CHAPTER 8

CONCLUSIONS, SUGGESTIONS AND DIRECTIONS FOR FUTURE RESEARCH
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Conclusions, Suggestions and Directions for Future Research

1. Background

The study investigated the research scholars' perceptions of impact of internet on library usage in university libraries in Karnataka state. This chapter presents the conclusion based on the result of the study, followed by specific recommendations and concludes suggesting areas for future study. The study fulfills all the objectives defined for research and tests the hypothesis all the five hypotheses formulated for the study. The study adopted survey research method for obtaining primary data from filed and considered census population as target population. The data from 1077 respondents collected through self-administering the survey instrument and the data thus collected have been analyzed in detail and interpreted meaningfully in earlier chapters.

This chapter presents the overall conclusions of the study followed by suggestions proposed based on findings and concludes with identifying some areas for further probing or future research.

8.2 Conclusions

The study observes that the university libraries considered for the current study are equipped with good print resources, large number of computing facilities with internet connectivity. The terminals are enabled with UPS backup and working on LAN and campus-wide network environment. Five universities have separate internet browsing section within the library and Mangalore University has separate centre for internet access. All the universities have 10mbps leased line internet connectivity from BSNL. Mangalore University has 20 mbps connectivity. Besides terminals library, the researchers can also access internet through their departments. All the universities under the study are members of UGC-Infonet e-consortia and access to databases and internet is provided to researchers free of cost. Only Bangalore and Gulbarga Universities
have separate library webpage. Other libraries are displayed as part of their parent's home page. The Universities are engaged in imparting training/orientation programs for their users on using e-resources.

Of 1468 research scholars spread across three broad disciplines namely Science, social science and humanities in six universities, the study received 1077 responses resulting 73.36% of response rate. It is noticed that 3/4th of the research scholars were in the initial and advanced stages of research and the remaining 1/4th of them are in final stage. It is observed that internet has emerged as primary channel of information search followed by university library, friends and colleagues, teachers and experts, own collection and visit to other library in that order of importance. This also highlights that the emergence and advancement of ICT particularly internet is challenging and diminishing the long existing notion of Library unique channel/source of information provision. In other words, the internet made it as one of the channels.

Among the 31.00% of the researchers who visit the library daily, researchers of social science discipline are more as compare to science discipline. The opposite is true with occasional library visitors. On the other hand about 77% of researchers use internet daily. Though there is not much difference in usage pattern across the disciplines, science researchers tend to use more internet than others. More than 2/3rd of respondents' access internet through their respective university departments followed access in University library, private cyber café, hostels/homes and computer/internet centres. In a day, nearly half of the respondents use internet for about 1-2 hours and nearly 1/3 of them use internet for about ½ an hour to 1 hour.

It is very interesting to note that almost all researchers in response population are computer literates. About 60% of researchers said that they have undergone computer training programs and the remaining 40% who have not undergone any training programs obtained the skills through their friends, colleagues, online tutorials, and library manuals. Unlike computer training
program, it is interesting to note that more than 80% of the researchers have not undergone any internet training programs. It is very interesting to note these research scholars have banked on their friends and colleagues for leaning the tools and techniques of internet usage. In addition, they venture to learn by trial and error method and through online tutorials.

A majority of researchers use internet enabled desktops provided in their library and departments. Besides, 30% of them use their laptops too. Almost all terminals are working in Windows environment. However, use of Linux platform also traced with researchers. Internet Explorer (IE) is the most favourite web browser used by researchers followed by Mozilla. Google and Yahoo are most favoured search engines by researchers. PDF and HTML are the desired formats for access/downloading the documents from internet. The features such as WWW (web links), email provisions, search engines, websites of organizations, downloadable software, news flashes, file transfer tools, web-OPACs, chatting, FAQs, and remote access have been appreciated by researchers.

Primarily researchers use internet to 1) search for research related information, 2) e-journals and e-databases, 3) finding literature for self publication, 4) to keep abreast of current trends in the field, 5) communicating with friends and experts, 6) to know about seminars/conferences in their field. Reading of e-books, advertisements, career opportunities, newspapers are not in their priority.

The specific type of e-resources prefer to be searched by research scholars are e-journals/full text articles, online encyclopedias and electronic theses/dissertations, websites of organizations, e-books and online library catalogues. The other specific resources like blogs, maps, newspapers etc. but the response is not encouraging to quote them popular resources. The infant nature and inadequacy of availability of relevant information in these resources could be one of the factors for less usage.
Provision of services of UGC-Infonet to researchers is one of the important services of university libraries. It is observed about half of the respondents are aware of the features and they are using it too. The unawareness the service by other half clearly signals the gray areas to be considered by university administration on top priority.

