.

Thus hypothesis regarding difference in user satisfaction level in libraries is accepted.

**Hypothesis-5**

There does not exist any significant difference in the levels of preparedness of library staff in both the states.

The followings are the major findings of the present study related to Haryana and Punjab (table 12.1 to table 12.20) on levels of preparedness of library staff:

1. 15 out of 17 library professionals agreed that information technology has helped the staff to learn new modern technologies.
2. Most of the library professionals (16 out of 17) are of the view that IT has upgraded the knowledge and skills of library staff.
3. 14 out of 17 library professionals agreed that information technology has forced to employ new staff with information technology skills.
4. Most of the library professionals (13 out of 17) are of the view that IT has de-skilled the job of cataloguers.
5. 11 out of 17 library professionals agreed that information technology has brought major changes in their work.
6. 53% of the library professionals i.e. out of 17 are of the view that information technology has reduced their work load.
7. 11 out of 17 library professionals agreed that information technology has created fear of loss of job.
8. Majority of the library professionals (11 out of 17) are of the view that information technology has added more responsibilities to their job.
9. 15 out of 17 library professionals agreed that information technology has made their work more interesting.

10. 12 out of 17 library professionals agreed that information technology has improved morale and motivation.

11. 64.7% of the library professionals are of the view that information technology has caused techno-stress (fear of new technology).

12. 14 out of 17 library professionals agreed that information technology has created a better quality of working environment.

13. Most of the library professionals i.e. out of 17 are of the view that information technology has improved their competence and performance.

14. 10 out of 17 library professionals agreed that information technology has created health problems.

15. 10 out of 17 library professionals agreed that information technology has offered new challenges and better opportunities for professional growth.

16. 58.8% of the library professionals are of the view that information technology has provided more variety in their work.

17. 14 out of 17 library professionals agreed that information technology has become detrimental to creative thinking.

18. Most of the library professionals i.e. out of 17 are of the view that information technology has enabled them to devote more of their time for user services.

19. 15 out of 17 library professionals agreed that information technology increased the job satisfaction of staff.

20. 82.3% of the library professionals are of the view that information technology has improved their status.

Hypothesis regarding no difference in the levels of preparedness of library staff is partially rejected because eight of the twenty questions are answered in affirmative and twelve are negatively answered. On the basis of these results the hypothesis could not be rejected fully.
CONCLUSION

From the above discussion it can be concluded that IT has made great impact on technical and user services in the university libraries in Haryana and Punjab. It helps to improve library services and enhance the productivity and efficiency of library staff. The impact of IT on technical and user services in the university libraries in Haryana and Punjab is clearly visible because of right attitude of library professionals towards library development.

The present study reveals that all the users of University libraries in Haryana and Punjab are aware of computer & Internet, which emerged as the most powerful tool for providing access to unlimited information. Besides this, from the survey, the investigator has been able to find out that OPAC is popular in Maharshi Dayanand University, Rohtak, Punjabi University, Patiala and Guru Nanak Dev University, Amritsar as compared to other universities and network facility is freely accessible in most of the libraries in Haryana as compared to Punjab.

Investigator also found that the user services like information sources, information services, innovation, resource usage, user-friendliness, staff competency, helpful attitude and efficiency improved in University libraries of Haryana and Punjab because of implementation of information technology.

The present study reveals that IT has improved the quality of services, introduced new services, provided powerful search facility and saved time and efforts.

In the present study, respondents of University libraries of Haryana and Punjab agreed that due to information technology, OPAC, online external databases, internet access, reference services, bibliography service, current awareness services (CAS), indexing/abstracting, inter-library loan and reservation services satisfies the users need to a great extent.

It is also evident from the present study that preparedness of library staff like learning new modern technologies, up-gradation of knowledge and skill, work interest, morale, motivation, work load, better opportunities, variety, job satisfaction, creative thinking and status improved due to IT in the university libraries of Haryana and Punjab. Whereas it is also evident that some factor like deskilled cataloguer job, fear of job loss,
more responsibilities, and techno-stress and health problem also came into existence due to impact of information technology.

In nut-shell, due to information technology transaction processing systems, user services, library staff preparedness, user satisfaction and infrastructure have improved a lot in the University libraries of Haryana and Punjab.

FUTURE RESEARCH

Information technology has become an integral part of all library operations and services. It has huge potential for variety of applications in libraries. There is a greater need to initiate support and encourage research and development efforts directed towards applications of new technologies and their effective management in libraries in order to find out more effective IT based solutions and provide more innovative and intelligent need based library and information services to the users.

The present study covered University libraries of Haryana and Punjab. Based on the results of this study, the following areas suggested for future research:

1. The area of the present study may be expanded.
2. Impact of IT on Special Libraries.
3. Impact of IT on libraries of National importance viz. IIM, IIT, CSIR, ICAR etc.