Chapter 6
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FINDINGS, CONCLUSIONS AND SUGGESTIONS

Introduction

“Information technology application and level of user satisfaction in degree college libraries in Chandigarh: An analytical study’ has been conducted to ascertain the use of information technology in ten degree college libraries in Chandigarh. The study has been conducted using two questionnaires; one was meant to elicit the information on information technology applications in the degree college libraries in Chandigarh from the librarians, while the other was to seek the responses from the users – students and the teachers of these libraries. The study is based on the responses received from a total population of 1050 users that consisted of 966 students and 84 teachers of both Arts and Commerce faculties in ten degree colleges in Chandigarh.

The study covered the application of information technology in Degree College libraries in Chandigarh up to December 2011 and has no control over the new applications and future developments that may take place in these libraries. The results relating to the hypotheses of this research work have been reported in the Chapters 4 and 5, and the findings of the study are given below in this Chapter.

Information Technology Infrastructure

1. Regarding the implementation of information technology in ten degree college libraries in Chandigarh under the survey, it was found that 100% degree college libraries in Chandigarh started using IT in the libraries for various
operations and services such as preparing lists of new arrivals, acquisitions, periodicals, catalogues, circulation process, etc. The first college to initiate library automation was the D A V College in 1996. The remaining nine colleges had initiated automation in their libraries between 2001 and 2006.

2 About the availability of multimedia resources in the college libraries, only 10% libraries possessed television and none of the college libraries had Compact Disc Server; Video Cassette Recorder/Video Cassette Player; and LCD Projector. Regarding other multimedia resources, only 20% libraries had the Compact Disc/Digital Video Disc Player, while telephone/fax was possessed by only 20% libraries out of 10 degree college libraries. The photocopier had found its place in majority, 70% of the college libraries.

3 The number of computers in the college libraries ranged from 4 to 12. The maximum number of computers (12) was possessed by 2 libraries, namely, D A V College and Government College, Sector 46. However, none of the college libraries possessed a laptop as revealed in the survey. It was found that all these libraries made a computer system as server installed in the libraries for their automation processes within their premises.

4 All the degree college libraries had Windows as operating system on to their computers, while the application software installed on the systems was Microsoft Office. The database management system was MS Access as used by 60% libraries while the remaining libraries were not using any. Only 30% libraries were using Outlook as email client. It was found that 40% libraries were familiar with Open Source Software, but that too Mozilla Firefox as a web browser. It is also found that all the libraries were comfortable in using the proprietary software. All the libraries have PDF as the document viewer.
All the college libraries were using proprietary software for their systems as well as for applications as compared to widely known and acknowledged open source software, such as ‘Linux’ and ‘OpenOffice’. The proprietary software ‘Windows’ was widely used operating system, while ‘Microsoft Office’ was the one used for application software. The usage of open source software was just limited to ‘Mozilla Firefox’ which was used to browse the Internet.

All the ten degree college libraries in Chandigarh possessed printers and scanners in order to meet their routine work and to provide services to the users. Unfortunately, only 20% of the libraries got web camera installed in their libraries.

It was found that none of the libraries had either Electronic Surveillance System or RFID in the college libraries. However, 50% libraries got CCTV installed as security system for their libraries.

With regards to up-grading the IT infrastructure, 60% libraries had the provision to upgrade the systems as and when they thought it necessary. It is also found that only 40% libraries were satisfied with their existing IT infrastructure.

It is found that all the ten degree college libraries were automated and were continuously automating their processes in stages as per their requirements and demands of the users.

All the ten college libraries revealed that they initiated automating their libraries to improve the quality of services. The repetitive nature of work prompted 40% libraries to go in for library automation. Only 20% libraries were pushed by their management to change their manual systems into automated systems for their libraries. Automation processes were initiated in
40% of the libraries by the librarians. It was observed that 30% libraries got automated as the financial grant was made available. The administrative requirement forced 30% libraries for initiating library automation.