**Access Related Problems While Using the Internet:**

About 2/3rd of researchers express that the current internet connectivity is good. However, the remaining 1/3rd of population expressed the inadequacy, which cannot be ignored. Though the researchers indicated the fitness of the connectivity, they noted many problems while accessing/downloading the resources from internet. The prominent problems reported by them are 1) delay in display of web pages due network clogging or traffic jam, 2) difficulty in finding relevant information from the large number of hit results, 3) frequent power failures causing disruption in connectivity, breakdowns, 4) security 5) non-compatible software, 6) hardware related problems, and 7) time restrictions are the frequently encountered problems in that order. Researchers in science discipline experience more problems as compared to other researchers.

**Impact of Internet on Information Resource and Library Services:**

The impact of technology in particular internet is clearly visible in all functions of library. The technology intervention is clearly visible through Library automation, digitisation, storage media and the mode of providing access to resources in digital media. It is welcome feature that a majority of respondents do acknowledge their regular usage of internet for their research activities. About 2/3rd of them express that the internet has influenced their overall academic activities and reading habits. About half of them express that it influenced their professional competency. Less than half of them express that it has impacted their writing skills and publications leaving other half inconclusive about the same. This could be attributed to the fact that 42.15% and
32.49% of respondents are in the initial and middle stages of their research. The respondents are not very sure about the impact of internet on their communication skills and to what extent it impact on expediting the result of their research. In other words, while acknowledging the impact of internet on reading, professional efficiency and overall academic activities, the researchers are not very sure about the nature of impact on their communication skills and speedy outcome of result of research output.

About 2/3rd of respondents prefer to use electronic resources as compare to print resources. However, the preference for print resources by 1/3rd of them cannot be ignored. It is very interesting to note that half of the respondents would like to preserve the downloaded resources in electronic devices like pen-drives and CDs as well in print form and another 1/3rd of them prefer to preserve them only in digital form. This clearly shows important role of print resources even in internet driven era. At the same time preference to store the documents in digital form alone also indicates the increased usage of electronic storage devices.

Researchers' perceived advantages of internet over print resources are 1) it is time saving, 2) updated and more helpful, 3) more informative and 4) Less expensive. It is to be noted that the cost of acquiring electronic resources is expensive. But its volume of coverage and multiple access points makes it less expensive as compare to print resources.

It is interesting to note that a majority of respondents agree that the internet has influenced their research. However, it is not reflected through their research outputs in the form of publications as 3/4th of them stated that they have not published any articles. The stages of their research could be one of the influencing factors for this situation as nearly 3/4th of them are in initial and middle stages of research.
Despite great impact of internet in library and library services, more than 70% of researchers do not foresee the exit of libraries and print resources. However, more than half of them do express that the internet has impacted on library services and their usage. Researchers' perceptions of visible impact of internet and technology on library resources could be consolidated as 1) Access to library resources and 2) IT supported facilities and services. Perceived impact related areas are access via net, speedy access, e-books, e-journals and their archives, databases, increased publication print resources. Perceived impact on the IT supported facilities are internet, digital library, ease of searching a specific book, OPAC, quick information retrieval, and Wi-Fi access.

**Overall Satisfaction with Internet and Library Cooperation:**

A majority of researchers expressed their satisfaction with current status internet facilities provided in their universities. But do indicate several problems while accessing the internet, which needs to be addressed by university authorities.

About 70% of respondents indicate that the library staff members are cooperative with them during library transactions and more than half of them state that their interaction with them is good and satisfactory. However, the unhappiness expressed by other 30% need to be addressed by universities.

To summarize, researchers are tending to use more and more e-resources through internet and expressed the access and technical related problems while accessing the internet. They feel the current status of internet connectivity is good leaving scope for further improvement. The researchers and librarians indicated the specific areas where they have seen visible impact IT and internet on library products and services. Usage of UGC-Infonet resource and library staff cooperation are the issues of concern which need to be considered by university authorities on priority. The study unearthed many interesting facts and identified some areas which needs further probing. It also witnessed the
homogeneity among researchers of different disciplines indicating that the research need and usage pattern is almost similar in researchers of science, social science or humanities

8.3 Suggestions

While analysing the responses from libraries and research scholars the study unearthed many areas that need to be strengthened to improve the efficiency and remove the bottlenecks experienced by researchers in the system. This study offers suggestions on following broad areas

*Infrastructure Facilities in Universities.*

Of six university libraries considered for current study, five have 10mbps and one library has 20mbps connectivity for internet access. While four universities are still using CAT cables, two have upgraded to OFC for networking mode of connectivity. Only one university has installed Wi-Fi technology. Looking at the status it is suggested that

"The universities should attempt to upgrade the bandwidth of internet connectivity for continuous access without any disruption. As upgradation has happened in one university, it is desirable to follow by other universities too."

