USE OF ONLINE DATABASES IN THE FACULTIES OF SOCIAL SCIENCES AND ARTS IN CENTRAL UNIVERSITIES OF DELHI AND UTTAR PRADESH: A COMPARATIVE STUDY

ABSTRACT OF THE THESIS

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The developments in computer technology have drastically changed the way in which data is collected, retrieved and disseminated. As an impact of these technologies, manual information retrieval systems have been transformed into automated retrieval systems and have emerged as an excellent tool for information retrieval. It concerns all the activities related to the organization, processing, and accessing of information in all forms and formats. It is designed to enable searchers to find relevant information from an organized collection of information to satisfy their specific needs. Furthermore, the introduction of Information and Communication Technologies (ICT) in information processing techniques has completely changed the concept of information retrieval from automated to online information retrieval systems. This transition from automation to online systems has greatly affected the use of library resources.

Furthermore, the developments in information and communication technologies have expanded the scope of information retrieval systems from automated retrieval systems to online retrieval systems. Online information retrieval systems had started to emerge with the initiation of computer applications in information handling and processing, and in the past few decades, these systems have undergone several changes in their searching and retrieval capabilities. The internet and World Wide Web have made it available online anywhere at anytime. These are mainly designed to retrieve documents or information from remote database(s) that may contain abstracts or full texts of documents, such as articles, references sources, legal documents, statistics and so on, as well as multimedia information (Chowdury, 2010). Thus, in recent years, the online Information systems have become an important tool of information access and retrieval and are considered as a significant source of information in academics.

Many online databases began as printed indexes to the literature of specialized subject domains. The early databases were in the form of electronic indexes to scientific and technical literature in medicine. Now, there are thousands of online databases that are produced by a number of government and private organizations. Learned societies and professional organizations have likewise been active in the production of databases (Alberico & Snow, 1985). MEDLINE was the first online dial-up service, introduced in 1972 and was offered by the online service providers,
Abstract

Dialog (Lockheed) and ORBIT System Development Corporations (SDC). Now, the searchers can access these databases either through database producers, or online service providers/vendors (Chowdhury & Chowdhury, 2007). Furthermore, advances in computer memory allowed construction of very large databases, which enable fast retrieval of information. Along with developments in national and international telecommunication technologies and networking technologies have facilitated real-time, interactive, online global access to these databases to a large number of users (Gash, 2000). Since then, online databases are continuously growing in number and providing different modes to access a multitude of information sources.

The widespread development and usage of online databases have a profound impact on academic and research activities. These are the organized collection of information with which users can easily access their information either on-site or remotely. Online Databases comprise a wide range of information sources including electronic journals, e-books, electronic thesis, and other electronic sources. Gash(2000) acknowledged that the electronic databases are of central importance to anyone who performs literature searches as they cover a wide range of subject areas providing access to millions of logically arranged references of different types of literature such as journals, books, reports, conference papers, patents, standards, theses and dissertations and government publications, etc.

Today, libraries are continuously transforming their collection and services on the one side, but on the other side, they are facing problems of shrinking budget and increasing cost of information resources (Thanuskodi, 2013). Therefore, to overcome these problems libraries are now looking for online databases as a means of acquiring a wide range of information sources at an average cost. Furthermore, to justify the amount spent on acquisition and provision of online database services in libraries, it becomes necessary to determine the use of these significant sources of information. In addition, the planning for budget also depends on the understanding of how information resources are used by the patrons. Hence, the present study attempts to obtain the data regarding the use of online databases in select universities to justify the expenditure on acquisition and maintenance of online databases.
NEED AND SIGNIFICANCE OF THE STUDY

Need

In the last few decades, online databases have become an important information source for research and learning, and now these are considered as an essential component of the online collection of any library. Online Databases are an excellent tool for online information searching, which are widely used in various fields of education, particularly in the Science and Technology. Therefore, for optimum use of these resources, the proper assessment of online databases and its services becomes requisite. However, several studies have been conducted to measure the use and impact of online databases in science-related fields, and these have yielded positive results. Hence, this fact makes it requisite to identify the importance and use of online databases in the field of Social Sciences and Arts.

Besides, libraries are nowadays spending a huge amount of money on providing access to online resources to their users. Thus, this impel to assess the use and value of such resources and to identify and understand the databases that are in use, as the cost of the information sources can only be justified by its use. This study will also provide recommendations to improve the usage of these valuable resources. Furthermore, there is no published study found on the topic of investigation with similar objectives to identify the use of online databases. Therefore, the present study will be helpful in providing a better understanding on use of online databases subscribed by the select university libraries.

Significance

The study aims to identify the importance and use of online databases in the fields of Social Sciences and Arts. The results of the study will help to:

- Make optimum use of Online Databases in the field of Social Sciences and Arts.
- Identify the issues that restrict users in making use of online database services.
- Improve library services in terms of reviewing the existing database services in libraries.

Therefore, the findings of the study will be helpful in improving organization and provision of online databases in libraries, enhancing the awareness and use of online databases, especially in the field of Social Sciences and Arts.
STATEMENT OF THE PROBLEM

The problem selected for the present study is entitled “Use of Online Databases in the faculties of Social Sciences and Arts in Central Universities of Delhi and Uttar Pradesh: A Comparative Study”. The problem attempts to understand the use of online databases in the Faculties of Social Sciences and Arts in Central Universities of Delhi and UP.

OBJECTIVES

The objectives of the study are:

i. To assess the awareness of online databases among the users in the faculties of Social Sciences and Arts of select central universities.

ii. To study the process of collection and management of online database among the libraries of the surveyed universities in Delhi and UP.

iii. To determine the library facilities and support services for online database use in the libraries of the select universities.

iv. To compare the use of online databases among the users of the faculties of Social Sciences and Arts in the central universities under study.

v. To assess the impact of online databases on the users in the faculties of Social Sciences and Arts of the universities in Delhi and UP.

vi. To determine the barriers in the optimum usage of online databases among the users of the select universities under study.

vii. To identify the level of satisfaction regarding the use of online databases, its collection and services among the users of the faculties of Social Sciences and Arts in the select libraries in Delhi and UP.

HYPOTHESES

The study addresses the following hypotheses:

i. There is significant difference in the level of awareness of online databases among users (Faculty Members, Research Scholars and Postgraduates) from faculties of Social Sciences and Arts in the Central universities of Delhi and U.P.

ii. There exists significant difference in the collection of online databases among the libraries of select universities in Delhi and UP.

iii. Impact of online databases is higher among the users of the faculties of Social Sciences and Arts in the central universities of Delhi as compared
Abstract

to users of the faculties of Social Sciences and Arts in the central universities of UP.

iv. There exists a significant difference in the purposes of using online databases among the users of central university libraries in Delhi and UP.

v. There exists significant difference in the satisfaction level with respect to the use of online databases among the users of the faculties of the Social Sciences and Arts in the central universities of Delhi and U.P.

SCOPE AND LIMITATIONS OF THE STUDY

Libraries today are adopting different technology enabled services for providing online sources and services to their users in a more efficient way. Availability of online resources has added new dimensions in modern library services. Therefore, in the present study an attempt has been made to carry out in-depth study to gauge the use of online databases in select universities.

Scope

There exist seven central universities in Delhi and UP. It has been observed that the best input regarding the use of online databases could have been collected from those universities, which have higher grade in academics and research and are having proper infrastructure to provide online database services. After thorough investigation, the four prominent central universities have been selected for the study. Thus, the present study includes the four central universities of Delhi and UP, viz. Jawaharlal Nehru University (JNU), Delhi, University of Delhi (DU), Delhi, Aligarh Muslim University (AMU), Aligarh and Banaras Hindu University (BHU), Varanasi.

The target population for the present study included librarians and users of online databases (Faculty Members, Research Scholars and Postgraduates) from the faculties of the Social Sciences and Arts among the select central universities in Delhi and UP.

Limitations

The major limitations of the study are as follows:

- The study was limited to the faculties of Social Sciences and Arts in the four central universities of Delhi and UP, i.e. DU, JNU, AMU and BHU. These are the oldest and established universities of Delhi and UP and are renowned for its education system in terms of research and teaching.
The databases acquired through UGC consortia and other sources by the libraries have been covered in the study, while other online databases, such as OPAC and Open access online databases have not been included in the study.

The Faculties of the Social Sciences and Arts of select universities have been considered as a unit for the study. As, the data collected from the Faculties of Social Sciences and Arts from all the universities under study observed negligible differences in the responses, so the investigator decided to merge the data of both the faculties as a single unit and a comparative study at state level (Delhi and UP) has been undertaken. In addition, the users of the faculties of Social Sciences and Arts were using the same online databases for their requirements. This is also a reason that the investigator preferred to conduct the research among the users of Social Sciences and Arts in central universities of Delhi and UP rather than the two faculties.

There is disparity in the distribution of subjects in the various faculties and schools of the universities under study. The investigator has not ventured into the different subjects and there location in either of the subjects. For the purpose of this investigation, the subjects that constituted the departments/schools have been considered as they existed under the faculties of Social Sciences and Arts in the universities under study. In JNU, the schools that constituted the subjects that are generally covered by the rest of the universities have been selected by the researcher based on the understanding developed by the existing literature and practice within other university systems in the country. The schools considered in this study includes Schools of School of Language, Literature and Culture, School of International Studies and School of Social Sciences.

**METHODOLOGY**

In order to accomplish the objectives and to collect the relevant data, the investigator has chosen survey method to determine the extent of use of online databases by the users of select libraries and services provided by the concerned libraries to their users. The methodology adopted for collection and analysis of data regarding the use and services of online databases in select university libraries is divided into the following sections:
Document Review

An exhaustive survey of related literature was undertaken before starting the work for proper understanding and orientation of the research work. The investigator has consulted various primary and secondary sources for the study. The data relevant for the research work has been collected from both printed and electronic sources of information and these are categorized as:

(a) Primary Sources: Scholarly Journals, Theses, Annual Reports, Websites of the concerned libraries.
(b) Secondary Sources: Encyclopedias, Indexing & Abstracting Journals, Magazines, Textbooks, Online resources, Dictionaries, Digital libraries, Brochures.

Literature Survey

A thorough search is made for related materials in different types of information sources, i.e. primary and secondary sources. The documents consulted for the study mainly includes journals, conference proceedings and books.

Data Collection Methods

Several techniques are available for collecting relevant and authentic data. Being empirical in nature, the study is conducted using survey method constituting of two structured questionnaires. Questionnaires were administered to a sample population in order to know their opinions and attitudes. For sample selection, the investigator used quota sampling and convenience sampling to collect data from a large sized population. Thereafter inferences were drawn from the responses of the representative sample of the total population.

QUESTIONNAIRE

Questionnaires were prepared keeping in mind the objectives and hypotheses proposed for the study.

- Questionnaire Design

As discussed, the investigator has designed the questionnaires keeping in mind the objectives and hypothesis of the study. Individual statements of the questionnaire were formulated using the related literature reviewed and the research objectives of the study. The queries made through questionnaires are formed in such a way that the relationship of one question to another is readily apparent to the respondent. Depending upon the need of the questions, the questionnaires included various types
of questions such as dichotomous (Yes or No), multiple-choice and Likert five point and three point scale. To collect the necessary data for the study, the investigator designed two sets of questionnaires, one for the librarians and another for the users of the concerned libraries.

The questionnaire for the librarians was framed to take librarians’ opinion on facilities that facilitated the use of online databases and on other issues associated with it. It consists of a number of questions arranged in a definite order and style. The questions covered in the questionnaire are divided under the following heads:

- Collection of Online Databases
- Budget Allocated
- Collection Development
- Acquisition and Access
- Access and Usage
- Problems Related to Online Databases
- Facilities Provided by the Libraries
- Support Services
- Satisfaction and Training regarding the Use of Online Databases

The questionnaire designed for users is also based on the structural pattern covering various aspects such as:

- Awareness
- Use of Online Databases
- Search Process
- Features of Online Databases
- Impact of Online Databases
- Library Facilities and Support
- Problems and Satisfaction

Questionnaires thus designed, was subjected to the pilot testing to check the validity and relevance of the questions included in the questionnaire. After that, questionnaires were redesigned and administered for data collection.

**USAGE STATISTICS**

The study attempts to acquire the necessary statistics from the respective libraries to assess the use of databases in the libraries of Delhi and UP. All the libraries under study have subscribed to online databases under the UGC- INFONET
Programme. The investigator has collected all the data required for the years 2013 and 2014 from the three libraries, i.e., AMU, BHU and JNU. A variation is found in the available number of databases and the databases pertain to a broader subject coverage, it was difficult to use the databases discipline wise, i.e. the Social sciences and Arts. So, the common databases having the desired subject coverage have been identified to compare the most used databases for the study.

**Pilot Survey**

Pilot study was conducted to test the validity of the questionnaire designed for the data collection. It helps to ensure the conceptual clarity of various aspects covered in the questionnaire, standardization of questions, simplicity of language used and also to know drawbacks, defects, ambiguities, if any that exists in the questions. This pre-test was conducted to determine whether the questions asked generated the data required for the study. Both the questionnaires prepared for librarians and users were administered among the users in the Central University of Himachal Pradesh as part of the pilot study during the month of September 2012. Questionnaires were distributed to the librarian and selected 47 research scholars and postgraduate students registered in the School of Life Sciences and Mathematics and School of Computer & Information Science of Central University of Himachal Pradesh.

**Population and Selection of Sample**

In order to achieve the objective of the study mainly two variables were taken for detailed analysis, i.e. Librarians and Library users. The population from which a sample was drawn included faculty members, registered research scholars (Ph.D. and M.Phil.) and postgraduates from the faculties of the Social Sciences and Arts at DU, JNU, AMU and BHU.

As far as the selection of respondents among the users were concerned, it was not possible to collect data by taking responses from each category of the population. Therefore, the investigator used the quota sampling technique with the combination of convenience sampling. For sampling, the total population is first divided into three groups based on the academic status, viz., Faculty Members, Research Scholars and Postgraduate students. Then, in each quota, a number of questionnaires were distributed to a sample population selected through convenience sampling until each quota was filled. Special care was taken to select a representative sample from the total population of students during sampling. The researcher selected a sample of 757, 367, 268 and 486 out of total population of 7566, 3672, 2682 and 4863 users.
respectively in the four surveyed libraries for this study i.e. DU, JNU, AMU and BHU. The total number of population and sample selected for the study is shown in table 1.

**Table 1: Total Population and Sample Population**

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Faculty of Social Sciences</th>
<th>Faculty of Arts</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DELHI</td>
<td>UP</td>
<td>DELHI</td>
</tr>
<tr>
<td>Faculty Members</td>
<td>DU</td>
<td>JNU</td>
<td>AMU</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>Research Scholars</td>
<td>57</td>
<td>108</td>
<td>49</td>
</tr>
<tr>
<td>PG Students</td>
<td>235</td>
<td>36</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>309</td>
<td>153</td>
<td>151</td>
</tr>
</tbody>
</table>

|                   |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |
|                   | Total |     | Total |     | Total |     | Total |     | Total |     | Total |     | Total |     | Total |     |

**Questionnaire Administered**

The survey was designed to assess the use of online databases subscribed by the chosen libraries. To determine the use of the library's online databases, the survey was conducted during the period of March 2013- April 2014. A set of questionnaires were distributed among librarians in the central libraries of the concerned Universities and collected back the completed questionnaires from them for data analysis.

The questionnaires designed for users were distributed to faculty members, research scholars, and postgraduate students to determine the use and differences in usage of online databases among the users of the faculties of the Social Sciences and Arts in the select universities in Delhi and UP. Data was collected from the users of concerned faculties of select universities in between March 2013 to April 2014 during peak hours, i.e. 9 a.m. to 1.00 p.m. and from 2.30 to 5 p.m. on all working days. The questionnaires were distributed to users to collect data. A total of 964 questionnaires were administered in the faculties of Social Sciences and Arts respectively in the University of Delhi during the month of March, 2013. In JNU, overall 442 questionnaires were administered in the School of Language, Literature and Culture, School of International Studies and School of Social Sciences in the month of March, 2013. The Aligarh Muslim University was covered in the month of October and
November in 2013, where 347 questionnaires were distributed in both the concerned faculties. In BHU, 705 questionnaires were administered during the period of March to April, 2014.

**Response Rate**

The overall response rate of the librarians and users is shown in table 1 and table 2 and university wise questionnaire analyzed is shown in figure 2.

**Table 1: Librarians Response Rate**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Category</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DU JNU AMU BHU</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Number of Questionnaires Administered</td>
<td>1 1 1 1</td>
</tr>
<tr>
<td>2.</td>
<td>Number of Questionnaire Received</td>
<td>1 1 1 1</td>
</tr>
<tr>
<td>3.</td>
<td>Number of Questionnaire Analyzed</td>
<td>1 1 1 1</td>
</tr>
<tr>
<td>4.</td>
<td>Response Rate (%)</td>
<td>100 100 100 100</td>
</tr>
</tbody>
</table>

**Table 2: Administration of Questionnaire and Response Rate of Users (FM, RS and PG)**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Library</th>
<th>Number of Questionnaires Administered</th>
<th>Number of Questionnaire Received</th>
<th>Number of Questionnaire Analyzed</th>
<th>Response Rate (%)</th>
<th>University wise questionnaire analyzed (%) (Out of 1878)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>DU</td>
<td>964</td>
<td>889</td>
<td>757</td>
<td>78.53</td>
<td>40.31</td>
</tr>
<tr>
<td>2.</td>
<td>JNU</td>
<td>442</td>
<td>396</td>
<td>367</td>
<td>83.03</td>
<td>19.54</td>
</tr>
<tr>
<td>3.</td>
<td>AMU</td>
<td>347</td>
<td>305</td>
<td>268</td>
<td>77.23</td>
<td>14.27</td>
</tr>
<tr>
<td>4.</td>
<td>BHU</td>
<td>705</td>
<td>641</td>
<td>486</td>
<td>68.93</td>
<td>25.88</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2458</td>
<td>2231</td>
<td>1878</td>
<td>76.40</td>
<td>100</td>
</tr>
</tbody>
</table>

**Figure 1.2: University Wise Questionnaire Analyzed**
Data Analysis

After collecting the relevant data for the study from DU, JNU, AMU and BHU using various data collection techniques, such as questionnaires and literature review. The data was organized, analyzed, compared, consolidated, tabulated and interpreted by frequency counts, percentages and applying statistical tools. The software package SPSS have been used to verify the validity of results. In the light of above data, useful findings, recommendations and conclusion have been derived. Based on analyzed data, findings, conclusion and suggestions have been drawn.