11 Amongst the 10 degree college libraries in Chandigarh, three different library automation software were used, namely ‘LibSys’, ‘SOUL’ and ‘CAMPUS’. The majority of the libraries, 70% of them were using ‘LibSys’ for their automation activities and it was also found all these libraries were satisfied with the software. While only 20% libraries got installed ‘SOUL’, but were not satisfied with its features and functionalities. Only 10% libraries were using ‘CAMPUS’ with little satisfaction.

12 All the ten degree college libraries in Chandigarh had the trained personnel to look after the automation activities. However, 60% of the libraries had to depend upon the contractual staff as well for automating their libraries.

13 All the ten libraries had deputed their staff for training in automation. And also special training on information technology applications in libraries was provided by all the libraries for their staff at the beginning of the automation activities.

14 It is noted that 60% of the libraries were satisfied with the training of the staff in automation activities, while 40% libraries were not satisfied with training of their staff.

15 With regards to problems faced by the libraries for automating their libraries, more than half of the libraries, 60% were the ‘paucity of funds’ and ‘non-availability of standard library software’ while the majority of the libraries, 70% were dealt with ‘attitudinal problems’ and with ‘non-effective guidelines’ to get their libraries automated. Again, with the majority of the libraries, 70%,
the problems were dealing with ‘untrained staff’ and ‘affordability of the software’.

16 About the network infrastructure, it was revealed that 70% libraries were part of their college wide network, while 30% libraries had the network for their libraries as well as part of their college network. However, the number of LAN connections varied from college library to college library. The minimum LAN connections (4) were possessed by DSCW and the maximum connections (12) were possessed by two college libraries namely, PGGC-46 and DAV.

17 All ten degree college libraries had the Internet facility available with them through the central server of their respective colleges. The majority of the libraries, 90% were connected through Broadband; while 10% libraries had the access to the Internet through the leased line. Only 20% libraries had the privilege to access the Internet within their libraries through Wi-Fi connectivity. The speed of the connection ranges from 256 kb to 2 MB in all these libraries.

18 All the ten degree colleges in Chandigarh had websites; however, all these libraries did not have their own websites, but static web pages giving general information about the libraries in respect of working hours, rules of membership and services. But even this information varied from college library to college library. The information was generally updated on annual basis.

19 It is also found that the digitization and creating digital collections were limited to two libraries only, namely DSCW and DAV. While the DAV College library digitized its rare documents for preservation, the DSCW
College library created digital collections of newspaper clippings to provide easier access to the users.

**Usage of electronic resources, services and satisfaction levels of users**

20 It is found that 53.1% users usually visited the college libraries. Out of this 52.8% were the students and 57.1% were the teachers. Only 16% of the users rarely visited their college libraries. This implied that over a half of the users were making use of their libraries.

21 It is usual for the users to visit the library for one purpose or the other. It is noted that 82.2% users visited their college libraries for issue/return of their library materials. Unfortunately, only 54.2% users visited their college libraries for reading purpose only. Interestingly, half of the users (50.1%) visited to use computer in the library. It is also found that majority of the teachers (78.6%) visited the library to access the library catalogue and while 50.5% students visited to use the computer as compared to the teachers.

22 A majority of users (51.2%) possessed good knowledge of information technology. It was also found that among the teachers, 48.8% had very good knowledge of information technology, while only 31.7% students had very good knowledge.

23 More than 80% of the users had sufficient skills of using computers. It is also observed that all the teachers had the skills to operate various devices such as pen drive, printer scanner and CD/DVD associated with information technology, while the students reported to have insufficient skills to operate such devices barring pen drive.
24 Out of 1050 users under the study, 53.2% of them mentioned that it was ‘knowledge and skills gained at personal level’ by which they developed their skills of information technology. The majority of the students (51.2%) acquired information technology skills by attending training programmes, whereas 90.5% teachers had the skills by themselves gained at personal level for operating computers and other devices. 

25 A majority of the users, 81.1% use computer with a purpose ‘to communicate with friends and colleagues’. It is found that 81% students used computer for communicating with friends and colleagues whereas 100% teachers used for searching the Internet.