"The universities which are still in CAT cable network need to upgrade to OFC network to improve the efficiency. Further, it is desirable for universities to adopt wireless technology for benefit of researchers and academic community."

*Full-fledged Library web sites*

A separate library website on parent website with links to internal resources offers lot of benefits for remote access. It is found that only two university libraries have separate websites on their parent website with provision
to access to their resources. For the efficient use of resources on web it is suggested that:

"Taking cues from university libraries that have already developed independent websites, the other libraries should consider designing their library websites on priority"

Expansion of resources on UGC-Infonet

It is observed that about half of research scholars are not aware of the facility offered by UGC-infonet, for which the respondent university libraries are members. It is also observed that the databases offered by infonet are more skewed towards science discipline. Hence it is suggested that:

"The university libraries should consider educating their users on priority so that the resources could be optimally utilized".

"As the utilisation is function of awareness and relevance, the infonet authorities should consider enhancing the resource base to include more databases in social science and humanities disciplines. This is also found true with feedback received from research scholars in those disciplines"

Addressing Access and Technology related Problems while using Internet

Though researchers express the satisfaction on current internet connectivity, indicated some problems while accessing/downloading the resources from internet as explained earlier. Looking at the features explained by them, it is suggested that
“The universities should consider increasing the number of internet enabled computers with latest Hardware/software. It is also suggested to increase the time of internet access both library and department for the benefit of researchers, which will definitely facilitate the promotion of academic research in universities.”

Encouraging more research output

Though researchers indicate the impact of internet on their research, it is not reflected though their research outputs as 3/4th of them have not published any research paper. This could be attributed to the freedom offered by university for publication during the research process. Hence, it is suggested that

“The universities could consider measures for promoting publications in all the three stages of research (i.e. initial, advanced and completion)”

Enhancing the cooperation of Library staff

Though 70% of researchers acknowledge the cooperative nature of library staff, about half of them expressed their happiness towards the same. However, the unhappiness expressed by other 30% is issue of concern to universities. Hence it is suggested that

“The university library management should consider motivating their staff to be more service oriented and to develop empathy towards users. Rewards and recognitions would be added value for the promotional activities”

8.4 Directions for Further Research

Like any research study, this study also identified some areas which need to be probed further and researched. As explained earlier chapter, the scope of
This study is intended to consider researchers and universities located in Karnataka. The focus is to study the pattern and impact of internet usage, internet is one element in the gamut of services offered by libraries. Hence, the study identifies scope for further research on those areas of concern.

1. The geographical coverage is limited universities in the state of Karnataka. Hence there is scope for examining the results of this study in other states of India. It provided an opportunity for comparison too.

2. As the study is intended cover UGC aided general universities in Karnataka. But there are other 28 different universities in the state not financed by UGC. The future could cover all the universities for generalizing the theory.

3. The study considers only full-time research scholars as target population. But there are many research scholars working on part-time basis. There is scope for covering these part-time scholars also in future research.

4. The target population is research scholars. But universities also cater to the needs of postgraduate students and faculty members. Hence, there is scope for increasing the base of population.

5. It is understandable that the nature of resources accessed through UGC-infonet differs from university to university on some parameters. There is scope for analyzing these parameters on scientific grounds.

6. The technical issues differ in internet infrastructure provided in universities considered for this study. There is scope for detailed study of technical issues in future research.

To conclude, technology is increasingly accepted in all aspects of human life and its impact is clearly visible in action and products of day to day use. It has become an integral part of current day generation. The current generation is more tech-savvy, intelligent and impatient for any delayed actions. Providing
excellent resources and facilities will not guarantee the utilisation. In academic world, the institutions of higher learning need to motivate users for optimal utilisation their excellent resources. For this, the library management goes beyond the rule book to reach users more closely and create conducive environment for proper utilisation.

Like Mahatma Gandhi said, the libraries should treat their users as customer and should not feel that they are doing any favour by serving them. The libraries should strive to prepare their personnel towards voluntary and self interest to serve users by heart. With service minded staff our academic world not only prospers with more intellectual capital but also contributes to growth and prosperity of our country.

"Late prime minister Benjamin Disraeli once said the successful man in life is one who has best information and service to humanity is best work of life"