FINDINGS

PART-A: Major Findings derived from the Responses of Librarians

The major findings of the study, in summarized form, conducted among the librarians/ librarian-in-charges of the libraries under study are following:

1. Amongst the surveyed libraries, only the library of BHU has separate budget for the subscription of online databases, where as the other surveyed libraries did not have any budget for the purchase of online databases.

2. Amongst the four libraries under study, DU has the highest number of online databases, 79 followed by JNU (66), BHU (24) and AMU (24).

3. In the libraries of DU, JNU, AMU and BHU, Faculty recommendations are the prominent source for selection of online databases, followed by user recommendations in DU, JNU and AMU, while the recommendations of library committee are considered by for selecting online databases in the libraries of JNU, AMU and BHU. News groups, reviews and vendor’s recommendations are the less preferred sources for selection.

4. Selection of online database in the surveyed libraries is mostly done according to the coverage, authority/publisher, cost, licensing policy, user’s need, and functionality and reliability of the sources. The other options of selection include; authentication, technical feasibility, vendor support and user interface as the least preferred for selecting online databases.

5. Online databases are procured in all the select university, viz., DU, JNU, AMU and BHU libraries through both consortium and direct subscription from vendors.

6. Libraries of DU, JNU, AMU and BHU are mostly preferred publishers to be an important and reliable mode of acquisition, followed by online database aggregators (Proquest, EBSCOhost etc.) in JNU, AMU and BHU and
professional organizations are the other modes used in JNU and BHU for acquisition of online databases

7. The libraries of DU, AMU and BHU provide on campus access to online databases through recognized IP address; while on campus ID & password protected access to subscribed databases is provided in the libraries of JNU, AMU and BHU. Only the JNU’s library offers remote access to online database which enables its registered users to access it anywhere from the world.

8. The libraries under study are using proxy servers to provide access of its subscribed online databases to registered users only.

9. Library staff of the libraries under study of Delhi and UP, agreed that the usage of print sources has decreased as use of online databases has increased.

10. In DU, JNU, AMU and BHU libraries, usage statistics is used to find out the use of online databases. However, log analysis is also used to determine the overall use of online databases, but it is not applicable for the discipline wise usage study. In the library of DU, usage of online databases is also determined by the Usage Register used to record the particulars of online databases.

11. According to the usage statistics usage provided by the library of JNU, JSTOR has the highest usage in 2013 and 2014 respectively. In both the years, Annual Reviews was recorded as the least used online database.


13. Science Direct was found to be among the highly used online databases in BHU in the years of 2013 and 2014, while as Project Muse recorded minimum usage in both the years, i.e., 2013 and 2014 respectively.

14. Comparative usage analysis of online databases among JNU, AMU and BHU reveals that, in the years 2013 and 2014, JSTOR was the most used online database in the faculties of Social Sciences and Arts in JNU. However, Science Direct was highly used by the users in AMU in 2013 and 2014. The same pattern of usage was seen in BHU, where Science Direct had maximum usage among the online databases. Annual Reviews was found to be among the less used online databases in JNU, while, Annual Reviews in 2013 and Project Muse had comparatively less usage in AMU for the 2014. In the years
of 2013 and 2014, Project Muse was ranked as least used online databases in BHU.

15. Price of online databases and limited access to number of users and sites are the main problems faced by the library staff of JNU, AMU and BHU, whereas back issues & archiving in DU and AMU and lack of value added services in AMU only while procuring online databases. In JNU library staff does not face any problems while subscribing to online databases.

16. Difficulties related to networking, insufficient collection, lack of skilled/trained IT personnel and inadequate library resources (equipments), lack of skilled or trained staff and technical problems are identified as the major problems by library staff of all the surveyed libraries except JNU (Table 5.11). In JNU library staff does not face any problems while subscribing to online databases.

17. The facility of computer lab, adequate number of terminals, 24x7 accessibility through Wi-Fi and support services are provided by all libraries, while audio visual devices are provided by the AMU and JNU libraries. The facility of Ask a librarian in DU, AMU and BHU and the facility of trial access in DU, JNU and AMU, whereas online tutorials is only provided by the DU library.

18. Library website is the most popular medium used by the libraries to alert and inform about its collection and services. The libraries of DU, JNU AMU and, BHU update their users by providing information through their library websites. University web pages and Emails are used by the libraries of JNU and AMU, while notification by AMU’s library used to update their users.

19. The service of Tutorials or Manuals is also provided in libraries of DU, JNU AMU and BHU, to help the customers in using their product. The database providers offer Trial evaluation/ Promotional materials and Technical/Customer support to complement their services for the DU, JNU and AMU libraries. While the provision of product customization and feedback is provided in BHU and AMU library respectively.

20. According to the librarians, lack of awareness in JNU, AMU and BHU; while as lack of IT skills / expertise in DU, AMU and BHU are the major factors responsible for the less usage of online databases. However, lack of interest in online sources is observed in DU and BHU, lack of orientation programmes in AMU and JNU and more dependence on print sources and improper provision of library services in AMU are mentioned as reason for less usage of online databases in AMU.
21. The libraries of DU, JNU and BHU are regularly organizing different types of training and orientation programmes for their staff and users to help them in using online databases. However, the library of AMU does not organize any training programme or orientation programmes either for staff or users for better use of online databases.

22. The libraries of all the three universities except AMU are regularly organizing library orientation and training programmes. The Demonstration of online resources through Publishers/ Commercial Vendors is conducted in BHU and JNU libraries. Training/ workshops were organized by the libraries of DU, JNU and BHU, while as the libraries of DU, JNU and AMU organized different types of Information Literacy Programmes to educate their staff and users about the benefits and use of online resources.

PART- B: Major Findings of the Responses Derived from the Library Users

This part discusses major findings of the survey conducted among the users of the select libraries under study as given below:

1. Awareness of online databases among the users in the universities of Delhi is higher as compared to the users in the universities of UP, i.e., 38.04% in DU and highest 71.93% in JNU 28.35%, whereas in AMU, and 20.27% in BHU. Amongst the user groups, faculty members (90.91% DU, 100% JNU, 50% AMU, 44.44% in BHU) have more awareness about online databases as compared to research scholars (62.92% DU, 75.63% JNU, 41.24% AMU, 33.33% in BHU) and postgraduates (26.74% DU, 57.14% JNU, 15.86% AMU, 11.44% in BHU) in all the select universities. It is heartening to note that only a very small percentage (15.86%) of the PG students in AMU were confident about their level of awareness with online databases, the condition is still poorer when it comes to as only 11.44% of the PG students are confident about their awareness.

2. Internet is regarded as the main source of information through which majority of the users in BHU (67.08 percent) followed by DU (59.71 percent) and AMU (57.83 percent) get acquainted with online databases, while a significant number of users (77.83 percent) in JNU got informed about online databases from the library website. Internet users’ majority belongs mostly to Research Scholars, as 73.03% in DU, 67.01% in AMU and 76.39% Research Scholars
in BHU, on the contrary, most of the Research Scholars (79.83%) in JNU used library website as source of information about online databases.

3. A high percentage of users in all the select universities except JNU use online databases occasionally, though in JNU, users mostly used online databases in 2-3 times a week. Amongst the occasional users, PG has the higher percentage as compared to others groups in DU, AMU and BHU. In JNU, majority of the faculty members used the online databases 2-3 times a week.

4. Majority of the respondents in DU most of the users like to use online databases for updating knowledge, conversely in JNU, online databases are mostly consulted for writing papers, while in AMU and BHU use online databases for preparing assignments and project.

5. Journal articles are the most preferred online database resources in the universities of Delhi and UP, i.e. faculty members in DU (100%) and all the faculty members and research scholars in JNU as 100% use online databases for accessing journal articles, while in AMU and BHU, research scholars(100% and 95.83%) are the prominent users of Journals articles. Among the respondents of DU, BHU and AMU, miscellaneous materials (reviews and editorials) are the least preferred sources, while books are kept under the category of least used resources in JNU.

6. More than fifty percent of users in DU, AMU and BHU; i.e. mainly research scholars (75.84%, 76.29% and 70.14 % respectively) access online databases from the university computer centre. However, university library is considered as a central place for accessing online database by the majority of users (79.83% research scholars) in JNU.

7. Full text documents in online databases are usually preferred by a larger percentage of users, such as in DU (90.91% FM, 100% RS, 90.84% PG %), in JNU(91.67% FM, 96.63% RS, 87.62% PG), AMU (84.64% FM, 100% RS, 84.83% PG) and BHU(86.11% FM, 98.61% RS, 81.7%PG).On the other hand, multimedia based information is least preferred by the users of DU(36.36% FM, 21.91% RS, 20.69%PG) and JNU(16.67% FM, 18.06% RS, 10.48%PG). respectively, whereas numeric or statistical type of information got least responses in AMU(93.23% FM, 20.62% RS, 14.48%PG). and BHU(16.67% FM, 16.67% RS, 7.19%PG).
8. In all the surveyed libraries of Delhi and UP, the majority of 68.03% from DU, 84.2% in JNU, 71.27% in AMU and 66.46% in BHU determined the relevance and reliability of documents through its content. However, the hyperlinks preferred least by the users in DU (7.26%), JNU (10.08%), AMU (4.85%) and BHU (5.55%) to determine the worthiness of the documents retrieved through the online databases.

9. In DU, JSTOR, Science Direct and Project Muse were the most used online databases by the faculty members, research scholars and postgraduates respectively. On the contrary, LISTA and ISI Emerging Markets CEIC Asia were less used online databases in the faculties of Social Sciences and Arts in DU.

10. Science Direct was the most used database amongst the faculty members and research scholars, while JSTOR was preferred mostly by the postgraduates in JNU.

11. JSTOR was the most popular database amongst the faculty members and research scholars, while Emerald was most used by the postgraduates. While the databases, Annual Reviews, Wiley Inter science and ISID were least used by all the user groups in AMU.

12. The online database JSTOR was ranked first by the faculty members and postgraduates, while Emerald rated at first position by most of research scholars, in BHU.

13. Comparative study shows that, JSTOR is the most used online database in DU, AMU and BHU, while Science Direct is the online databases that most commonly used by the users of JNU.

14. Search engine is the most preferred and easiest means to access online databases. Majority of users as in AMU (75.75%) followed by BHU (70.99%), JNU (70.57%) and DU (67.11%) was accessed online databases through search engines. Although, access to online databases through publisher website was the least preferred means to access online databases among the users of all the surveyed universities i.e. total 29.06% in DU followed by 25.61% in JNU, 20.15% in AMU and 24.07% in BHU.

15. In the universities of Delhi and UP, highest responses received were for Basic search (88.24% in DU, 83.92% in JNU, 88.06% in AMU and 84.77% in BHU, respectively), followed by Advanced search (69.75% in DU, 56.54%, in
Abstract

JNU, 40.67% in AMU and 27.57% in BHU respectively), Expert search (8.32% DU, 11.44% JNU, 6.34% AMU and 4.93% BHU respectively) and a very less number of users as 3.04% in DU, 7.36% in JNU, 4.48% in AMU and 1.85% in BHU used Citation locator technique for searching citation related information in online databases.

16. With regard to the advanced search technique, Boolean operators is the most preferred search strategy used by majority of users in DU (69.7% faculty members, 77.52% research scholars, and 60.80% postgraduates) and BHU (55.55% faculty members, 63.89% research scholars, and 53.92% postgraduates), on the contrary, the option of searching by field search is used most by the respondents of JNU (75% faculty members, 84.45% research scholars and 76.19% postgraduates) and AMU (69.23% faculty members, 75.26% research scholars and postgraduates 58.62%). However, the proximity search is used very rarely in all the select universities of Delhi and UP, as 5.81% in DU, 11.72% in JNU, 6.34% in AMU and 4.11% in BHU.

17. PDF is the most preferred format used to read or download documents from online databases, as 100% users in JNU and DU respectively; while a little less in AMU (97.39 percent) and BHU (96.50 percent) used it to access information from online databases.

18. Print documents are more favoured by the users of AMU and BHU respectively. On the contrary in DU and JNU a large number of users showed more interest towards online journals rather than print documents. In DU and JNU a large number of users in the faculties of the Social Sciences and Arts 51.52% and 65.94% respectively showed more interest towards the online journals rather than the print documents, On the contrary, in the universities of UP (AMU and BHU), print forms were more preferred by the users i.e., 64.92% and 65.43% respectively.

19. Amongst the different features of online databases, ‘search option’ was the most preferred option among the users of JNU, AMU and BHU whereas ‘browsing’ got highest rank in DU.

20. Majority of users in the faculties of Social sciences and Arts in the surveyed universities was around, 89.10% users in JNU followed by 81.50% in DU, 85.18% in BHU and 77.24% from AMU opined that the use of online
Abstract

Databases have tremendously benefitted them and enabling them to locate their information within a fraction of time with greater ease.

21. Variations are seen regarding the impact of online databases on education and research in the select universities of Delhi and UP. In DU, 80.39% users mentioned, access to a wide range of information and 75.53% of the users in JNU, stated easier and faster access to information of interest as a major impact factor of online databases. In AMU (78.26%) mentioned that they accessed authentic and reliable information through online databases, while access to more up-to-date information is stated as one of the impacts of online databases by 62.08% of the users in BHU.

22. The non-availability of off-campus access to online databases is the main obstacle in the optimal use of online databases according to 75.69 percent of the users in DU. As it is seen that the ratio of problems in JNU is lesser than as compared to other surveyed universities, as only 40.95 percent of total respondents mentioned that the inadequate collection of online databases impeded the use of online databases. However, having more interest in print sources is recognized as a main factor responsible for less usage of online databases in AMU (76.49%) and BHU (57.82%) respectively.

23. Majority of users reported networking problems (connectivity or slow speed) as the main problem that prevented them from making optimum use of online databases in all the surveyed universities except JNU, such as DU (76.35%), AMU (79.48%), BHU (53.91%) stated about this problem. However, the majority of respondents in JNU as 58.33% faculty members, 57.56% research scholars and 47.62% postgraduates reported retrieval of irrelevant information as a problem faced while searching through online databases.

24. Some of respondents in the surveyed universities strongly agreed that online databases are sufficient enough in catering to their information needs. However, a moderate percentage of users in all the surveyed universities of Delhi and UP, such as 74.39% in JNU, 56.41% in DU as compared to 44.78% and 54.94% from AMU and BHU were agreed that sufficient number of online database available in their libraries.

25. A majority of users in the universities under study were quite satisfied with the online database collection and services provided by their respective libraries; which is higher in JNU as 75.48 percentage followed by DU (56.54
percentage), BHU (49.38 percentage) and AMU (40.3 percentage). Only a few users in DU, AMU and BHU showed high level of dissatisfaction regarding the online database collection in the central university libraries of Delhi and UP.

26. As far as efficiency of library staff of the surveyed libraries of Delhi and UP is concerned, a considerable percentage of users, i.e., 66.48% in JNU followed by 57.82% in BHU, 55.97% from AMU while 55.35% in DU pointed out that the library staff of their libraries is quite efficient in providing help regarding the use of online databases.

27. Accessibility of online databases through the computer lab is the most appreciated facility among the users of DU (59.31%), and BHU (71.81%), whereas in JNU around 67.57% mentioned about the facility of 24x7 accessibility through Wi-Fi to online databases. However, majority of users in AMU i.e., 44.78% mentioned help & support as an important facility provided by library staff of their respective library.

28. Majority of online database users from the faculties of Social Sciences and Arts of central universities of Delhi and UP, as in DU (83.35%), followed by JNU (78.75%), BHU (62.96%) and AMU (56.34%) revealed that their libraries are providing assistance by different means to enhance the use of online databases.

29. With respect to the types of support provided by the libraries, the majority of users in all the three libraries; JNU (56.25% FM, 65.93% RS and 65.43% PG), AMU (62.5% FM, 57.33% RS and 75% PG) and BHU (70% FM, 65.96% RS and 75.74% PG) responded that they are greatly benefitted by the personal help provided by the library staff for proper utilization of online databases. However in the University of Delhi (DU) higher appreciation of the users goes to online tutorials such as, 53.85% of FM, 68.92% by RS and 48.14% from PG.

RECOMMENDATIONS AND SUGGESTIONS

The following are the recommendations made by the investigator on the basis of analysis of the data and suggestions from the users as given below:

**Budget**

- With a limited budget, the library has difficulty to purchase adequate databases. Therefore to optimize the use of the budget, the library should
Abstract

regularly analyse the data from the user reports and frequently conduct quick surveys to identify the amount of usage of each subscribed databases. These results help in taking decisions on whether to continue an existing subscription or replace it with a new database.

Awareness

- Awareness and user education programmes should be arranged to promote the use of online databases amongst the users of all the surveyed libraries. Mainly, the library of AMU should organize user education program, information literacy programmes for creating awareness and educating them to make maximum use of online databases for academic work.