26 Out of 1050 users under study, 52% of them expressed that they were aware about the resources and services of their college libraries through the ‘orientation programmes’ that their libraries organised. While the majority of the teachers, 83.3% got to know about the resources and services through ‘user meets’, it was through ‘orientation programme’ where 51.1% students came to know their libraries’ resources and services.

27 It is revealed from the table that 80.8% of the users surveyed were aware about library computerization of their colleges. Among the students, 79.1% were aware about computerization as compared to 100% teachers.

28 It is observed that less than half of the users surveyed, 41.3% of them, were aware that there were sufficient computers and other devices such as scanners, printers and CD/DVD players available in their college libraries. Only 39.1% students indicated that their college libraries had made computers available for use. The majority of the teachers, 66.7% of them expressed that there were enough computers available in their college libraries.
Out of total 1050 users, 72.3% were aware about the on-line catalogue of their college libraries. Out of total 966 students, 69.9% were aware about the on-line catalogue. Interestingly, all the 84 teachers knew about the accessibility of the on-line catalogue.

It is noted that only a few users (27.7%) never used the on-line catalogue (OPAC) to access the library collection, while 43% students used it for sometimes. Interestingly all the teachers had accessed the on-line catalogue either usually or sometimes.

It is observed that the less than half of the users (44.9%) found the instructions provided to use the on-line catalogue easy. However, 58.3% teachers found the instructions very easy to use the on-line catalogue in their college libraries, while 45.6% students found the instructions ‘easy’.

It is found that 66% users were satisfied with on-line catalogue provided by their college libraries. It is revealed that majority of the teachers (85.7%) were satisfied as compared to 64.3% students with use of on-line catalogue.

Only few students, 45.3% accessed the websites/webpages of their college libraries. Interestingly, 89.3% teachers accessed the websites/webpages.

The majority of the users consisting of 89% teachers and 45.3% students accessed the websites/webpages of their college libraries for ‘announcements and events’.

It is found that over 90% of the users had good knowledge of electronic mail and similarly, over 75% users had also good knowledge of search engines. Unfortunately, 66.1% students were average as far as electronic resources were concerned and the same was the case with 82.8% students for web-based on-line catalogues. However, even among the teachers, ‘very good’
knowledge of electronic resources is low at 35.7%. It is very clear that a majority of the teachers possessed knowledge of web-based services, while the students possessed not very good knowledge.

36 It is found that 61.7% users made use of the ‘Internet search’ facility provided by their college libraries. Similarly, 82.1% teachers used the “Internet search” facility in their college libraries, as were also the majority of the students (59.9%).

37 It is found that only 36.9% users were accessing the electronic resources in their college libraries. Only 34.1% students indicated that they accessed electronic resources as compared to 69% teachers.

38 It is only 32.8% users accessed ‘electronic books’; followed by ‘electronic journals’ (24.3%) and ‘news clippings’ (22.2%). While 65.5%, a majority of the teachers accessed electronic journals, the electronic books were accessed by a majority of the students (30.8%). Similarly the least accessed type of electronic resources by 6.3% students and 22.6% teachers respectively was that of ‘dissertations.

39 It is found that 62.8% users could not access the electronic resources due to ‘limited resources and services in their college libraries’, while 61.9% users did not find electronic resources of their interest. More than 50% students were not accessing the electronic resources as compared to 30% teachers.

40 Avery few users (11.2%) were aware and accessed INFLIBNET databases, followed by 9.1% users who had made use of N-List and an ignorable number of users (4.3%) had accessed Open J-Gate. It is revealed that just below 50% teachers were aware accessing the INFLIBNET databases and 44% of them also accessed N-LIST programmes of the INFLIBNET as it provides access to
electronic journals in the college libraries. Among the students, only few of them (8.1%) were aware and accessed INFLIBNET databases.

41 It is found that only 35.8% users accessed the electronic resources to complete their ‘academic assignments’, whereas 34.5% users were interested ‘to collect relevant information on the subject’ by accessing the electronic resources and to keep themselves updated. The other purposes for which the students accessed the electronic resources include those of ‘to collect relevant information on the subject’ (31.8%) and ‘for academic assignment’ (33.1%). It is clear that even the teachers who accessed the electronic resources for research constituted 58.3% as compared to other purposes such as ‘to collect relevant information on the subject (65.5%) and ‘for academic assignment’ (66.7%).

42 It is observed that out of a total 1050 users, 35.2% found that they preferred accessing electronic resources as they provided ‘faster access to information’, followed by 34.9% users who thought the electronic resources provided ‘easier access to information’ as compared to printed resources. Among the teachers, 69% identified ‘access to current information’ and ‘easier access to information’ as prime reasons for using the electronic resources as compared to 32.6% students who mentioned ‘faster access to information’ as the primary reason followed by 32% who felt that electronic resources provided them an opportunity to have ‘easier access to information.

43 It is found that 63.4% users indicated that they were ‘not able to devote time’, followed by 63.1% who could not access the electronic resources as they had ‘limited access to computers’ were the major problems for accessing electronic resources. It is also observed from the analysis that more than half
of the students had problems in accessing the electronic resources. Interestingly, 42.8% teachers who accessed the electronic resources had problem as they were not able to devote time.

44 Only 50.5% users were availing the automated services. As far as the students are concerned, 48% of them were availing these services as did majority of the teachers (78.6%).

45 It was found that out of the users availing the automated services in the college libraries, 50.5% users were availing ‘issue/return’ service, which is highly availed service by the users, followed by ‘new arrivals’ which was availed by 40.8% users. While a majority of the teachers (78.6%) availed ‘issue/return’; ‘new arrivals’; and ‘newspaper clippings’, majority of the students (48%) availed only the ‘issue/return’ service.

46 A majority of the users (48.8%) pointed out ‘timings are not suitable’ and also ‘good quality computers are not available’ were the reasons for not availing automated library services. A majority of the students (51.1%), it was the ‘suitability of timings’ and ‘good quality computers are not available’ that hampered not availing automated library services. A very few teachers (21.4%) indicated that they had reasons like ‘too much demand for the services;; ‘no privacy’; ‘timings are not suitable’; ‘library staff was not helpful’, ‘good quality computers were not available’ were the reasons for not availing the services offered by the college libraries.

47 It was found that nearly half of the users (49.5%) never sought the assistance from the library staff to use the automated library services. Of these, 52% were the students and 21.4% were the teachers, who never sought the assistance to avail the services.
It is observed that 39.2% users were satisfied with the help rendered by the library staff to utilise the facilities and services. A majority of the teachers (66.7%) were satisfied as they received help from the library staff, whereas 63.9% students expressed their dissatisfaction for the same.

The satisfaction levels of the students for using the Internet facility with regard to location, staff in-charge, time allotted, number of computers available for use, multimedia facility and downloading/printing was below 50%. The non-satisfaction level for facilities to use the Internet such as multimedia and downloading and printing among the teachers is above 50%.

Only a half of the users were satisfied with automated library services. Among the students, the satisfaction level is below 50%. The highly satisfied students with the automated services were just 17%. Comparatively, the satisfaction level among the teachers is higher as 29.8% of them were highly satisfied and nearly half of the teachers, 48.8% teachers were satisfied with the automated library services.

The satisfaction level with the use of information technology in the college libraries was not very encouraging as 61% users indicated that they were ‘not satisfied’. Among the students, only 25.9% were satisfied with the use of information technology as compared to 23.8% teachers.

More than half of the users indicated that their dissatisfaction was due to ‘inadequate information technology’ (56.9%) in the libraries, followed by ‘lack of awareness about electronic resources and services’ (52.9%). The ‘discouraging attitude of the library staff’ is another reason pointed out by 49.7% users for their dissatisfaction. More than half of the students voiced their concern that they ‘lack awareness about electronic resources and services’.
Among the teachers, the non-satisfaction was due to ‘inadequately trained staff’ as a reason with the use of information technology as indicated by 57.1% teachers.

It is found that a majority of the users, 61.3% were influenced by the use of information technology in the college libraries. Among the students, 59.8% were influenced as compared to a majority of teachers (78.6%).