Use of Online Databases

- It is revealed from the study that a less percentage of the users, especially postgraduates in AMU and BHU use the online databases. Hence, to increase the frequency of use of online databases subscribed by the libraries of AMU and BHU, they should be informed about the importance and availability of online databases and the techniques used for finding the required information from the databases. The teachers should motivate their students to use online databases more for obtaining the required information for their study and research work.

Acquire more Online Database

- The study reveals that libraries in universities of UP have a comparatively less collection of online databases as compared to Delhi’s university libraries. So, libraries of AMU and BHU should subscribe to more databases and facilitate more full-text access either through UGC-INFONET consortium or from other sources to fulfill the diverse needs of users. This is also implies that the research output is directly related to the use of online databases.

Source of Information

- As the library website is an important means of getting information about accessibility of online databases, but the users of AMU, BHU and DU prefer it less as compared to JNU. Library websites of concerned libraries should be redesigned to provide adequate information or links of online databases available in the libraries.
Abstract

More Importance to Print Documents rather than Online Documents

- It is clear from the study that majority of the users in AMU and BHU, particularly faculty members and postgraduates mostly preferred to use print documents, inspite of using online documents. They considered print documents as a chief source of getting the required information. Therefore, concerned libraries should subscribe to online databases after assessing the requirements of the users; also teach them about its worthiness so as to increase the use of subscribed online databases. The librarians must find out the reasons for the less usage of the online databases. Feedback can also be taken from users to find out the reasons.

Search Methods

- The users use different types of search methods for getting the required information. The study shows maximum number of users in all the universities under study prefers to use mostly ‘Basic/Keyword search’ for searching their required information. The other search methods are less used by the users, like advanced search, Expert search and less frequently Citation Locator. Thus, there is need to provide practical training to help users to acquire better search skills for using different search methods.

Problems Faced in using Online Databases

- The problematic areas as mentioned by the users faced while accessing the online databases include more interest in print form, non availability of off campus access and inadequate collection. The libraries, mainly AMU and BHU should organize awareness programmes to develop user’s interest in online databases.

- The main problem in using online databases is Networking (poor connectivity) in the universities of DU, AMU and BHU. The university administration should provide proper and high speed Internet connectivity to overcome the problem of networking. Another problem is the irrelevant retrieval of information in JNU. Therefore, the library staff should impart knowledge to users for refining their search for searching and proper utilization of online databases.

Facilities for Accessing Online Databases

- The study shows that no postgraduates are allowed to access online databases from the university library in AMU. This may be due to inadequate computer
facilities or limited space in library’s computer lab. More number of networked computers with access to online databases should be installed, and repair of the non-working computers in the library should be carried out. PG students should be allowed to use the online databases, so that they are not kept away from this important source.

**Satisfaction with Online Database**

- More than thirty percent of the users of AMU and BHU were dissatisfied with the online databases subscribed by their libraries. The users of DU and JNU were more satisfied with online database collection available in their respective libraries as compared to the users in Universities in UP. The library authorities should necessary steps to improve the subscription of the online databases after assessing the needs of the users, especially postgraduates. Furthermore, the publishers/aggregators of online databases should come forward to publish more number of online databases in the field of Social Sciences and Arts as there are no separate databases available for these disciplines.

**Assistance by Library Staff**

- To provide adequate assistance to the users in using online databases, library staff must possess skills to assist the users in accessing online databases. The staff should be given enough training in using or accessing online databases.

**User Training Programmes**

- The study shows that the research scholars in all the universities under study have more knowledge and are using more online databases than other user groups. Libraries should conduct special training programmes to the postgraduates and faculty members of the faculties of Social Sciences and Arts in making them aware of online databases, how to use and how to access online databases efficiently and effectively. There is a need for extensive training programme on regular basis at the beginning of each semester for the students and faculty members of both the faculties under study in both Delhi and U.P.
AREAS FOR FURTHER RESEARCH

Based on the findings of this study, the following suggestions have been made for further research:

➢ The present study was conducted among limited number of central universities; the study can be extended to understand the use of online databases in other central universities of India.

➢ A study can be conducted to find out overall growth and development of online databases by using usage statistics.

➢ A comparative study can be undertaken to evaluate the accessibility and usage of subscribed online databases in other fields of education.

➢ A citation analysis can also be conducted to know the citation trend of use of online databases in the thesis/dissertations and research publications in the central universities in the country.
REFERENCES


Journal of Information Science, 3(1), 1-6. doi: 10.5923/j.ijis.20130301.01


USE OF ONLINE DATABASES IN THE FACULTIES OF SOCIAL SCIENCES AND ARTS IN CENTRAL UNIVERSITIES OF DELHI AND UTTAR PRADESH: A COMPARATIVE STUDY

THESIS

Submitted for the Award of the Degree of

Doctor of Philosophy
IN
LIBRARY AND INFORMATION SCIENCE

Submitted By

SAIMA KHAN
(Enrol. No. - BB6254)

Under the Supervision of

DR. SUDHARMA HARIDASAN
(Associate Professor)

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE
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2015
CERTIFICATE

This is to certify that the thesis entitled “Use of Online Databases in Faculties of Arts and Social Sciences in Central Universities in Uttar Pradesh and Delhi: A Comparative Study”, submitted by Ms. Saima Khan for the award of the degree of Doctor of Philosophy in Library and Information Science, is based on the research work carried out by her under my supervision and guidance.

It is further certified that this work has not been submitted in any other University or Institution for the award of any other degree or diploma.

Dr. Sudharma Haridasan
(Associate Professor)
Declaration

I hereby declare that the thesis “Use of Online Databases in the Faculties of Social Sciences and Arts in Central Universities of Delhi and Uttar Pradesh: A Comparative Study” submitted for the award of degree of Doctor of Philosophy in Library and Information Science is based on my individual research effort, and the thesis has not been presented for the award of any other degree or diploma in any University or Institution, and that all the sources used in this research effort have been comprehensively acknowledged.

Place: Aligarh
Date: 

Saima Khan
(Enrol. No: BB-6254)
## CONTENTS

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Declaration</td>
<td></td>
</tr>
<tr>
<td>Acknowledgement</td>
<td>i</td>
</tr>
<tr>
<td>List of Tables</td>
<td>iii</td>
</tr>
<tr>
<td>List of Figures</td>
<td>v</td>
</tr>
<tr>
<td>Abbreviations</td>
<td>vi</td>
</tr>
</tbody>
</table>

### CHAPTER 1: INTRODUCTION 1-23

1.1 Need and Significance of the Study 3
1.2 Statement of the Problem 4
1.3 Objectives 4
1.4 Hypotheses 4
1.5 Scope and Limitations of the Study 5
1.6 Methodology 7
1.7 Terms used in the Study in the Statement of the Research Problem 16
1.8 Standards Followed for Bibliographic References 18
1.9 Organization of the Study 19
1.10 Summary 21
   References 22

### CHAPTER 2: REVIEW OF RELATED LITERATURE 24-64

2.1 Information Retrieval Systems 25
2.2 Online Databases 26
2.3 Standards for Database Usage Statistics 34
2.4 Preferences to Access Online Resources 36
2.5 Issues Related to Online Database Search 39
2.6 Use of Online Databases in the Arts and the Social Sciences 47
2.7 Role of Libraries 51
2.8 Summary 53
   References 54

### CHAPTER 3: INTRODUCTION TO ONLINE DATABASES 65-90

3.1 Concept of Online Databases 66
3.2 Historical Overview of Online Databases 68
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## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table No.</th>
<th>Title</th>
<th>Pages No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Total Population and Sample Population</td>
<td>13</td>
</tr>
<tr>
<td>1.2</td>
<td>Librarians Response Rate</td>
<td>15</td>
</tr>
<tr>
<td>1.3</td>
<td>Administration of Questionnaire and Response Rate of Users (FM, RS and PG)</td>
<td>15</td>
</tr>
<tr>
<td>5.1</td>
<td>Budget allocated for online databases</td>
<td>123</td>
</tr>
<tr>
<td>5.2</td>
<td>Total Collection of online databases</td>
<td>124</td>
</tr>
<tr>
<td>5.3</td>
<td>Source for selecting online databases in libraries</td>
<td>126</td>
</tr>
<tr>
<td>5.4</td>
<td>Criteria adopted for selecting the online databases</td>
<td>128</td>
</tr>
<tr>
<td>5.5</td>
<td>Acquisition of online databases</td>
<td>130</td>
</tr>
<tr>
<td>5.6</td>
<td>Modes of acquisition of subscribed online databases</td>
<td>131</td>
</tr>
<tr>
<td>5.7</td>
<td>Access to online databases</td>
<td>132</td>
</tr>
<tr>
<td>5.8</td>
<td>Impact of online databases on print sources</td>
<td>134</td>
</tr>
<tr>
<td>5.9</td>
<td>Methods for determining the use of online databases</td>
<td>135</td>
</tr>
<tr>
<td>5.9(a)</td>
<td>Usage Trends of Online Databases in JNU</td>
<td>137</td>
</tr>
<tr>
<td>5.9(b)</td>
<td>Usage Trends of Online Databases in AMU</td>
<td>138</td>
</tr>
<tr>
<td>5.9(c)</td>
<td>Usage Trends of Online Databases in BHU</td>
<td>139</td>
</tr>
<tr>
<td>5.9(d)</td>
<td>Comparison Usage Trends of Online Databases in JNU, AMU and BHU</td>
<td>140</td>
</tr>
<tr>
<td>5.10</td>
<td>Problem(s) faced while subscribing online databases</td>
<td>141</td>
</tr>
<tr>
<td>5.11</td>
<td>Problems related to access to online databases</td>
<td>142</td>
</tr>
<tr>
<td>5.12</td>
<td>Facilities provided for proper exploitation of online databases</td>
<td>143</td>
</tr>
<tr>
<td>5.13</td>
<td>Method(s) used to alert/update the users about online database services</td>
<td>144</td>
</tr>
<tr>
<td>5.14</td>
<td>Support services provided by online database service providers</td>
<td>145</td>
</tr>
<tr>
<td>5.15</td>
<td>Factor(s) responsible for less or unsatisfactory use of online databases</td>
<td>146</td>
</tr>
<tr>
<td>5.16</td>
<td>Training/orientation programs organized for library staff and users</td>
<td>147</td>
</tr>
<tr>
<td>5.17</td>
<td>Type of training/orientation programmes organized for library staff and users</td>
<td>148</td>
</tr>
<tr>
<td>5.18</td>
<td>Awareness about online databases</td>
<td>150</td>
</tr>
<tr>
<td>5.19</td>
<td>Waste to locate information about online databases</td>
<td>153</td>
</tr>
<tr>
<td>5.20</td>
<td>Frequency of using online databases</td>
<td>157</td>
</tr>
<tr>
<td>5.21</td>
<td>Purpose of using online databases</td>
<td>160</td>
</tr>
<tr>
<td>5.22</td>
<td>Types of resources search for in an online database</td>
<td>163</td>
</tr>
<tr>
<td>5.23</td>
<td>Locations for accessing online databases</td>
<td>166</td>
</tr>
<tr>
<td>5.24</td>
<td>Type of information look at in the databases</td>
<td>170</td>
</tr>
<tr>
<td>5.25</td>
<td>Determination of relevance and reliability of the document retrieved through the databases</td>
<td>173</td>
</tr>
<tr>
<td>5.26</td>
<td>Most used online databases in DU</td>
<td>176</td>
</tr>
<tr>
<td>5.27</td>
<td>Most used online databases in JNU</td>
<td>177</td>
</tr>
<tr>
<td>5.28</td>
<td>Most used online databases in AMU</td>
<td>178</td>
</tr>
<tr>
<td>5.29</td>
<td>Most used online databases in BHU</td>
<td>179</td>
</tr>
<tr>
<td>5.30</td>
<td>Comparative Study of most used online databases</td>
<td>180</td>
</tr>
<tr>
<td>5.31</td>
<td>Method(s) followed to search and access online databases</td>
<td>182</td>
</tr>
<tr>
<td>Section</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>5.32</td>
<td>Online databases search methods</td>
<td>185</td>
</tr>
<tr>
<td>5.33</td>
<td>Searching technique(s) used for search online databases</td>
<td>189</td>
</tr>
<tr>
<td>5.34</td>
<td>Preferred format for downloading documents from online databases</td>
<td>192</td>
</tr>
<tr>
<td>5.35</td>
<td>Print Documents verses online databases</td>
<td>194</td>
</tr>
<tr>
<td>5.36</td>
<td>Features of online databases</td>
<td>196</td>
</tr>
<tr>
<td>5.37</td>
<td>Impact of online databases</td>
<td>199</td>
</tr>
<tr>
<td>5.38</td>
<td>Impact of online databases on study/work</td>
<td>201</td>
</tr>
<tr>
<td>5.39</td>
<td>Factor(s) that discourages access to online database services</td>
<td>204</td>
</tr>
<tr>
<td>5.40</td>
<td>Problems faced while using online databases</td>
<td>208</td>
</tr>
<tr>
<td>5.41</td>
<td>Available online databases are sufficient enough in catering to the information needs</td>
<td>212</td>
</tr>
<tr>
<td>5.42</td>
<td>Satisfaction with the available databases in the library</td>
<td>215</td>
</tr>
<tr>
<td>5.43</td>
<td>Efficiency of library staff in providing help regarding the use of online databases</td>
<td>219</td>
</tr>
<tr>
<td>5.44</td>
<td>Facilities provided by the library for proper utilization of online databases</td>
<td>221</td>
</tr>
<tr>
<td>5.45</td>
<td>Help/Instructions provided by library staff in using the online databases</td>
<td>225</td>
</tr>
<tr>
<td>5.46</td>
<td>Support services provided by the library for the use of online databases</td>
<td>227</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure No.</th>
<th>Title</th>
<th>Pages No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Conceptual Framework of Review of Related Literature</td>
<td>8</td>
</tr>
<tr>
<td>1.2</td>
<td>University Wise Questionnaire Analyzed</td>
<td>15</td>
</tr>
<tr>
<td>4.1</td>
<td>Tree of Knowledge</td>
<td>93</td>
</tr>
<tr>
<td>4.2</td>
<td>Branches of knowledge</td>
<td>99</td>
</tr>
<tr>
<td>4.3</td>
<td>Evolution of the Arts</td>
<td>100</td>
</tr>
<tr>
<td>4.4</td>
<td>Subjects of Social Sciences</td>
<td>106</td>
</tr>
<tr>
<td>4.5</td>
<td>Links between the Arts and the Social Sciences</td>
<td>109</td>
</tr>
<tr>
<td>4.1</td>
<td>Tree of Knowledge</td>
<td>93</td>
</tr>
<tr>
<td>5.1</td>
<td>Total collection of online databases available in the libraries</td>
<td>125</td>
</tr>
<tr>
<td>5.2</td>
<td>Total collection of online databases</td>
<td>130</td>
</tr>
<tr>
<td>5.3</td>
<td>Awareness about online databases</td>
<td>152</td>
</tr>
<tr>
<td>5.4</td>
<td>Frequency of using online databases</td>
<td>158</td>
</tr>
<tr>
<td>5.5</td>
<td>Purpose of use of online databases</td>
<td>161</td>
</tr>
<tr>
<td>5.6</td>
<td>Types of resources search for in an online database</td>
<td>165</td>
</tr>
<tr>
<td>5.7</td>
<td>Type of information searched in the databases</td>
<td>172</td>
</tr>
<tr>
<td>5.8</td>
<td>Most used databases</td>
<td>181</td>
</tr>
<tr>
<td>5.9</td>
<td>Techniques(s) used to access online databases</td>
<td>184</td>
</tr>
<tr>
<td>5.10</td>
<td>Search strategies</td>
<td>187</td>
</tr>
<tr>
<td>5.11</td>
<td>Preferred format for downloading documents from online databases</td>
<td>193</td>
</tr>
<tr>
<td>5.12</td>
<td>Prints versus online documents</td>
<td>195</td>
</tr>
<tr>
<td>5.13</td>
<td>Features of online databases</td>
<td>197</td>
</tr>
<tr>
<td>5.14</td>
<td>Impact of online databases</td>
<td>200</td>
</tr>
<tr>
<td>5.15</td>
<td>Factor(s) that discourages access to online database services</td>
<td>207</td>
</tr>
<tr>
<td>5.16</td>
<td>Problems faced while using online databases</td>
<td>211</td>
</tr>
<tr>
<td>5.17</td>
<td>Available online databases are sufficient enough in catering to the information needs</td>
<td>214</td>
</tr>
<tr>
<td>5.18</td>
<td>Satisfaction with the available databases in the library</td>
<td>217</td>
</tr>
<tr>
<td>5.19</td>
<td>Efficiency of library staff</td>
<td>220</td>
</tr>
<tr>
<td>5.20</td>
<td>Facilities provided by the library</td>
<td>223</td>
</tr>
<tr>
<td>5.21</td>
<td>Help/Instructions provided by library</td>
<td>226</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>ACM</td>
<td>Association for Computing Machinery</td>
<td></td>
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<tr>
<td>ACS</td>
<td>American Chemical Society</td>
<td></td>
</tr>
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<td>AGRICOLA</td>
<td>Agricultural Online Access</td>
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</tr>
<tr>
<td>AGRIS</td>
<td>International System for Agricultural Science and Technology</td>
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</tr>
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<td>AMU</td>
<td>Aligarh Muslim University</td>
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</tr>
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<td>ASAP</td>
<td>A Systematic Annotation Package</td>
<td></td>
</tr>
<tr>
<td>BHU</td>
<td>Banaras Hindu University</td>
<td></td>
</tr>
<tr>
<td>BIOSIS</td>
<td>BioSciences Information Service</td>
<td></td>
</tr>
<tr>
<td>BOLD</td>
<td>Bibliographic Organization for Library Display</td>
<td></td>
</tr>
<tr>
<td>BRS</td>
<td>Bibliographic Retrieval Service</td>
<td></td>
</tr>
<tr>
<td>CAB</td>
<td>Commonwealth Agricultural Bureaux</td>
<td></td>
</tr>
<tr>
<td>CABI</td>
<td>Centre for Biosciences and Agriculture International</td>
<td></td>
</tr>
<tr>
<td>CAIN</td>
<td>Conflict Archive on the Internet</td>
<td></td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstracts Services</td>
<td></td>
</tr>
<tr>
<td>CHEMCON</td>
<td>Chemical Abstracts Condensates</td>
<td></td>
</tr>
<tr>
<td>CMS</td>
<td>Content Management System</td>
<td></td>
</tr>
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<td>COMPENDEX</td>
<td>Computerized Engineering Index</td>
<td></td>
</tr>
<tr>
<td>COMPSTAT</td>
<td>Computational Statistics</td>
<td></td>
</tr>
<tr>
<td>COUNTER</td>
<td>Counting Online Usage of Networked Electronic Resources</td>
<td></td>
</tr>
<tr>
<td>DBMS</td>
<td>Database Management System</td>
<td></td>
</tr>
<tr>
<td>DU</td>
<td>University of Delhi</td>
<td></td>
</tr>
<tr>
<td>E-Books</td>
<td>Electronic Books</td>
<td></td>
</tr>
<tr>
<td>EConLit</td>
<td>Economic Literature</td>
<td></td>
</tr>
<tr>
<td>E-Journal</td>
<td>Electronic Journal</td>
<td></td>
</tr>
<tr>
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<td>Excerpta Medica dataBASE</td>
<td></td>
</tr>
<tr>
<td>ERIC</td>
<td>Education Resources Information Center</td>
<td></td>
</tr>
<tr>
<td>ERNET</td>
<td>Education and Research Network</td>
<td></td>
</tr>
<tr>
<td>ESRC</td>
<td>Economic and Social Research Council</td>
<td></td>
</tr>
<tr>
<td>EThoS</td>
<td>E-Theses Online Service</td>
<td></td>
</tr>
<tr>
<td>FM</td>
<td>Faculty Members</td>
<td></td>
</tr>
<tr>
<td>HRD</td>
<td>Human Resource Development</td>
<td></td>
</tr>
</tbody>
</table>
HTML
ICOLC
ICSSR
ICTs
ICT
ID
INDCAT
INFOLINE
IP
IR
IRS
IT
JNU
JSTOR
LAN
LEXIS
LISA
M.Phil.
MDC
MEDIS
MEDLARS
MEDLINE
MIT
MLA
NASA
NTIS
NLM
OBAR
OCLC
ODLIS
OPAC
ORBIT
OUP
PAIS
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pdf</td>
<td>Portable Document Format</td>
</tr>
<tr>
<td>PG</td>
<td>Post Graduate</td>
</tr>
<tr>
<td>PhD</td>
<td>Doctorate of Philosophy</td>
</tr>
<tr>
<td>PSYCLIT</td>
<td>Online Literature in Psychology</td>
</tr>
<tr>
<td>RECON</td>
<td>Remote Console</td>
</tr>
<tr>
<td>RLIN</td>
<td>Research Libraries Information Network</td>
</tr>
<tr>
<td>RS</td>
<td>Research Scholars</td>
</tr>
<tr>
<td>RTF</td>
<td>Rich Text Format</td>
</tr>
<tr>
<td>SAUs</td>
<td>State Agricultural Universities</td>
</tr>
<tr>
<td>SCISEARCH</td>
<td>Science Citation Index Search</td>
</tr>
<tr>
<td>SDC</td>
<td>System Development Corporations</td>
</tr>
<tr>
<td>SIAM</td>
<td>Society for Industrial and Applied Mathematics</td>
</tr>
<tr>
<td>SOCINDEX</td>
<td>Sociology Research Database</td>
</tr>
<tr>
<td>SPSS</td>
<td>Software Package for Social Sciences</td>
</tr>
<tr>
<td>TIP</td>
<td>Technical Information Project</td>
</tr>
<tr>
<td>TREC</td>
<td>Text Retrieval Conference</td>
</tr>
<tr>
<td>TYMNET</td>
<td>Timeshare Incorporated Network</td>
</tr>
<tr>
<td>UGC</td>
<td>University Grants Commission</td>
</tr>
<tr>
<td>UP</td>
<td>Uttar Pradesh</td>
</tr>
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<td>WAN</td>
<td>Wide Area Network</td>
</tr>
<tr>
<td>WorldCAT</td>
<td>World Catalogue</td>
</tr>
<tr>
<td>WWW</td>
<td>World Wide Web</td>
</tr>
</tbody>
</table>
CHAPTER - 1

INTRODUCTION

The developments in computer technology have drastically changed the way in which data is collected, retrieved and disseminated. As an impact of these technologies, manual information retrieval systems have been transformed into automated retrieval systems and have emerged as an excellent tool for information retrieval. It concerns all the activities related to the organization, processing, and accessing of information in all forms and formats. It is designed to enable searchers to find relevant information from an organized collection of information to satisfy their specific needs. Furthermore, the introduction of Information and Communication Technologies (ICT) in information processing techniques has completely changed the concept of information retrieval from automated to online information retrieval systems. This transition from automation to online systems has greatly affected the use of library resources.

Furthermore, the developments in information and communication technologies have expanded the scope of information retrieval systems from automated retrieval systems to online retrieval systems. Online information retrieval systems had started to emerge with the initiation of computer applications in information handling and processing, and in the past few decades, these systems have undergone several changes in their searching and retrieval capabilities. The internet and World Wide Web have made it available online anywhere at anytime. These are mainly designed to retrieve documents or information from remote database(s) that may contain abstracts or full texts of documents, such as articles, references sources, legal documents, statistics and so on, as well as multimedia information (Chowdury, 2010). Thus, in recent years, the online information systems have become an important tool of information access and retrieval and are considered as a significant source of information in academics.

Many online databases began as printed indexes to the literature of specialized subject domains. The early databases were in the form of electronic indexes to scientific and technical literature in medicine. Now, there are thousands of online databases that are produced by a number of government and private organizations. Learned societies and professional organizations have likewise been active in the
production of databases (Alberico & Snow, 1985). MEDLINE was the first online
dial-up service, introduced in 1972 and was offered by the online service providers,
Dialog (Lockheed) and ORBIT System Development Corporations (SDC). Now, the
searchers can access these databases either through database producers, or online
service providers/ vendors (Chowdhury & Chowdhury, 2007). Furthermore, advances
in computer memory allowed construction of very large databases, which enable fast
retrieval of information. Along with developments in national and international
telecommunication technologies and networking technologies have facilitated real-
time, interactive, online global access to these databases to a large number of users
(Gash, 2000). Since then, online databases are continuously growing in number and
providing different modes to access a multitude of information sources.

The widespread development and usage of online databases have a profound
impact on academic and research activities. These are the organized collection of
information with which users can easily access their information either on-site or
remotely. Online Databases comprise a wide range of information sources including
Gash (2000) acknowledged that the electronic databases are of central importance to
anyone who performs literature searches as they cover a wide range of subject areas
providing access to millions of logically arranged references of different types of
literature such as journals, books, reports, conference papers, patents, standards,
theses and dissertations and government publications, etc.

Today, libraries are continuously transforming their collection and services on
the one side, but on the other side, they are facing problems of shrinking budget and
increasing cost of information resources (Thanuskodi, 2013). Therefore, to overcome
these problems libraries are now looking for online databases as a means of acquiring
a wide range of information sources at an average cost. Furthermore, to justify the
amount spent on acquisition and provision of online database services in libraries, it
becomes necessary to determine the use of these significant sources of information. In
addition, the planning for budget also depends on the understanding of how
information resources are used by the patrons. Hence, the present study attempts to
obtain the data regarding the use of online databases in select universities to justify
the expenditure on acquisition and maintenance of online databases.
1.1. NEED AND SIGNIFICANCE OF THE STUDY

The research study that has been undertaken here is an attempt to assess the Use of Online Databases in Faculties of Social Sciences and Arts in Central universities in Delhi and UP, which will be useful in addressing the issues and problems related to the use of online databases in the concerned universities.

1.1.1. Need

In the last few decades, online databases have become an important information source for research and learning, and now these are considered as an essential component of the online collection of any library. Online Databases are an excellent tool for online information searching, which are widely used in various fields of education, particularly in the Science and Technology. Therefore, for optimum use of these resources, the proper assessment of online databases and its services becomes requisite. However, several studies have been conducted to measure the use and impact of online databases in science-related fields, and these have yielded positive results. Hence, this fact makes it requisite to identify the importance and use of online databases in the field of Social Sciences and Arts.

Besides, libraries are nowadays spending a huge amount of money on providing access to online resources to their users. In this regard, Nicholas, Huntington and Watkinson (2003) also recommended that libraries and their parent organizations should provide an overview and reasons for their expenditures made on access to digital resources. Thus, this impel to assess the use and value of such resources and to identify and understand the databases that are in use, as the cost of the information sources can only be justified by its use. This study will also provide recommendations to improve the usage of these valuable resources. Furthermore, there is no published study found on the topic of investigation with similar objectives to identify the use of online databases. Therefore, the present study will be helpful in providing a better understanding on use of online databases subscribed by the select university libraries.

1.1.2. Significance

The study aims to identify the importance and use of online databases in the fields of Social Sciences and Arts. The results of the study will help to:

- Make optimum use of Online Databases in the field of Social Sciences and Arts.
• Identify the issues that restrict users in making use of online database services.
• Improve library services in terms of reviewing the existing database services in libraries.

Therefore, the findings of the study will be helpful in improving organization and provision of online databases in libraries, enhancing the awareness and use of online databases, especially in the field of Social Sciences and Arts.

1.2. STATEMENT OF THE PROBLEM

The problem selected for the present study is entitled “Use of Online Databases in the faculties of Social Sciences and Arts in Central Universities of Delhi and Uttar Pradesh: A Comparative Study”. The problem attempts to understand the use of online databases in the Faculties of Social Sciences and Arts in Central Universities of Delhi and UP.

1.3. OBJECTIVES

The objectives of the study are:

i. To assess the awareness of online databases among the users in the faculties of Social Sciences and Arts of select central universities.

ii. To study the process of collection and management of online database among the libraries of the surveyed universities in Delhi and UP.

iii. To determine the library facilities and support services for online database use in the libraries of the select universities.

iv. To compare the use of online databases among the users of the faculties of Social Sciences and Arts in the central universities under study.

v. To assess the impact of online databases on the users in the faculties of Social Sciences and Arts of the universities in Delhi and UP.

vi. To determine the barriers in the optimum usage of online databases among the users of the select universities under study.

vii. To identify the level of satisfaction regarding the use of online databases, its collection and services among the users of the faculties of Social Sciences and Arts in the select libraries in Delhi and UP.

1.4. HYPOTHESES

The study addresses the following hypotheses:

i. There is significant difference in the level of awareness of online databases among users (Faculty Members, Research Scholars and
Postgraduates) from faculties of Social Sciences and Arts in the Central universities of Delhi and U.P.

ii. There exists significant difference in the collection of online databases among the libraries of select universities in Delhi and UP.

iii. Impact of online databases is higher among the users of the faculties of Social Sciences and Arts in the central universities of Delhi as compared to users of the faculties of Social Sciences and Arts in the central universities of UP.

iv. There exists a significant difference in the purposes of using online databases among the users of central university libraries in Delhi and UP.

v. There exists significant difference in the satisfaction level with respect to the use of online databases among the users of the faculties of the Social Sciences and Arts in the central universities of Delhi and U.P.

1.5. SCOPE AND LIMITATIONS OF THE STUDY

Libraries today are adopting different technology enabled services for providing online sources and services to their users in a more efficient way. Availability of online resources has added new dimensions in modern library services. Therefore, in the present study an attempt has been made to carry out in-depth study to gauge the use of online databases in select universities.

1.5.1. Scope

There exist seven central universities in Delhi and UP. It has been observed that the best input regarding the use of online databases could have been collected from those universities, which have higher grade in academics and research and are having proper infrastructure to provide online database services. After thorough investigation, the four prominent central universities have been selected for the study. Thus, the present study includes the four central universities of Delhi and UP, viz. Jawaharlal Nehru University (JNU), Delhi, University of Delhi (DU), Delhi, Aligarh Muslim University (AMU), Aligarh and Banaras Hindu University (BHU), Varanasi. The target population for the present study included librarians and users of online databases (Faculty Members, Research Scholars and Postgraduates) from the faculties of the Social Sciences and Arts among the select central universities in Delhi and UP.

The University of Delhi has decentralized education system; it has two separate campuses along with several colleges. Therefore, for the study, data has been
collected only from the main campus of Delhi University. The profile of the libraries under study is included in Annexure III.

1.5.2. Limitations

The major limitations of the study are as follows:

- The study was limited to the faculties of Social Sciences and Arts in the four central universities of Delhi and UP, i.e. DU, JNU, AMU and BHU. These are the oldest and established universities of Delhi and UP and are renowned for its education system in terms of research and teaching.

- The databases acquired through UGC consortia and other sources by the libraries have been covered in the study, while other online databases, such as OPAC and Open access online databases have not been included in the study.

- The Faculties of the Social Sciences and Arts of select universities have been considered as a unit for the study. As, the data collected from the Faculties of Social Sciences and Arts from all the universities under study observed negligible differences in the responses, so the investigator decided to merge the data of both the faculties as a single unit and a comparative study at state level (Delhi and UP) has been undertaken. In addition, the users of the faculties of Social Sciences and Arts were using the same online databases for their requirements. This is also a reason that the investigator preferred to conduct the research among the users of Social Sciences and Arts in central universities of Delhi and UP rather than the two faculties.

- There is disparity in the distribution of subjects in the various faculties and schools of the universities under study. The investigator has not ventured into the different subjects and there location in either of the subjects. For the purpose of this investigation, the subjects that constituted the departments/ schools have been considered as they existed under the faculties of Social Sciences and Arts in the universities under study. In JNU, the schools that constituted the subjects that are generally covered by the rest of the universities have been selected by the researcher based on the understanding developed by the existing literature and practice within other university systems in the country. The schools considered in
this study includes Schools of School of Language, Literature and Culture, School of International Studies and School of Social Sciences.

1.6. METHODOLOGY

Research methodology is a systematic way to solve the research problem. It has its own implications and importance in any investigation, as objectivity in any research investigation cannot be obtained until it is carried out in a systematic and planned manner. According to Busha and Harter (1980), Research Methodology is the pattern of procedures by means of which the identified problem will be studied. It is concerned with population under investigation, sampling techniques and size of the sample, place and timing of the study to be conducted, operational definitions of variables relevant to the research topic and techniques to be used for data collection and analysis. Thus, it involves careful and proper adoption of research design, use of standardized tools and tests, selection of sample by using appropriate sampling techniques, methods of data collection, systematic tabulation of collected data and use of relevant statistical methods for analyzing the data.

In order to accomplish the objectives and to collect the relevant data, the investigator has chosen survey method to determine the extent of use of online databases by the users of select libraries and services provided by the concerned libraries to their users. The nature of this study was best served by the use of the survey method, as this method is characterized by selection of sample from a large population to obtain empirical knowledge of contemporary nature. It is the most effective means for assessing the use of online databases and its impact on education and research. This knowledge allows generalizations to be made about characteristics, opinions, attitudes and so on, of the entire population being studied. According to Powell (1985), survey research is better suited for studying, exploring and analyzing relationships among a large number of cases. The methodology adopted for collection and analysis of data regarding the use and services of online databases in select university libraries is divided into the following sections:

1.6.1. Document Review

An exhaustive survey of related literature was undertaken before starting the work for proper understanding and orientation of the research work. The purpose of this exercise was to understand the concepts, developments, existing trends and techniques and other aspects related to the use of online databases. The investigator has consulted various primary and secondary sources for the study. The data relevant
for the research work has been collected from both printed and electronic sources of information and these are categorized as:

(a) Primary Sources: Scholarly Journals, Theses, Annual Reports, Websites of the concerned libraries.

(b) Secondary Sources: Encyclopedias, Indexing & Abstracting Journals, Magazines, Textbooks, Online resources, Dictionaries, Digital libraries, Brochures.

1.6.1.1. Literature Survey

A thorough search is made for related materials in different types of information sources, i.e. primary and secondary sources. The documents consulted for the study mainly includes journals, conference proceedings and books. A conceptual framework of the literature surveyed is categorised according to topic into different sections as shown in figure 1.1.

**Figure 1.1: Conceptual Framework of Review of Related Literature**
The researcher reviewed the related literature to identify survey instruments that could be adapted for the study and a bibliography is prepared of the most relevant and related research based articles. While reviewing the literature, there was no as such published literature available on the topic of study. The reviewed literature of related documents has been presented in Chapter 2.

1.6.2. Data Collection Methods

Several techniques are available for collecting relevant and authentic data. Being empirical in nature, the study is conducted using survey method constituting of two structured questionnaires. Questionnaires were used for collecting necessary data to achieve the objectives laid down for the research problem. The foremost advantage of this method was that a broad range of generalization could be made from a relatively large number of responses. Questionnaires were administered to a sample population in order to know their opinions and attitudes. For sample selection, the investigator used quota sampling and convenience sampling to collect data from a large sized population. Thereafter inferences were drawn from the responses of the representative sample of the total population.

1.6.2.1 (a) QUESTIONNAIRE

Questionnaire is one of the most popular instruments for survey based studies. It is a tool to collect primary data from the diverse, large and widely scattered groups to conduct meaningful research work. To generate a reliable questionnaire, the investigator asserted to conduct a thorough review of all the literature related to the study and categorized them to generate questions for collecting the data. Questionnaires were prepared keeping in mind the objectives and hypotheses proposed for the study.