Taking into consideration the positive impact of information technology on the users, it is revealed from the Table 5.36 that majority of the users, 65.7% students and 85.7% teachers agreed that they had positive impact as a result of use of IT in the libraries in the form of ‘up-to-date information for academic growth’. A majority of the teachers (85.7%) also agreed that they had very positive impact of IT due to which they ‘enormously saved time and effort’ for using digital content and services. A majority of the students (65%) agreed that they had positive impact of information technology as they agreed that they were ‘enabled direct access to the services and resources’.

Considering the negative impact of information technology on the users of degree college libraries in Chandigarh, it is revealed that 67.1% students agreed that the communication which they used to have face to face had reduced to drastically, as also agreed by 66.7% teachers, followed by 58.8% students who agreed that IT application in libraries ‘increased habit of finding ready-made materials’ on the Internet, which was also agreed by 76.2% teachers. It is obvious for 78.6% teachers as they agreed that use of IT had ‘reduced quality of research work’, followed by 65.5% teachers who experienced ‘reduced habits of reading’.
A majority of the users, 93.3% indicated that the existing information technology infrastructure could be improved ‘by adding more latest computers’, followed by 79% users who thought that ‘Wi-Fi facility’ would be better off to strengthen the usage of electronic resources and services. 93.2% students suggested that ‘by adding more latest computers’ the college libraries would enhance their information technology infrastructure, while all the teachers (100%) thought that it should be ‘by creating campus wide network facility’ and by installing ‘leased line for the Internet’.

Conclusions

It is found that the teachers and students not only visited the library to get the library documents issued and returned, but also for using computer, for reading, for preparing notes and for meeting friends as well. The users of the library had the knowledge of information technology which includes the computers, software and hardware and associated devices and also possessed skills to operate these devices on their own. A majority of the users were aware about the computerization activities of their college libraries. Both the students and teachers used the computer for various purposes such as for communication, entertainment and for searching the Internet.

It is heartening to note that only a few users never used the on-line catalogue (OPAC) to access the library collection. Interestingly all the teachers had accessed the on-line catalogue either usually or sometimes. The websites of the college libraries were worth for recreation and redesigning as the present web pages only reveal the static information. It has been found that the knowledge of electronic mail and search engines was very high among the users.
The electronic journals and electronic books were the most accessed electronic resources by the users in the college libraries. The low accessibility of electronic resources by the users was due to various reasons such as lack of awareness, lack of resources, lack of sufficient information technology infrastructure etc. and also restrictions by the college libraries. A majority of the teachers accessed the electronic resources with the purpose to meet their immediate academic needs such as for research, for academic assignments and to collect relevant information on the subject, while the students accessed less for these purposes as they would generally meet their immediate academic needs through their course materials.

It is also observed more than half of the students had problems in accessing the electronic resources. Interestingly, a number of teachers who accessed the electronic resources had problem with themselves as they were not able to devote time and also the college libraries had limited computers for the users. A majority of the users were not availing the automated library services due to the libraries inability to provide the automated library services and also due to non-suited timings of the college libraries. The usage of the automated library services by the teachers was above 50% barring inter-library loan and subject specific information. It is seen that for the college libraries it was essential to be proactive to provide the library services to maximise their usage as it is observed that majority of the users could not be provided help by the library staff and hence their dissatisfaction.

Overall, it is found that the satisfaction level among the users with the automated library services is not satisfactory and the college libraries need to find the ways and means of correcting the existing services and offer more automated services to the users. It is found that the satisfaction level of the users with the use of information technology in the college libraries is very much below 50%. The reasons
for dissatisfaction of users with regard to use of information technology in the college libraries was due to inadequate information technology, lack of awareness about electronic resources and services and discouraging attitude of the library staff.

It is found that even now a sizeable number of users were yet to influenced by the use of information technology in the college libraries. The positive reasons which had greatly impacted them were: up-to-date information for academic growth’ and ‘enormously saved time and effort’. The negative impact which the majority of the teachers agreed upon was: ‘reduced quality of research work’ and ‘increased habit of finding ready-made material’. For the students, a majority of them found that the positive impact such as ‘enabled direct access to the services and resources’ and ‘enormously saved time and effort’ had great impact on them as a result of application of information technology in the libraries. It is also noted that the majority of the students also agreed with the negative impact of information technology on them were due to ‘reduced verbal face to face communication’ and ‘increased habit of finding ready-made material’.

The first hypothesis which is “All the degree college libraries in Chandigarh are automated with propriety software” is proved as all the degree college libraries in Chandigarh were using proprietary software.

The second hypothesis, “Most of the degree college libraries in Chandigarh are yet to develop their independent websites” is proved. It is revealed that the college libraries do not have their own websites, but webpages, that too static and integrated with their respective colleges websites.

The hypothesis, “The degree college libraries in Chandigarh are in the initial stage of developing information technology infrastructure and implementation of IT for various library functions and operations’ is partially proved. Though college
libraries have developed information technology infrastructure, but the use of IT has not gone beyond library automation activities.

The fourth hypothesis that is “A majority of the students and teachers possess information technology skills”, is proved.

The fifth hypothesis that is “A majority of the students and teachers are using on-line catalogues of their college libraries” stands proved.

The sixth hypothesis, which is “A majority of the students and teachers do not access the electronic resources in their college libraries” partially proved It is found that a majority of the teachers accessed the electronic resources while only a few students accessed the same.

The last and the seventh hypothesis, which is “A majority of the users are not satisfied with the electronic facilities and services provided by their college libraries”, substantiated from the analysis of data and is proved.

**Suggestions**

The following suggestions are made based on the analysis of the data for the study, interactions, discussions, personal interviews that the researcher had with the students and teachers of the degree colleges in Chandigarh. The suggestions are also supplemented by the feedback that the users had given at the end of the questionnaire.

1 The degree college libraries in Chandigarh should possess sufficient multimedia resources such as television, CD/DVD players, LCD projectors, and other digital hardware and software to promote the usage of educational resources and educational programmes among the users.
2 There is a scope for the degree college libraries in Chandigarh to increase the number of computers with latest configuration and other IT products such as printers, scanners, etc. to enable the users to maximise the usage of IT based resources and services.

3 The degree college libraries in Chandigarh should be fully automated with respect to all the library processes and activities so that the users locate the information resources easily and without any loss of time. The automation processes need to extend and concentrate on need-based and value-added user services.

4 The management of the college libraries should make efforts to continuously upgrade the systems for providing seamless access to information resources and services provided by these libraries. There should be adequate funding available to the college libraries to upgrade the systems. The college libraries should constantly keep in touch with the emerging and new technological applications in libraries and explore the possibilities of their utility for implementation for the benefits of the users.

5 The libraries should have well designed strategy for organising various programmes to popularise the IT facilities and services and their usage by the user community. The college libraries should also explore the possibilities of using social media such as blogs, facebook, etc. as these provide cheaper options to reach out to the users and get connected with them to promote the resources and services. This is supported by a fact that these days most of the students and teachers are computer literate and technology savvy.
6 The management of the colleges should encourage their libraries to adopt open source software as it would have great impact on the expenditure towards the purchase of software.

7 The LAN in the college libraries should be strengthened to reach out to more places within the campus to facilitate the accessibility of library on-line catalogue, electronic resources and services in the hostels, common rooms, academic departments, etc.

8 The library and information professionals working in the college libraries should be proactive in getting updated and learning on how to use the emerging and new technological devices effectively. The management of the colleges should, from time to time, encourage their library and information professionals to get them trained on various IT applications that are being used in the libraries, such as digitization process, building digital libraries, designing websites, etc.

9 The Internet has a significant impact on the learning, teaching and research activities of the students and teachers. It is a great responsibility for the college libraries to provide the Internet facility that should be accessible to all the users without any breaks and failure in connectivity. So the management of the college should ensure sophisticated systems and software in place for the seamless access of the Internet by the users.

10 The college libraries should also think of providing Wi-Fi facility in the campus so that the electronic resources and services offered to the students and teachers are made accessible all the time.
11 It is important that the college libraries to develop and update websites to provide instant access to current information and resources to the students and teachers.