- Questionnaire Design

As discussed, the investigator has designed the questionnaires keeping in mind the objectives and hypothesis of the study. Individual statements of the questionnaire were formulated using the related literature reviewed and the research objectives of the study. While designing the questionnaire, enough care has been taken to develop the questions that will accurately provide the required data that made the study comprehensive by including all necessary aspects without compromising with its ease and objectivity. The queries made through questionnaires are formed in such a way that the relationship of one question to another is readily apparent to the
respondent. Depending upon the need of the questions, the questionnaires included various types of questions such as dichotomous (Yes or No), multiple-choice and Likert five point and three point scale. To collect the necessary data for the study, the investigator designed two sets of questionnaires, one for the librarians and another for the users of the concerned libraries.

The questionnaire for the librarians was framed to take librarians’ opinion on facilities that facilitated the use of online databases and on other issues associated with it. It consists of a number of questions arranged in a definite order and style. The questions covered in the questionnaire are divided under the following heads:

- Collection of Online Databases
- Budget Allocated
- Collection Development
- Acquisition and Access
- Access and Usage
- Problems Related to Online Databases
- Facilities Provided by the Libraries
- Support Services
- Satisfaction and Training regarding the Use of Online Databases

The questionnaire designed for users is also based on the structural pattern covering various aspects such as:

- Awareness
- Use of Online Databases
- Search Process
- Features of Online Databases
- Impact of Online Databases
- Library Facilities and Support
- Problems and Satisfaction

Questionnaires thus designed, was subjected to the pilot testing to check the validity and relevance of the questions included in the questionnaire. After that, questionnaires were redesigned and administered for data collection. The investigator personally visited all the four universities under study and approached the librarians of the central libraries and users of concerned universities to collect necessary data.
The detailed questionnaires that were administered among the librarians and users are appended in Appendix-I and Appendix-II respectively.

1.6.2.1(b) USAGE STATISTICS

Online databases are sources of electronic documents acquired and popularly accessed in universities, for research and teaching purposes. The usage statistics of the databases are maintained by the vendors as well as the libraries. The transaction log in universities is not properly monitored and maintained, but the usage statistics from vendors are available with the concerned universities. According to Bernon (2008), although libraries use tools, viz., proxy log and IP addresses to assess the use of online databases, but they are reliable to measure databases usage discipline wise.

Nevertheless, the study attempts to acquire the necessary statistics from the respective libraries to assess the use of databases in the libraries of Delhi and UP.

All the libraries under study have subscribed to online databases under the UGC-INFONET Programme. The investigator has collected all the data required for the years 2013 and 2014 from the three libraries, i.e., AMU, BHU and JNU. A variation is found in the available number of databases and the databases pertain to a broader subject coverage, it was difficult to use the databases discipline wise, i.e. the Social sciences and Arts. So, the common databases having the desired subject coverage have been identified to compare the most used databases for the study. The list of databases have been appended in the profile of universities (Appendix III).

1.6.2.2. Pilot Survey

Pilot study was conducted to test the validity of the questionnaire designed for the data collection. It helps to ensure the conceptual clarity of various aspects covered in the questionnaire, standardization of questions, simplicity of language used and also to know drawbacks, defects, ambiguities, if any that exists in the questions. This pre-test was conducted to determine whether the questions asked generated the data required for the study. Both the questionnaires prepared for librarians and users were administered among the users in the Central University of Himachal Pradesh as part of the pilot study during the month of September 2012.

Questionnaires were distributed to the librarian and selected 47 research scholars and postgraduate students registered in the School of Life Sciences and Mathematics and School of Computer & Information Science of Central University of Himachal Pradesh. The reason for choosing these groups of students for the pilot survey was that they all possessed similar characteristics as those research scholars.
and postgraduate students registered in the faculties of Social Sciences and Arts in the four selected central universities under study.

The pilot study was quite helpful as a number of feedbacks and suggestions were received from the respondents. All the suggestions were critically analyzed and needful modifications were made in both the questionnaires, wherever found necessary. One of the points expressed by some of the respondents was the lack of clarity of the questions. The question related to the awareness, where the option 'Yes/No' was modified to levels of awareness (extremely aware, neutral, etc.). This helped in making a distinction between the status of users regarding awareness of online databases. In another question, the option of “Home” that was used as an access point was replaced with “Remote access”, and some more options were added to the questionnaire. Some questions were also removed on the basis of the suggestions given from the respondents. Thus, based on the comments received from respondents in the pre-test, and the assistance from the library staff of the central university of Himachal Pradesh, the final questionnaires were developed for the study.

1.6.2.3. Population and Selection of Sample

In order to achieve the objective of the study mainly two variables were taken for detailed analysis, i.e. Librarians and Library users. The population from which a sample was drawn included faculty members, registered research scholars (Ph.D. and M.Phil.) and postgraduates from the faculties of the Social Sciences and Arts at DU, JNU, AMU and BHU.

As far as the selection of respondents among the users were concerned, it was not possible to collect data by taking responses from each category of the population. Therefore, the investigator used the quota sampling technique with the combination of convenience sampling. For sampling, the total population is first divided into three groups based on the academic status, viz., Faculty Members, Research Scholars and Postgraduate students. Then, in each quota, a number of questionnaires were distributed to a sample population selected through convenience sampling until each quota was filled. Special care was taken to select a representative sample from the total population of students during sampling. The researcher selected a sample of 757, 367, 268 and 486 out of total population of 7566, 3672, 2682 and 4863 users respectively in the four surveyed libraries for this study i.e. DU, JNU, AMU and BHU. The total number of population and sample selected for the study is shown in table 1.1.
### Table 1.1: Total Population and Sample Population

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Faculty of Social Sciences</th>
<th>Faculty of Arts</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DELHI</td>
<td>UP</td>
<td>DELHI</td>
</tr>
<tr>
<td>Faculty Members</td>
<td>DU</td>
<td>JNU</td>
<td>AMU</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>164</td>
<td>93</td>
<td>141</td>
</tr>
<tr>
<td>Research Scholars</td>
<td>57</td>
<td>108</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>575</td>
<td>1076</td>
<td>487</td>
</tr>
<tr>
<td>PG Students</td>
<td>235</td>
<td>36</td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>2352</td>
<td>359</td>
<td>882</td>
</tr>
<tr>
<td>Total</td>
<td>309</td>
<td>153</td>
<td>151</td>
</tr>
<tr>
<td></td>
<td>3091</td>
<td>1528</td>
<td>1510</td>
</tr>
</tbody>
</table>

#### 1.6.2.4. Questionnaire Administered

The survey was designed to assess the use of online databases subscribed by the chosen libraries. It also focused on users’ awareness, preferences, problems, satisfaction, and expectations for library’s online database services. It was designed to assess users’ needs and services provided by the libraries for the use of available online databases. In this study, the investigator tried to find out the specific online database that were highly used as a source of information for the purpose of study and other purposes by the users. To determine the use of the library's online databases, the survey was conducted during the period of March 2013- April 2014.

A set of questionnaires were distributed among librarians in the central libraries of the concerned Universities to determine the online database use, its collection and related services provided by the libraries. The investigator distributed the questionnaires to the librarians and collected back the completed questionnaires from them for data analysis.

The questionnaires designed for users were distributed to faculty members, research scholars, and postgraduate students to determine the use and differences in usage of online databases among the users of the faculties of the Social Sciences and Arts in the select universities in Delhi and UP. Data was collected from the users of
concerned faculties of select universities in between March 2013 to April 2014 during peak hours, i.e. 9 a.m. to 1.00 p.m. and from 2.30 to 5 p.m. on all working days. The questionnaires were distributed to users to collect data. A total of 964 questionnaires were administered in the faculties of Social Sciences and Arts respectively in the University of Delhi during the month of March, 2013. In JNU, overall 442 questionnaires were administered in the School of Language, Literature and Culture, School of International Studies and School of Social Sciences in the month of March, 2013. The Aligarh Muslim University was covered in the month of October and November in 2013, where 347 questionnaires were distributed in both the concerned faculties. In BHU, 705 questionnaires were administered during the period of March to April, 2014.

1.6.2.5. Response Rate

The investigator distributed questionnaires to the librarians of central libraries of select universities and got back the completely filled questionnaires. In DU, a total of 964 questionnaires were distributed among the library users, out of which, a total of 757 completely filled in questionnaires were selected for the analysis. In JNU libraries, 442 questionnaires were administered to the users of online databases in the faculties of Social Sciences and Arts. Among the 442 questionnaires, 396 were returned back where twenty nine were found incomplete. Thus the investigator considered only 367 questionnaires for analyzing the data. For this purpose, in AMU, the investigator administered a total of 347 questionnaires to the users of online databases. Out of which 305 questionnaires were returned back, 37 of them were found incomplete, thus the investigator considered 268 questionnaires for analysis. In BHU, 705 questionnaires were administered, among these questionnaires, 641 were returned back out of which 155 were found to be incomplete. Thus, the investigator considered only 486 questionnaires for data analysis.

A total of 2458 questionnaires were distributed among the library users of select universities, out of which 2231 were returned back, while 1878 were selected for data analysis and the total response rate was 76.40% (Table 1.3). The ultimate response rate from librarians of the central university libraries is 100 percent as shown in table 1.2. The response rate of online database users of DU, JNU AMU and BHU are found to be 78.53 percent and 83.03 percent, 77.23 percent and 68.93 percent respectively. Thus, indicating that the interest in the use of online databases and survey responses were high among the users of JNU. For better understanding, the
overall response rate of the librarians and users is shown in table 1.2 and table 1.3 and university wise questionnaire analyzed is shown in figure 1.2.

**Table 1.2: Librarians Response Rate**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Category</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DU</td>
</tr>
<tr>
<td>1.</td>
<td>Number of Questionnaires Administered</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Number of Questionnaire Received</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>Number of Questionnaire Analyzed</td>
<td>1</td>
</tr>
<tr>
<td>4.</td>
<td>Response Rate (%)</td>
<td>100</td>
</tr>
</tbody>
</table>

**Table 1.3: Administration of Questionnaire and Response Rate of Users (FM, RS and PG)**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Library</th>
<th>Number of Questionnaires Administered</th>
<th>Number of Questionnaire Received</th>
<th>Number of Questionnaire Analyzed</th>
<th>Response Rate (%)</th>
<th>University wise questionnaire analysed (%) (Out of 1878)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>DU</td>
<td>964</td>
<td>889</td>
<td>757</td>
<td>78.53</td>
<td>40.31</td>
</tr>
<tr>
<td>2.</td>
<td>JNU</td>
<td>442</td>
<td>396</td>
<td>367</td>
<td>83.03</td>
<td>19.54</td>
</tr>
<tr>
<td>3.</td>
<td>AMU</td>
<td>347</td>
<td>305</td>
<td>268</td>
<td>77.23</td>
<td>14.27</td>
</tr>
<tr>
<td>4.</td>
<td>BHU</td>
<td>705</td>
<td>641</td>
<td>486</td>
<td>68.93</td>
<td>25.88</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2458</td>
<td>2231</td>
<td>1878</td>
<td>76.40</td>
<td>100</td>
</tr>
</tbody>
</table>

**Figure 1.2: University Wise Questionnaire Analyzed**
The above figure shows the percentage of University wise distribution of the questionnaire. The collected data was coded to sort respondents by the group and to track survey outcomes. Collected data were, tabulated, interpreted and analyzed through suitable statistical techniques.

1.6.3. Data Analysis

After collecting the relevant data for the study from DU, JNU, AMU and BHU using various data collection techniques, such as questionnaires and literature review. The responses given in the questionnaires were coded and classified by reducing data into homogenous groups as to draw meaningful relationship. The statistical counting was done for each response by using self designed coding sheet and the data was processed for further calculations. The data was organized, analyzed, compared, consolidated, tabulated and interpreted by frequency counts, percentages and applying statistical tools. The software package SPSS have been used to verify the validity of results. In the light of above data, useful findings, recommendations and conclusion have been drawn. Based on analyzed data, findings, conclusion and suggestions have been drawn. A detailed analysis and interpretation of data is presented in Chapter 1.7. TERMS USED IN THE STUDY IN THE STATEMENT OF THE RESEARCH PROBLEM

• Use

According to Merriam Webster Dictionary (2012), Use is, “a method or manner of employing or applying something”. The term ‘use’ refers to accessing of online databases by different types of clientele, which include faculty members, research scholars and postgraduates in the faculties of Social Sciences and Arts in universities of Delhi and U.P., i.e., Delhi University, Jawaharlal Nehru University, Aligarh Muslim University and Banaras Hindu University for fulfilling their information needs.

• Online Database

The term online database is defined by the Law dictionary (2012) as, “a web-based filing system used to store information or records, accessible by using web scripts. Use often requires a paid subscription.” It serves as a source of data for assessing the use, which includes subscribed databases accessible online by the users of the selected universities under study. It is a source of information that provides information in different forms (journals, books & theses, etc.) and formats (HTML, PDF, etc.). The select libraries are subscribing to different types of databases, i.e.
Bibliographic, Full-text, Multimedia and Numeric databases, etc., to make online sources available to their registered users. Online databases provided by the universities have been used as such for the study.

- **Faculties**

  The Macmillan Dictionary (2015) defines the term ‘faculty’ as “a branch of teaching or learning in an educational institution”. The term faculty represents the faculty of Social Sciences and faculty of Arts as mentioned in the respective universities. The faculty of Social Science includes, Department of Economics, History, Sociology, Psychology, Library Science, Political Science and Education, etc., while the faculty of Arts includes the following departments; Department of English, Philosophy, Languages, Linguistics and Fine Arts.

- **Central University**

  The Ministry of Human Resource Development, India (2015) defines Central University as, “a university established or incorporated by a Central Act”. It is set up by an act of Parliament under the purview of the Department of Higher Education in the Union Human Resource Development Ministry and funded by the University Grants Commission (UGC) for its maintenance and development. There are 46 central universities in the country according to the list published by the UGC as on 20 May, 2015.

- **Delhi**

  According to Collins dictionary (2012), Delhi is, “an administrative division of North India, formerly a union territory”. It is the capital of India and also is the intellectual hub of Indian education system. It encompasses three renowned central universities, i.e. University of Delhi (DU), Jamia Millia Islamia (JMI) and Jawaharlal Nehru University (JNU).

- **Uttar Pradesh**

  The Oxford English dictionary(2012) defines Uttar Pradesh as, “a state in northern India that borders on Tibet and Nepal; with its capital as Lucknow. It was formed in 1950 from the United Provinces of Agra and Oudh”. It is a state of north India, where the education system is quite old and established and the academic institutions are growing at a very fast pace. There are four central universities in U.P., i.e. Allahabad University, Aligarh Muslim University, Babasaheb Bhimrao Ambedkar University and Banaras Hindu University.
1.8. STANDARDS FOLLOWED FOR BIBLIOGRAPHIC REFERENCES

The investigator has followed American Psychological Association Reference Style (APA, 6th ed., 2009) for providing the bibliographical references. The prescribed standard of APA for giving in text citation, references at the end of each chapter and in the bibliography has been followed. Examples of different authorship are as follows:

Citation in the Text

(i) **Single Authorship works**

Computerized database is one of the outcomes of an application of computer technology to education and research. These are gaining attention from educators because of their potential for developing in students the very important skills of logical thinking, problem solving, and information handling (Parisi, 1985).

(ii) **Multiple Authorship works**

Electronic resources provide 24x7 access to a wide range of information at anywhere irrespective of time and location; and are widely appreciated and used by the user community. The users consider these electronic sources and services as important and valuable for their academic and professional activities (Bar-Ilan, Peritz & Wolman, 2003).

Citation in the Reference List

(i) **Book (Print)**


(ii) **Book (Online)**


(iii) **Encyclopedia (Print)**


(iv) **Encyclopedia (Online)**

Chapter 1                                                                                                                               Introduction


(v) **Journal Articles (Print)**

(vi) **Journal Articles (Online)**

(vii) **Theses**

(viii) **Web sources**

(ix) **Reports(Online)**

1.9. ORGANIZATION OF THE STUDY

The study entitled “Use of Online Databases in Faculties of Social Sciences and Arts in Central Universities in Delhi and Uttar Pradesh: A Comparative Study” is organized under the following chapters:
Chapter 1  Introduction

The chapter briefs the whole study undertaken, begins with the basic concept of online databases and background of the research. It includes the statement of problem, objectives, hypotheses, scope, significance and limitations of the study as well as definition of terms. Further, the chapter describes about the research methods used, methods for analysis and interpretation of data, organization of the study and standards used for bibliographic references.

Chapter 2  Review of Related Literature

Prior to launching the study, a survey of the related literature was undertaken. The purpose of this exercise was to understand the already existing trends, research gap, findings and problems to arrive at the right perspective. The research topic was divided into various sections and a search was made for related research material in various research journals, reports, seminar/conference proceedings etc.

Chapter 3  Historical Background of Online Databases

This chapter provides a detailed description of online databases and its background. The concepts, definition and types of online databases have been discussed in the chapter. This chapter covers the examples of online databases in the field of the Social Sciences and Arts like JSTOR, ScienceDirect, Emeraldinsight etc.

Chapter 4  The Art and the Social Sciences: An Overview

This chapter also provides an all-inclusive understanding of the disciplines, i.e., the Arts and the Social Sciences. It provides an outline of historical developments, concepts and organization of the subjects under these two disciplines.

Chapter 5  Data Analysis and Interpretation

This chapter deals with the analysis and interpretation of data collected through the survey. The chapter is divided into two parts, Part-A consists of analysis of librarian’s responses and Part- B deals with analysis of users’ responses. Further, the chapter illustrates different statistical tools that are used for analysis and helps to make generalizations of the study.

Chapter 6  Findings, Conclusion and Suggestions

This chapter covers findings, suggestions and conclusions of the study. The research areas for future work are also provided in the end.

The last part of the thesis contains Bibliography and Appendices. The questionnaires administered to the librarians and users are provided in Appendix I and
II respectively, and the profile of libraries understudy is included in Appendix III (list of databases).

1.10. SUMMARY

The shrinking budget of libraries, accompanied by steady growth of online resources, such as online databases have created the need to evaluate online collections in terms of its use and effectiveness. This has also forced libraries to develop strategies for sustaining key programs to maintain access and availability of online resources. Therefore, the current study is designed to determine the use of online databases in the four prominent universities in Delhi and Uttar Pradesh.

This chapter presents an overview of the entire study by stating the objectives, hypotheses and scope of the study. It illustrates the problem areas with which the study concerns itself. The limitations of the study as realized by the researcher have been defined in this chapter. It brings out the complete description of methodology along with the tools and techniques used to collect and analyze the data. Brief definitions of terms used in the study and the organization of the study have been provided in this chapter. The findings of the study will enable librarians to take informed decisions about online database collections, services and promotional activities. It will also help librarians to determine whether the available online database is serving the needs of users in the faculties of the Social Sciences and Arts as well as which database subscriptions should be dropped or added. In addition, the survey will bring forth those issues that were previously unasked and therefore unanswered.
REFERENCES


CHAPTER 2
REVIEW OF RELATED LITERATURE

The literature review is an investigation of progress in a particular area of a subject over a given time period. It is a depiction of what has been published on the topic of research by attributing scholars and researchers bring to light the important literature and contributions of the current study. It is an evaluative study of the literature related to the topic of research and helps in determining the nature of the research by describing, evaluating and summarizing the literature. It provides theoretical overview of the literature to articulate the relationships between the literature and the field of research. According to Kumar (2012), it presents theoretical background to the current study by creating links between what has already been studied and what need to be examined, and to contextualize the findings by comparing them with other studies in relation to the area of investigation. Thus, it facilitates a researcher to show how the findings of the study will contribute to the existing body of knowledge in their profession.

A good literature review is a foundation of both hypothetical and practical complexity of any research and improves the quality and usefulness of subsequent researches. Thus, it aids a reader to identify all the relevant concepts related to the research, such as what knowledge and ideas have been drawn to the topic, problems and issues related to the topic. According to Boote and Beile (2005) a good literature review must possess the following characteristics; it should achieve a number of objectives of the research, set a background for the study, help in defining the scope of the investigation, and validate those decisions in the light of other studies. Moreover, it should also examine the research methods used in other studies for gaining better understanding of the selected methods for the study. A literature review includes identification of relevant published literature or sources of relevant information that may range from a bibliographical index or references, to a review of original publications on the area of research.

The literature review is an overall analysis of the literature that helps a researcher in identifying and leading towards a new productive work by analysing the most commonly discussed criteria and issues used in related studies. It helps researchers to subdivide the topic in more understandable parts and to make the
research more comprehensive and understandable. The researcher carried out the literature survey to know developments of online databases, its practices, and other issues related to the use of online databases. Besides, reading the literature assists the researcher to bring to light the important issues and variables that will have an impact on the research outcomes. The literature review is organised into different facets that were found to be relevant and helpful in understanding the current study and these are discussed below under the following headings.

2.1. INFORMATION RETRIEVAL SYSTEMS

Information retrieval system is one of the outcomes of information retrieval technologies, which is used for searching through a collection of electronic or print documents to satisfy the information needs of users. It is concerned with the storage, organization and searching of collections of information. The goal of any IR (Information retrieval) system is to select an informational item from a large collection of information item that should be relevant for a information seeker (Swanson, 2010). It performs all the activities related to the organization, processing, and access of information in all forms and formats. Furthermore, it allows people to communicate with an information system or service in order to find information, which is relevant to fulfill their specific needs of information (Chowdhary, 2010). The history of information retrieval systems is related to the development of computer technologies. Prior to the 1940s, the information retrieval systems were manual in nature, such as indexes and catalogues in print form. In the 1950s, the first computer based retrieval system was introduced, then in 1950s the punched card system was came out. In the 1960s, the major off-line information systems were introduced that worked on both batch-processing and tape-oriented mode. This was recognised as an era of off-line computer retrieval systems. In 1963 the experimental work on on-line information retrieval had been started and the period of 1970s was called as an epoch of online information retrieval systems, where the extensive conversion of operations had been done from offline to online mode. Today’s online retrieval systems are heuristic and interactive in nature, permit browsing, provides quick response. These work on real time and time-shared modes and can be used in a non-delegated searching mode (“Online information system”, 1977). IR systems are logical and organized set of elements, which produce, distribute, or process information collectively. The term IR systems can apply to computer information systems, networked information systems and other related systems (Ratzan, 2009).
Due to the unabashed growth of proportion of knowledge, there have emerged a number of information systems or databases, which are excellent tools for information communication and retrieval. As well as, the progress and developments in information, communication and computer technologies (ICTs) resulted in several new electronic sources of information and made these systems available online to each and every one globally through computerized networks, viz., internet (Devrajan & Pulikutheil, 2011). However, gaining knowledge and expertise in using electronic resources enables researchers to access current information to increase the efficiency and productivity of their research work (Saado, 2004).

2.2. ONLINE DATABASES

Chowdury (2010) categorized the online information retrieval systems into four distinct group categories on the basis of their content, purposes and functions. These categories are as follows; Digital libraries and Web-based information services, OPACs, Online databases and Web search engines. With the increasing use of computers in information management activities, there have emerged a number of databases, which provide bibliographic information of various sources. Generally, the online databases include references to journal articles, conference papers, reports, books, etc., and make available these sources through Information Retrieval Services (IRS) or hosts on commercial basis. Some of the online information retrieval services like, Dialog, Ovid and Factiva, provide access to different types of databases to concerned parties. Gash (2000) added that, the developments in networking technology and in national and international telecommunication technology enabled the real-time, interactive, online access to online databases at a large extent to the users lying worldwide. Since then, these databases have become a prime source in information searching by providing access to a wide range of information. It provides millions of systematically organized references of different documents and access to various scholarly journals, books, reports, patents, standards, thesis and dissertations and government publications, etc.

Computerized database are an outcome of the application of computer technology to education and research. These are continuously gaining attention because of their potential of developing skills in logical thinking, problem solving, and information handling. These are unique tool for integrating teaching knowledge with information skills, and intellectual skills. By searching databases, a student also learns to identify the information needs, to make problem statements, to retrieve and
sort information, and to design strategies for organizing data (Parisi, 1985). An academic database is one of the best sources of information to the academic community. It is an excellent tool for information retrieval, referencing and sharing of data as well. These are appreciated mostly for its authenticity and excellence in information communication and retrieval (Uwimana & Melius, 2010). Online bibliographic databases are the excellent tools of information access, rather than a mere item of any library’s collection. These provide quick and better access to those published items of information that a library might or might not have in its collection. (Rice, 1985). In print databases, there is a limit to include an only specific subject heading, but in computerized systems, a single document can be covered under different subject headings. Within a minimum search time, these databases facilitate compilation of bibliographies, current awareness services and retrospective literature search. Today there are different types of databases available and their trend and number are continuously increasing. These are either having general coverage or are subject oriented having specialty in any area of education, viz. Chemistry and Chemical technology, Biological sciences, Agricultural science and Nuclear science, etc. (Devrajan & Pulikutheil, 2011). These databases generally comprise of periodical articles, government document, conference papers, and other material, scholarly material and are usually distributed to libraries by professional vendors. The three major vendors: DIALOG information services, Inc. (DIALOG), Retrieval Services (BRS) and System Development Corporation (SDC) are the prominent names in database industry that provide a wide range of online databases all over the world (Reichel, 1983).

2.2.1. Awareness of Online Databases

Like accessibility, awareness also plays an important role in the prolific use of electronic resources. With proper awareness of available electronic resources, users can become well acquainted with available sources and current trends and developments in their respective fields of study (Negahban & Talawar, 2009). According to Piotrowski, Perdue and Armstrong (2005); Kaur and Verma (2009) the proper awareness of available e-resources enables users to use more and more those resources that are beneficial for their study and research. Inspite of this, it also helps users to hold constructive attitudes towards the limitations faced by them while using the computer-based databases or online library systems. In the study, De Groote and Dorsch (2003) found that awareness and convenience are the two factors that play a
major role in selection and use of online resources. Lack of awareness was found as one of the reasons of low usage of databases. Due to unawareness users preferred to use only those databases with which they were well-acquainted and used regularly, despite of other available databases. Thus, the lack of knowledge deterred the users to make use of all the online databases subscribed by the library. In the absence of or insufficient information on coverage and contents of available databases only of a limited number of databases were used by the users. As libraries offer many online information resources, so the library staff should take measures to make its users aware of all the available online resources and educate them of their importance and scope in their area of study (Upadhyay & Chakraborty, 2008; Punchihewa & Jayasuriya, 2008 and Groote, 2003). In a study, Atakan (2008) evaluated the results of two surveys that were carried out in the years 2002 and 2005 to assess users’ awareness regarding availability and value of databases. During the study period, an increase in the level of awareness and use of online databases was specifically noticed. In the first survey, the users rated use of online databases as occasionally, while in the second survey they kept it under the category of frequently. This change may have occurred due to an increase in users’ awareness and interest towards the electronic resources. Thus, this affirmed that the awareness and promotional programs conducted for the three consecutive years from 2002 to 2005 had left a positive and remarkable impact on the use of electronic databases. The online databases, ScienceDirect, Web of Science and EbscoHost were being appreciated and used more for research work. In this regard, Weingart and Anderson (2000) suggested that libraries should take requisite measures to promote and publicize their available electronic resources and make appropriate arrangements for their proper accessibility and full utilization by its users.

Furthermore, there are number of studies that made recommendations on improving the awareness and use of online resources. In a study, Soyizwapi (2005) found that students did not have much knowledge about formal means of information, amongst them friends were seen as a prominent information medium, followed by library orientation programs, lectures library website, and then library guides and library staff. Thus, the study recommends for enhancing users’ awareness and knowledge regarding available databases through organizing awareness campaigns at the beginning of the academic and at regular intervals during the semester. It also suggested that libraries should combine different approaches of training, i.e.
demonstrations, educational meets, and workshops with each other for better communication of knowledge about library’s resources. There need for online tutorials on systematic procedures for using of online resources was also identified. Novak and et.al., (2010) also realized the need for educating users about databases and its usefulness and for devising strategies for promoting database use in developing countries. The level of awareness was seemed low among the physicians in Croatia regarding extracting journals, review publications, databases and other online information resources. According to Weingart and Anderson, (2000), there is a great need for promotion and publicizing the electronic resources that was acquired by the library. Besides, libraries should notify users about the availability of electronic databases and use different modes and methods to access electronic resources. As library professionals also play an important role in generating information on awareness and use of online information resources. Therefore, Kattimani, (2010) and Tyagi (2012) suggested that library staff should make users aware of available library resources through e-mail or other alert services. Libraries should provide some promotional materials to the users to develop their interest towards online resources. It should also be done through either compilation or distribution of guides and brochures on online resources or by providing personal assistance to the users in using the online resources. Moreover, a need for on-site training or online demonstrations by the vendors or library staff is identified to maximize the use of subscribed online resources.

2.2.2. Use of Online Databases

With rapid advancement in information and communication technologies, use of electronic resources has become common in academics. As electronic resources have a considerable role in education and research, likewise the understanding of its usage and use patterns have a remarkable impact on library functioning. Seeking information regarding patterns and trends in use of electronic resources will help a librarian to manage information resources in a better way. These patterns and trends in use of electronic resources may also help librarians to identify users’ motives, their opinions, and experiences regarding these information resources (Deng, 2010). With the increasing amount of information production and publication, it has become very difficult to select an appropriate item of information from a huge mass of published literature. Scholars, especially scientists rely on scholarly literature and require appropriate information within the shortest period of time, but to locate their
information they have to struggle with the information overload. Therefore, to deal with this situation, the study suggested the use of bibliographic databases for searching information from a vast pool of literature. Bibliographic database is a very effective and efficient tool for locating information, provides faster and exhaustive access to information. It brings current literature to keep users updated with current developments in their areas of interest, also allows to modify the results by expanding or narrowing the searches, including or excluding searching options and by combining different search options (Konig & Ruffer, 2003).

Evaluation of use of electronic resources is helpful in developing a good collection in libraries, to know the most used e-resources and to assess its impact on educational activities. In addition, use analysis is also helpful in justifying the investments that has been spent by the libraries in providing best e-resources to its users (Madhusudhan, 2010). In an investigation, web server logs and database use counts were analyzed to find out the level and intensity of use of online databases. This use analysis helped in determining the use patterns and major changes that occurred in use of online databases during the investigation period (Jacoby and Laskowski, 2004). The electronic databases enabled library patrons to access information remotely and provided them various options to enhance their academic excellence. Besides, the differences were found in patterns of use, preferences and purposes of use, like someone was liked to use for research work, while others for reading books and magazines. The study ascertains that the electronic databases are easy to use and provides more up-to-date information than conventional sources (Kaur & Randhawan, 2010).

During the last few years, online databases have been continuously increasing in numbers and expanding its role in academics. Now, these have become an important source of information in education, especially in research and teaching. Because of, its enriched contents and worthiness, online databases have been mostly used by the academicians to tap the scholarly literature (Piotrowski, Perdue & Armstrong, 2005). In higher education, academic databases were used as a tool for communication and sharing of data. These were considered as a reference source that contributes largely to the researchers’ repositories by providing necessary information (Uwimana, 2010). Whereas, in the Croatian University, faculty members used online academic databases as important sources of scientific information (Dukic, 2010). The use of these databases has broadened the scope of research by providing a number of
reference literatures to facilitate in-depth research and produce a better result. Article databases have enhanced the research activities in such a way that was not possible with print journals. Therefore, today its use becomes indispensable in generating the productive and useful researches. In addition, a better understanding of information seeking behaviour facilitates to understand the users’ needs that will help to design a better database interface and to increase user interaction with databases (Kozak, 2007). A survey conducted in academic and public libraries in the U.S. and Canada, to capture the opinions and attitudes of librarians, as well as environmental factors within a library that may affect the use of online databases. Inspite of, differences in nature, size and database grouping, the pattern of use of databases in both types of libraries was almost same, followed the same pattern for workdays and academic year. In both types of libraries, users preferred to search databases more often early in the week (Mondays and Tuesdays were the peaks) and in the mid-day, between 11a.m. to 4p.m. of local time. The average number of simultaneous users was related to the size of the population served and the number of workstations available, but comparatively a very less number of users logged on simultaneously to search the databases. However, the database usage was at its peak in the month of November in both the libraries, but in public libraries use was more consistent than academic libraries (Tenopir & Green, 1999). These are the effective means of accessing and searching significant sources of information. By providing a large collection of enriched subject contents, it is improving the quality of research work. Thus, these databases are largely used for research, teaching and tracing new informational sources of education (Khan & Zaidi, 2009; Mannan, Zaidi & Bharati, 2009; Atakan, 2008).

Due to the advancements in ICTs, traditional libraries are now transforming into electronic. The State Agricultural Universities (SAUs) of Jammu & Kashmir provides access to databases to its users to support teaching and research activities. A large number of agriculture professionals were aware of e-databases and used these databases for different purposes like, for downloading articles, research and teaching, and for updating knowledge. The e-databases such as CABI, AGRIS, AGRICOLA and Vet-CDs were vastly used by the agriculture professionals (Mangi, 2014). The study identifies the importance and use of e-databases and role of educational programmes in enhancing the use of e-databases. Most of the research scholars and postgraduate students were having good knowledge of available e-databases and were
satisfied with the available library collection. E-databases were mostly used for downloading articles, and research purposes respectively. The databases, such as AGRIS, AGRICOLA, CAB abstract and agriculture & natural resources were got more credentials than other databases (Naqvi, 2012). Oduwole and Oyewumi (2010) examined that, physicians in Neuropsychiatric Hospital in Aro, Nigeria used databases for teaching, research, decision making and sharing of information with colleagues. The database PubMed had the most extensive use. However, users mostly accessed these databases through on campus cybercafé, nearby areas and from their dwellings, but frequency of use of the databases were limited to just once in two weeks. These findings may have practical and technical implications for database providers and librarians as well.

Currently, online access to journals has become a major boon for academics and considered as an important component to the collection of any academic and research library collection. Many academic institutions are accessing different online resources to fulfill various needs and functions of research, as these online resources have a profound impact on research output. From the study, users’ awareness was found to be satisfactory with the available online resources, but many were seen uncertain with the potential of online journals and databases. Although, users had good knowledge of available online journals and databases, but they used them as additional sources of information. The databases like Science Direct, Web of Science, IEEE/IEE/IEL Online had major use, especially in teaching, research, and extension activities (Tyagi, 2012). Ease in use has direct impact on acceptance, use and usefulness of citation databases. The users mostly liked to use those databases, which are easy to use and having simple search interfaces. It enables users to carry out their search without any complexity or effortlessly (Chun & Chou, 2009). A study finds a correlation between user’s perception and their behaviour towards electronic resources. Users’ demand varied with differences in age, sex and their status (Zhang, ye & Liu, 2011). The factors like demographic characteristics, disciplines, and age have an effect on preferences and methods of use of online databases. The older age faculty members still preferred to use print sources more than electronic sources for searching information (Bar-Ilan, Peritz & Wolman, 2003). However, users selected online resources on the basis of ease in use and availability of full text articles, but variations were seen in approaches used for using online databases amongst the user groups and this probably occurred due to the differences in users’ status, preferences,
and purpose of use. Online databases were mostly used for research, instructional purpose, class assignments, project work, presentations, and gaining knowledge. Among the available online databases, Ovid MEDLINE was most used by the users because of its simple search interface and seamless links to other renowned journals (De Groote and Dorsch, 2003). A study by Majid and Tan (2002) on the use of information resources by computer engineering students at Nanyang Technological University in Singapore revealed the low usage of databases and electronic journals amongst the users. The print form of information was preferred most by the students, the five most used information sources were books, lectures, internet, friends and manuals. The study recommends for promotional campaign for enhancing the use of electronic sources amongst library users.