12 The webpage or the website of the library should have all the information on library resources and services and linkages to different portals to guide the users.

13 The websites of the libraries should be marketed, publicized and promoted among the user community in the beginning of the academic session so that the users keep accessing the information required or keep visiting the libraries.

14 The degree college libraries should have a strategy to preserve their precious and rare material by electronic means which is through digitization process. The college libraries should procure the hardware and software required to digitise their material to preserve and to make accessible to the users for their use and benefit.

15 The degree college libraries should have a provision to have an electronic archive of the all the important documents possessed by the colleges including faculty publications, annual reports, syllabi of various programmes and courses, etc. as it would help retrieve the information easily as and when required by the users.

16 The college libraries should have access to electronic information resources such as Emerald, EBSCO, ProQuest, etc. for the benefit of students, teachers and other users.

17 The college libraries should have a comprehensive collection of e-books and e-journals on the subjects of teaching in the colleges. It is also desired to develop a CD-ROMs collection on select subjects for using in the classes for
teaching. The college libraries should strive to provide links to open access libraries on the Internet for the benefit of the users.

18 The college libraries should be the members of the national level library networks for the benefit of their users to access the member databases and other electronic information resources and services offered by such networks. The most popular library networks in the country offering such facilities and services to its members are the New Delhi based Developing Library Network (DELNET) and the Ahmedabad base Information and Library Network (INFLIBNET).

19 As some of the users might require training to use the commuters and other devices for academic purposes, they need to be assisted and trained on searching information on the Internet and on using the online catalogue in the libraries. Orientation programmes and demonstrations on the usage of electronic information resources should be organized from time to time for benefit of the users.

20 Automated library and information services that are being provided by the college libraries need to be upgraded from time to time to help the users in order to make them aware of the importance and utility of automated services.

21 The college libraries should focus more on providing personalized electronic services such as personal access, subject updates, interest profiles, orientation and guidance to the users on the use of electronic resources.

22 The college libraries should exploit the opportunities provided by the web 2.0 technologies, such as blogs, feeds, social networks, etc. to reach out and maximise the use of the print and electronic resources.
23 The college libraries should conduct periodic studies to evaluate IT based services to measure user satisfaction and accordingly more advanced technological equipment, devices and products should be added to offer improved services to the users.

24 The staff of the library often discourages the use of electronic resources and services by the users as they are not adequately trained to facilitate the use of these resources and services. It is necessary that the staff providing these resources and services should have the right attitude and be trained on facilitate and to maximise the usage of the electronic resources and services by the students and teachers in the college libraries.

25 The library timings generally coincides with class timings, thereby leaving no time for the students and the teachers to access electronic resources and to avail automated library services, hence the college libraries should place more systems at different places within the colleges and also extend library hours.

26 The college libraries need to rethink their roles to support academic activities in the present digital society. The services provided by the college libraries should be modernised and adapted to the new developed technologies for the benefit of their user communities.

27 The information technology helps remove the barriers of distance and time. Using the technology, the college libraries should be part of a library consortium to share and exploit the electronic resources and services and partnership with other college libraries should be developed for mutual benefits.
Future research

The researcher believes that more studies need be taken up to improve and encourage the use of electronic information resources and services by the users in academic libraries in general and the college libraries in particular. The present study was on “Information technology application and level of user satisfaction in degree college libraries in Chandigarh: An analytical study” focussed on users- students and teachers of two faculties of Arts and Commerce in the degree colleges only. The future research areas may be the following:

1. As this study is limited to a few students and teachers of only two faculties, there is a scope to focus and study on the “uses of electronic resources and services of Degree College libraries in Chandigarh” on the other faculties also.

2. There is also need to study on the “organization and management of electronic resources and services in the degree college libraries in Chandigarh”.

3. If the college libraries are to be successful in the future, they need to be more proactive to adapt to the new and emerging technologies and exploit the opportunities offered by these technologies to meet ever raising and immediate information needs of the present day tech savvy user community. Hence it will be interesting to study the “impact of information technology on the college libraries”.

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References