In recent years, there has been a remarkable growth in the use of databases in the academic world. However, on the other hand, academic libraries are facing problems of shrinking budgets that has considerable effect on the amount spent on purchasing electronic resources. Hereupon, it becomes necessary that libraries should select electronic resources with proper consideration, and take care of other factors related to selection process. The paper also mention some factors that need to be considered while assessing or choosing online databases for a library. The first factor includes patron’s academic standard, as academic libraries serve different levels of education, like undergraduate, graduate, doctoral and faculty patrons. Therefore, it is necessary to choose a resource that fits to the needs of different users’ groups. Another issue in the selection of databases is subject coverage, so libraries have to choose those databases that have appropriate subject contents according to the needs of patrons. In this regard, librarians need to assess each database carefully, take wise decisions and consider factors like, availability of abstracts, full-text accessibility, and scope or subject coverage, search options and indexing, etc. while selecting databases for a library. In addition, budgetary issues should also be considered while selection (Tucker, 2005).

2.2.3. Advantages/ Features

Reichel (1983) mentioned certain features of online searching databases, which includes combination of concepts, comprehensiveness, multiple database searching, free-text searching, currency, current awareness services, document delivery service, and convenience. Better and quicker access to information is a real benefit of online searching. The option of a combination of concepts allows searchers
to make more specific and free-text searching and alert services provides updates regularly to users. According to Naqvi (2012), the contents in databases are regularly updated to provide recently published information to its users. Most journal databases provide current published sources of information as they are added or modified in the collection. The databases used in libraries mostly are catalogues, periodical indexes, abstracting services, and full-text reference resources subscribed under licensing agreements and its access is limited to registered borrowers and library staff only. These are specially designed to target both general and subject specific information seekers by providing information either on very specific topics or on a range of topics. Due to its excellence in scope and functioning, these have become an important source of information that can be accessed at any time, irrespective of any geographical boundary. Feustle (1988) found that electronic data sources not only made searching and retrieving of information easier, but also brings results in seconds rather than spending hours in getting results. These require less effort, less time and retrieve data in such a way that is not possible with print sources.

The primary advantages of using electronic sources mentioned by the Rogers (2001) includes, easy access, 24-hour availability and less time-consuming in getting information. However, lack of a computer, limited online access, limited experience with e-journals, lack of skills in using e-journals and lack of hard copy and more dependence on print sources were some of the problems pointed by the respondents. According to De Groote & Dorch (2003), convenience and availability of full-text have major role in selection of online resources. The databases with links to full text journals and online journals with links from bibliographic databases had a higher usage than other databases. Ovid MEDLINE and MD Consult were the databases that were used usually, because of availability of links directly to full text online journals. This showed that convenience is not only considered in selection process, but also preferred while using online databases. Therefore, it is required that libraries should be more decisive while selecting and organizing online resources and should select those databases that will provide links to other full-text sources.

2.3 STANDARDS FOR DATABASE USAGE STATISTICS

The analysis and interpretation of usage statistics of web-based databases have became an important task for librarians. Database usage statistics are essential in determining the cost-effectiveness of databases and helps in making the decisions on its subscriptions. Accurate and consistent statistics of database help librarians to
analyze whether use of databases is justified in terms of the expenditures or not and to make decisions for future subscriptions (Shim & McClure, 2002).

Generally, academic libraries use different approaches to accumulate data for estimating database usage. Variations in the methods used for measuring the database usage inhibit libraries to make comparison between use statistics supplied by different database vendors. Furthermore, differences in policies and provisions of consortium make reporting of database usage statistics more complicated. The International Coalition of Library Consortia (ICOLC) drafted the “Guidelines for Statistical Measures of Usage of Web-based Indexed, Abstracted, and Full Text Resources”. These guidelines help to overcome those inconsistencies that create problems in obtaining usage statistics and in making comparison among different databases (Dunlap & Stierman, 2001). Analysis of use of electronic resources can help the librarians to evaluate the cost spent on purchasing the electronic resources. There are various tools used for measuring the usage of electronic resources. Both publishers and libraries have their own tools to measure the use of electronic resources. Although, most of the publishers produces use counts of their products, but these are mostly incomplete or inconsistent. Only a few international publishers or big library suppliers use COUNTER standard for providing usage count of electronic resources. Today, libraries are also using different tools to get accurate data on usage of databases, such as proxy logs and analysis of use through IP address, but these are also not so reliable to get data according to the academic status or disciplines wise. Thus, it is important for libraries to adopt a reliable standard to measure usage of its online collection (Bernon, 2008).

The International Coalition of Library Consortia 2006 (ICOLC) has developed a set of guidelines to determine the use of online databases. The guideline specifies some parameters for measuring the database usage. These parameters analyze use through specific database login, by user ID logins and through monthly usage statistics. The University of Malaya Library used these elements for collecting and measuring data related to the use of online databases. The login was used to identify a user by recognizing his name and password and allow communicating with a computer connected to communication networks. The library usage statistics was used to estimate the duration of use and number of times an online database was used by the users. The monthly usage statistics for the past five years identified that, Ovid Medical, Science Direct, Proquest ABI/Inform, EBSCO Business Source and Infotrac
were the most used databases at the University of Malaya library (Sinnasamy & Mohamed, 2007).

2.4. PREFERENCES TO ACCESS ONLINE RESOURCES

2.4.1. Format of Access

Reading a paper is different from reading on screen and it is more convenient to read a paper. Users mostly prefer those formats that are convenient in use. User groups have different preferences based on ease and simplicity in use. The most-cited reasons of using the electronic formats are; ease in access and use, ease in searching and printing, and accessibility of information at a faster mode (Sathe, Grady & Giuse, 2002). Herring (2002) analyzed a sample of citations from e-journals to understand the changes in information seeking behaviour and impact of e-resources on research activities. In e-journals, electronics resources were cited more than print journals. The study finds that e-resources have brought radical changes in the information seeking behaviour of users and is used as an expansion of traditional sources of information. Now, these are considered as an important source of information in research and teaching. The findings of the study are consistent with the study of Milne (1999), which shows that use of electronic journals is continuously increasing in academics leaving behind its print counterpart. The method of information communication and retrieval has been changed, as library’s’ visit has decreased with an increase in use of electronic information resources. For the period of six-months, Morse and Clintworth (2000) compared the use of electronic and print resources in an academic health sciences library. The findings reveal that the electronic journals are more utilized by the users than print journals. The results of the study ascertained that a large percentage of users in health sciences preferred to use more online resources than print or traditional sources (De Groote & Dorsch, 2003).

A study conducted at Ohio State University in between 1998 to 2000 to assess the use, level of awareness of electronic resources and change in users’ attitude towards replacing print journals. The study used computer-assisted telephonic interview and e-mail for collecting data for a period of three years, i.e. 1998 to 2000. It was found that more than half of the academicians and the students preferred electronic journals rather than printed journals. An increase in the use of e-journal and electronic databases with an accompanying decrease in the use of print journals was noticed. The factors that contributed for maximizing the use of electronic sources were; increase in the use of the internet and growing interest in distance education,
implementation of instructional technologies in university and addition of links from citation databases to full-text articles (Rogers, 2001). Consequently, with the growth of electronic resources, users’ interest was also shifting towards the online sources, but this shift had an inverse effect on print sources. The access and use of print journals are continuously decreasing with the increase in number of online journals. While using electronic journals, many preferred to access and save documents in PDF, whereas a very few used HTML format to view the documents (Tyagi, 2012).

On the contrary, a study of information-seeking behaviour and use of library sources in veterinary sciences shows that most of the students liked to consult books, class handouts and, colleagues and teachers before using online databases for information searching (Pelzer, Wiese & Leysen, 1998). The medical students showed more interest in textbooks and print journal than electronic sources to search the information (Cogdill & Moore, 1997). The reasons of using more print sources were included; aesthetic value (higher quality of photos, graphics, and tables), ease in reading, browsing, and access. The electronic sources were not so liked by the users, as these have several loose ends or links, irrelevant retrievals, false trails and lack of ability to focus onscreen contents (Sathe, Grady & Giuse, 2002). Respondents explained that it was uncomfortable to read text on-screen for long periods and take more energy to read text on-screen. Respondents complained that in databases texts were displayed fragmentally on the screen which lost its contextual structure. Therefore, they preferred to read the paper version to avoid misunderstanding the texts. Moreover, they questioned on accuracy of ancient Chinese books, databases because of errors that showed in results, such as incorrect characters and punctuation (Wu & Chen, 2007). The studies find that print form of documents was the most used form of information amongst the students. Use of online Journals and databases was low as compared to print journals, as users used more print journals. Therefore, user satisfaction level in respect to electronic resources was low in comparison to print documents (Majid & Tan 2002; Nikam & Promodini, 2007; Punchihewa & Jayasuriya, 2008). Whereas, a study by the Upadhyay & Chakraborty (2008) states that online sources cannot replace the print sources rather these are the substitute of print sources and both are equally requisite for a modern library.

Despite, all these discriminations in users’ preferences, challenges always remained for libraries to keep a balance between print and online resources to meet various needs of users and help them to select appropriate sources according to their
information needs rather than format or convenience. However, the findings of the study confirmed that a large fraction of users in an academic health sciences environment preferred online resources, but used only a small portion of available online resources and seemed unaware of the broader spectrum of available online resources (De Groote & Dorch, 2003).

2.4.2. Modes and Sites of Access

Modes of access of online resources also have an impact on library and its services. Libraries provide various access points to access available databases. The library website is a primary point to access information regarding library resources. It is a gateway to access to library sources and services, like electronic indexes, databases and primary research materials. Thus, usability testing of library’s website became important to maintain its consistency, to meet changing demands of users and to identify the problems related to interface design (Battleson, Booth & Weintrop, 2000). Libraries generally used its home page to support educational and research programmes of their parent institutions. It is also used to provide access to its collection and relevant information related to its services and sources. Hence, educational activities greatly relied on the information generated by the libraries (Chisenga, 1998). Library’s website provided direct access to commercial online databases and links to commercial online databases. It was used as a primary and convenient point to access web-based library’s databases (Bao, 2000). Library’s web pages and online catalogues are consulted as prime access points for getting information regarding the library’s collection. Therefore, the library staff should be more attentive and organized while arranging information on the library web page. Likewise, library database’s page must clearly indicate a database name, subject coverage, dates and full text availability and identifiers to provide a complete description of a database to information seekers (Huggard, Hopley, Groenewegen, Horne, Smith, & Leighfield, 2002).

The universities have their distinct policies and strategies for dissemination and retrieval of online sources. In universities, online databases can be accessed either through ID logins or through IP address. However, providing access through login and password has some chances of misuse, but allowing access through IP address is found to be a safe and most preferable mode of access. Today universities are providing access to online databases to its users through recognized IP addresses (Kumar, Roy & Satija, 2011). The frequency of use of electronic databases also
depends on users’ preferences and provision of library services. For better use of electronic databases, library should provide off-campus access to electronic databases to staff and students, as well as provide passwords to the students for secured access to databases (Soyizwapi, 2005). The agricultural libraries in India are now subscribing a large number of electronic resources to meet shifting needs of their users. However, many agricultural scientists were satisfied with available database services in their respective library, but the frequency of library visit had been decreased. As, many of the e-databases were available either through IP address or user ID authentication on users’ devices (desktops or laptops) or divisions, and they preferred to use library’ resources from their places rather than from the library (Mangi, 2014).

Now a days, users prefer to access their information remotely at their places rather than going to the libraries. Therefore, more reliance on desktop access had reduced the users’ visits to libraries (De Groote & Dorch, 2003). Remote access to online library resources has altered the way of using the libraries. As most of the information resources are available online and only a few patrons are bothered to come to the libraries for information seeking (Upadhyay & Chakraborty, 2008). To maximize the use, libraries have to consider the provision of remote access for off-campus usage. For better provision of remote access, library should provide instructions to users on fixing browser on their computers and provide IDs and passwords to access library’s databases (Bao, 2000).

2.5. ISSUES RELATED TO ONLINE DATABASE SEARCH

2.5.1. Searching

During the last few decades, there has been noticed an increase in use of online information retrieval systems. Online searching enables users to access those databases, which do not have any equivalent in any form of literature. The cross-file searching within databases enables a searcher to find highly relevant records of information that is not possible to obtain through an exhaustive search in any manual reference source. Moreover, it makes possible to search contents faster, thoroughly and more efficiently within minutes. However, it takes hours or a day(s) to search information through manual reference sources (Odini, 1994). Online searching is an interactive (conversational) mode of searching of machine-readable databases. It involves interactive dialogues between searcher and computer. The computer matches an input search term against its files and displays matching results that can either be printed out or downloaded by the enquirer (Chowdury, 2010). It answers to user
queries more rapidly than traditional searching and more supportive to encounter a demand for better searching. It provides a wide range of search tools and access points through which online resources can be searched anywhere simultaneously. Furthermore, it provides more up-to-date versions of information sources within a short span of time that usually is not possible with print subscriptions (Rice, 1985).

Online database searching enables users to search any current or popular topic with a greater ease and provides different options to combine search terms for better retrieval. Conversely, manual indexes are only searched by their standardized headings, which are formulated earlier by the indexers and searchers having no option of applying any search technique for seeking information (Reichel, 1983). Like any other online sources, searching a database also requires skills and knowledge of different searching techniques to get an appropriate result. Users learn these techniques, mostly through trial and error method, reading guidelines from websites, asking friends and library staff. While searching online databases, users mostly like to use simple and keyword searches rather than other search options like, advanced search, expert search, etc. (Sinh & Nhung, 2012). Cmor, Chan & Kong (2010) assessed student learning behaviour, which is related to the database searching. Three different assessment methods were used at three different points to ascertain both students’ learning behaviours and attitudes. Students were not applying any search technique that they learned during the course. Therefore, students have to learn about databases and its importance in their study and work.

Regarding searching, Mercado (1999) suggested that the library users should learn significant skills of selecting appropriate databases and search techniques to get better results.

Simple search was rated as a most favourable search technique for retrieving online information, while users used advanced searches rarely, only for getting some specific information. Although, the advanced search is an effective approach for online search, but many users are not aware of its potential. Therefore, librarians have to teach its users about potentials of advanced search in literature searching (Kattimani, 2010). The most popular search method identified by the investigators was keyword search. The second most favorable search option was searching by author, which was then followed by journal title, subject and searching through abstract (Nisha & Ali, 2012). Boolean operators, phrase searching, field specific searching, wildcard and truncation are the common search features. Boolean logic is one of the basic search options that are available in every online information system. Boolean
operators followed by truncation and wild card search were most preferred search
techniques amongst users (Punchihewa, 2009 & Ali, 2005). While conducting
searches, most participants used basic searches rather than combined searches (i.e.
Boolean logic search). Although, the scholars appreciated the database coverage, but
complaints about the difficulties of searching language and lack of availability of
desired resources. Participants did not make use of combined searches because they
were either unaware of its functioning or felt that this would retrieve fewer results.
Most of the participants used basic search method only and seemed satisfactory with
the results brought by the databases. Besides, students showed positive attitude
towards database’s screen prompts, search functions, search results, response time,
results displayed, and the whole system, but complained about its online help and
error messages (Wu & Chen, 2007).

The study reveals that users used browsing for finding index, expand of the
table of contents, and for obtaining search history. It also suggested that retrieval
features should provide user control through different search options for retrieving
needed information (Xie & Cool, 2000). Kline (2002) grouped problems into four
categories; searching difficulties, retrieval issues, document discrimination problems
and interface design quandaries. The current search tools exhibit a number of
weaknesses and users have difficulty in constructing sophisticated queries needed for
effective retrieval. Hamilton, (2003) evaluated the usability and effectiveness of
different electronic versions of Encyclopedia Britannica on the basis of its searching
competencies. The study revealed that it answered the queries with great ease and
precision.

Relevance of the retrieved documents is the central issues of information
science research. Relevance is a criteria used to measure the degree of association of
an item retrieved in search documents as a result of query submitted to the retrieval
system (Jasco, 2006). Database providers offer several retrieval facilities in their
systems to retrieve data more accurately. The retrieval features are of mainly two
types: common and unique features. Common retrieval features, which include
Boolean operators, phrase searching, field specific and limit field searches, truncation,
and wildcard. While, unique features include lateral searching, density and frequency
of terms, reference links, and searching by table of contents. However, almost all
database vendors provided these searching features in their systems, but its
interpretation and implementation varies from system to system. The study
investigates twenty-five online databases of twelve different database providers to examine the functionality of retrieval features. Users felt difficulties while searching online databases and liked to see more examples on searching, as unique features were too advanced for untrained users. Consequently, it was recognized a need for more examples on search techniques in addition to help menus, guides or tutorials. Database providers should also incorporate users’ expected retrieval features, i.e., relevance, feedback and term weighting, and create synonym links of terms in thesaurus and more search examples in online databases (Othman & Halim, 2004).

2.5.2. Problems

The most common obstacle identified during the use of electronic resources were lack of knowledge regarding specific electronic resource and lack of training. Unexpectedly, lack of funds was also considered as one of the obstacles, followed by insufficient number of hardware and software (Adam & Bonk, 1995). Beside these common problems, there were other issues that deterred the users to fully utilize the benefits of electronic databases, such as limited off campus access, logging-onto the databases and password requirements. Complications in searching were also identified as another problem with which students often suffered. There is emerging a need for further improvements in library’s educational programmes on database usage (Soyizwapi, 2005).

The investigators, Koovakkai and Noor (2006), Atakan (2008), Madhusudhan (2010), Maharana, Bipin and Behera (2010), and Naqvi (2012) identified the problems that was mainly faced by the users while using electronic resources, including lack of guidance, slow downloading, poor connectivity, poor facility, erratic power supply, inadequate number of systems. Apart from these, there are some other problems that are mentioned by the respondents as personal shortcomings i.e., lack of IT knowledge, lack of interest, lack of skills and lack of time, etc. Rogers (2001) mentioned limited experience with e-journal and non-availability of hard copies as the foremost disadvantages cited by the respondents. Junni (2007) and Nikam & Promodini (2007) mentioned one of the main problems that students usually faced is lack of training in seeking proper utilization of online information. Many respondents expressed the need for additional training for using library databases. While, Singh and Arora (2010) and Ali (2005) stated that lack of training to access digital resources, trained manpower, financial support, improper ICT infrastructure, etc., are the factors that hinder the use of e-resources. According to the Rehman and Ramzy
(2004) and Dukic (2010), timings of the library also caused inconvenience to the users in making use of library’s electronic resources. It obstructed the users to use library resources to according to their convenience.

Retrieval of irrelevant information identifies as a most common problem faced by the respondents. The accuracy of the results mainly depends on the search options used to retrieve information. Using the right retrieval option is very necessary to get the accurate results. Proper execution and selection of right retrieval features were not easy as these features were not identical, they vary from online database system to system. Thus, this created a problem for the users in the formulation of queries by using the appropriate searching option (Kaul & Randhawan, 2010). The users felt difficulties with retrieval features while searching the online databases. The users, particularly undergraduates and masters faced difficulties in finding synonyms from the thesaurus and could not be able to re-formulate search strategies with synonyms and pseudo-synonyms. However, retrieval interfaces have been improved much, but users did not find retrieving features as good as it was claimed. There were the issues relating to the configuration or subscription of online databases, technical difficulties, limited access that also threatened the use of online databases in libraries (Othman & Halim, 2004). The problems, like retrieval of irrelevant information, interruptions and failures in getting information, lack of expertise in searching, the high price of access of electronic resources obstructed the use of electronic resources. Moreover, unavailability of desired electronic resources, disrupt power supply, difficulties in navigation and complexity in searching and time-consuming downloading and were also regarded as major obstacles in the use of electronic resources (Ozoemelem, 2009). Problems of obsolescence of database contents, compatibility of hardware/software and cost factor also created difficulty in using online resources (Hoskins 2005). To overcome the problems of lack of time, lack of skill, poor connectivity, interrupted power supply and technical problems in using the e-databases, library should reinforce their awareness and guidance programmes through providing training and retraining to users on use of databases. The study suggested that library should develop a library portal and improve ICT infrastructure in libraries for providing better services. In addition, libraries need to subscribe more databases and install more networked computers with appropriate software for searching (Oduwole & Oyewumi, 2010 & Mangi, 2012)
The effective use of information sources also depends on proper organization of Library’s resources through either catalogues or library’s home page. Lack of knowledge regarding available library sources prevented the users from making use of available library sources (De Groote & Dorsch, 2003 and Khan & Zaidi, 2009). The major dissatisfaction related to the use of online databases was limited to access of full-text articles, i.e., full-text articles are available in recent volumes only. Thus, non-availability of full text articles seemed as a barrier in use of online academic databases. (Piotrowski, Perdue & Armstrong, 2005). Insufficient collection of electronic resources in the field of Arts and Humanities impeded the users to exploit the benefits of advanced literature published online on their subject of study. Moreover, unavailability of back issued in electronic resources compelled users to use more print resources (Gash, 1989).

The problematic areas addressed by the users were non-PDF formats, large text files, server related problems and connection speed. Even, searching and retrieval interface of a library portal, instructions relating to use and downloading, online help and training were pointed out by the users as areas of concern. The Library staff also encountered problems related to time-out and limited access to databases to users posed by some of the vendors while providing online sources (Huggard, et.al., 2002). The limited or controlled access to online databases also restricted the users from using online databases. Some of the subscribed online databases are password-controlled and its access was limited to one or two users at a time, while others accessed through Internet Protocol (IP) address that limited users to access database within a campus only. Such controlled access obstructed the users to utilize the benefits of these valuable sources of information (Jagarnath, 2004).

Kumar, Roy and Satija (2011) discussed some technical issues that was generally faced by the Universities in India while providing access to online sources for users. These are mostly relating to the inadequate bandwidth and slow delivery of contents. Thus, a need for standalone servers with proper power backup and fast and wide communication networks with adequate bandwidth for fast information sharing was recognized. In this regard, University Grants Commission (UGC) has formed a national committee ‘Central Monitoring Committee’ (CMC) for proper execution of information infrastructure in Indian universities. The CMC collaborated with ERNET India (Education and Research Network) to set up information networks in universities. The committee has also suggested for high bandwidth campus wide
networks to speed up the internet connectivity in Indian universities. Consequently, 149 universities have got network connection of bandwidth with a range of 512 KBPS to 20 MBPS.

Sinh and Nhung (2012) mentioned three types of difficulties that deterred users from using online databases that included; poor searching skills, English language and low speed of online transmission. Users were not using online databases frequently and losing their pace of searching. Besides, the English language was another barrier to keeping users away from using online databases. Without having good command on English language, users faced difficulty in finding a suitable keyword for searches. In addition, users had to spend lots of time in browsing and searching the information. Thus, searching takes a lot of time to retrieve the desired results. Marshall (1987) categorized difficulties under three groups: intellectual, technical, and system that was experienced by the users while conducting searches. The most cumbersome difficulty encountered by users was intellectual difficulties, which was related to the searching on the complex topics of study and broadening or narrowing of searches by using significant options or limiters. The technical difficulties were related to the hardware and software complexities, keyboarding and learning or getting expertise in databases searching. While, the system difficulties dealt with instructions, practices and procedures, learning systems and database selection.

2.5.3. Training

User’s knowledge and skills play an important role in getting the desired results on the topic of interest. Training is one of the modes of enhancing users’ knowledge and skills while searching of online resources. Besides, users also preferred small-group classes, workshops and printed manuals to learn more about electronic resources. Users suggested that library should integrate different modes of training with its existing instructional programmes. Organization of workshops with printed documentation can be a more effective mode of imparting training. Furthermore, libraries should provide information in both electronic and print formats to communicate information on library’s electronic resources (Adams and Bonk 1995). As promotion and publicity have remarkable impact on use of library resources, library staff should publicize databases through library classes, printed guides and even through the virtual librarian to facilitate users in finding information (Huggard, Hopley, Groenewegen, Horne, Smith, & Leighfield, 2002). Kaur and
Verma (2006) Library should organize user education and awareness programmes and educate users to make maximum use of electronic resources. Kaur and Randhawa (2010) and (Dukic, 2010) recommended that more training session should be organized to enable users to retrieve their information in a more appropriate manner. In addition, library should provide additional training to young teachers to work with online academic databases. Odini (1994) in a study, made a comparison between print and online sources to analyze their functionality and searching capabilities. The study assesses the performance of two manual indexes; Engineering Index and Current Technology Index and three related online databases include COMPENDEX, NTIS and SCISEARCH to assess their capabilities in information retrieval. COMPENDEX was found to be the best online source for searching the literature. On the other hand, the browsing through online databases leads towards the collection of highly relevant records of information. However, searching through the print sources is not very suitable, particularly for urgent searches, although these are having a comparatively high precision and high recall value than online databases, which make them a good supplement to online literature. Consequently, the author suggested that a database should be selected on the basis of its high recall and precision value and then by considering its cost.

For optimum use of library’s online sources and services, user orientation programmes have become essential, especially for novice users to help them to make efficient use of these retrieval systems. User orientation programmes are the most important part of learning of online databases to gain knowledge and enhance usability of databases. Library staff have to make its users aware of these resources by organizing different orientation programmes. However, there is no standard pattern for conducting orientation programmes, different universities or institutions organize it in their own way (Kumar, Roy & Satija, 2011). This study identifies the importance of online databases and the role of user initiation and training programmes in enhancing the use of online databases. The awareness and guidance programmes related to the use of online databases help library users to increase their basic knowledge and identify those databases that are relevant to their study. The library of Malaya University organized different types of training and guidance programmes to make users aware and well versed in using online databases and to increase the use of online databases. During these programmes, library staff provided a brief introduction about library’s sources and services to novel users, organized various training
sessions, and distributed brochures and subject guides on the use of online databases. Imparting basic information regarding online databases and its importance helped the users to choose the best one according to their needs. Thus, this had made a noticeable hike in the usage of online databases (Sinnasamy & Mohamed, 2007).

Change in use patterns will require that the libraries should consider their collection development policies, promotional and training programmes and other services to keep moving with ever changing demands of users. There also requirement for web based instructions, online guides, virtual library tours, tutorials, and online reference services to be a part of library instructional program. Outreach promotion of resources has always remained a challenge for libraries. Therefore, new approaches, like onsite training to remote users and dissemination of information through e-mails might be good alternatives to reach to the outlying users (De Groote & Dorch 2003)

The information regarding popular databases and search options will help library professionals to ascertain the use behaviour and practices. The results of such studies may also help librarians in providing instruction on searching and user interface and enable them to develop training courses on search strategies. Besides, it may also help interface designers to develop such interfaces that will better suit the users (Kozak, 2007).

2.6. USE OF ONLINE DATABASES IN THE ARTS AND THE SOCIAL SCIENCES

The discipline Social Science is more diversified in nature and incorporated a large number of research areas and social scientists heavily relied on incessant availability of information of both types; discipline-oriented and mission-oriented. However, information sources in the field of social sciences are abundant, but to access the right information is really a difficult task to an end user, as seekers do not have an appropriate knowledge of available information in their areas of study. Social scientists in the Mizoram University used different types of documentary and electronic sources for seeking information. They showed more interest towards printed documents rather than electronic sources. Print sources were considered as more important, although a number of electronic sources were available in the their field, but these were in less use and less popular amongst the users. As journals were the important means of scholarly information, print journals were used more frequently in research and teaching, than textbooks and reference books (Kumar, Singh & Yadav, 2011). In Social Sciences, faculty members made use of all the e-
resources that were available in the university, as these provide easy and quick access to advanced information in a much better way than print sources. E-journals were at the top amongst the most favourite sources of information, followed by e-books, online databases and e-reports (Negahban & Talawar, 2009).

Past studies have shown that the humanists preferred more to use books rather than electronic resources for seeking information. Although, electronic resources were favoured for their convenience and easy access, saving time and changing information-gathering behaviour, but still users perceived electronic sources as a complementary and relied more on documentary collection in the library. However, the humanities students were also regarded electronic resources useful to some extent, but they cited comparatively a very less number of electronic resources. Nevertheless, the results of the study clearly indicate that the library was still a prime source of humanities’ students for receiving documents and information. The reasons for more reliance on books and other traditional sources than e-journals in the field of humanities may possibly be the lack of availability of electronic resources in humanities in comparison to other fields, documents used in humanities mostly dated back to 30, 50, or over 100 years. Moreover, the departmental style of education, where they required more citations from print sources rather than electronic. Finally, the accuracy of electronic resource always remained in doubt and its authenticity was also questioned by a number of humanists (Wu & Chen, 2010). Adam and Bonk (1995) found differences in use of electronic sources and services among different disciplines of study. In humanities, faculty members pointed out that the network connectivity and availability of allied equipments were the factors that played an important work in increasing the use of electronic sources.

In a study, Rimmer, Warwick, Blandford, Gow and Buchanan (2006) investigated the humanists’ information behaviour in both digital and traditional information environments. With the advent of World Wide Web and internet technologies, there has been noticed a remarkable increase in the use of digital information. Whereas, the humanities scholars were not using these technologies frequently, except common tools like Google and online library catalogues, etc. The researchers were not usually interested in using digital resources in research work, though they liked to use books, monographs and traditional sources of materials. The reasons may possibly be the lack of comfort and confidence with technology-enabled sources, more dependence on traditional and informal sources of information and
follow traditional ways of searching and formulating queries. The results of the study may help administrators and e-resource developers to design such electronic resources that provide better research and teaching activities in humanities. Tahir, Mahmood and Shafique (2010) made recommendations to improve ICT services in the field of humanities. Libraries should be more concerned towards making available more electronic resources in the field of humanities. In addition, special training programmes should be arranged for proper exploitation of ICTs and improve the accessibility of electronic sources and services for humanists. Besides, the university must provide sufficient amount of money to library from time-to-time for upgradation and acquisition of more electronic resources.

In a survey-based study, Marouf and Anwar (2010) investigated the information-seeking behaviour of Social Science faculty in Kuwait University. The respondents heavily relied upon Print sources of information for teaching and research, whereas the use of electronic sources was comparatively low to print sources. However, user satisfaction level with all the information sources was constructive, but higher with print sources. Therefore, understanding of information-seeking behaviour of Social Science scholars may help libraries in developing appropriate information resources and services to Social Science community. The same findings were analyzed in another study on Information-seeking behaviour of humanists and social scientists conducted by De Tiratel (2000). Both humanists and social scientists showed the similar pattern of information seeking, consulted more print sources than electronics, especially books and print journals. The majority in the humanities liked to consult with colleagues first, then printed documents and electronic sources.

In Political Science, use of online bibliographic databases greatly helped the researchers in literature searching. However, the researchers were greatly benefited by the searching capabilities of online databases, but their major concern was still remained with print sources. Users neither looked more interested in use of online database nor keen to learn about its functionality and importance. The best approaches identified by the investigator to encourage users about online searches include, impart information to users regarding benefits of online searching and teach them how to make use of them. Libraries also needed to strengthen their collection through cooperation and interlibrary loan services. It is also recommended that students should attend library lectures or orientation programmes to get knowledge of available
electronic resources in their respective field (Reichel, 1983). Schaffer (2001) conducted a comparative study of nine political science databases to find out the usefulness of databases in political science. More influence had been seen regarding the favourite databases irrespective of other available online databases.

In a study, Junni (2007) noticed the significant differences in the methods used by the users of different disciplines for searching electronic information sources. Respondents in Psychology and Economics were quite pleased with online sources and searched more sources from the Internet. However, in Mathematics users cited only a small number of online sources in comparison to Economics and Psychology. The differences found in usage of these resources might be due to the differences in research traditions, quality and structure of fields of study. Mcdonald, Taylor and Adams (1999) analyzed the use of online databases to determine the extensive coverage of Psychiatry journals and to identify overlapping of journals among the databases. As journal coverage is one of the factors that affects the use of bibliographic databases. The databases PsycLIT, EMBASE, BIOSIS and MEDLINE found to be most frequently used databases in the field of Psychiatry. Among these four databases, PsycLIT had good subject coverage in psychiatry, but when database PsycLIT was combined with EMBASE, yielded the highest index of Psychiatry journals. The combination of both databases was holding the maximum number of journals of psychiatry. This would enable a searcher to search more than one database or with a combination of two or more databases to get optimal literature on areas of interest.

In a study, Chapman (2002) analyzed the full-text database assistance in research in Finance. The study analyzed and compared the title lists of three full-text databases; ABI/INFORM Global, Business Source Elite, and General Business File with a list of articles cited by the researchers. The results showed that not all the databases had good coverage in the field of finance, only the databases ABI/INFORM Global databases had the most comprehensive coverage of scholarly journals. In the same pattern, Cory (2005) analyzed database support for research in public administration. The purpose of this study was to provide in-depth analysis of six databases that were used for research in the area of public administration. For the study, Expanded Academic Index ASAP (Gale), Academic Search Premier (EBSCO), ABI/Inform Global (Proquest), Business Source Premier (EBSCO), and General Business File ASAP (Gale International Academic Research Library (ProQuest) were
analyzed. Each database holding was compared with a list of journals cited by the researchers in public administration. The databases were compared on the basis of three criteria; abstract, full-text availability, as impediments in full-text access. The results illustrated that Expanded Academic Index ASAP, Business Source Premier and International Academic Research Library had the most comprehensive coverage in public administration, whereas only Expanded Academic Index ASAP and Academic Research Library had provided better full-text coverage of public administration journals. The overall analysis showed that Expanded Academic Index ASAP was found to be the best source for public administration research. Hence, it is recommended that the libraries should purchase those databases that cover more scholarly journals in public administration.

While the impact of ICTs use of electronic resources is continuously increasing, but still philosophy students relied more on monographs, anthologies and older materials. The inclination towards the old information materials may be due to the inaccessibility of these older and traditional materials through electronic means. The findings of the study can help the electronic publishing industry to make more electronic resources available to fulfill the needs to philosophy students (Okrent, 2001).

2.7. ROLE OF LIBRARIES

Online databases have become important tool for an information searching in all disciplines and research areas; therefore, widespread access to such resources also became important to justify its value and significance. In this regard, libraries must provide global access to their network resources for their outlying users, so that every user could access library’s resources remotely (Adams & Bonk 1995). Increasing costs and declining library budget have made desirable that librarians should take decisions wisely while purchasing electronic resources for the library. Local environment, pricing, database features, hardware compatibility and cost, and network accessibility should be considered while selecting a database for a library. Database pricing is based on a number of policies that are fixed by the vendors or copyright holders. So, libraries need to use cost-measurement techniques to evaluate cost effectiveness of databases. Along with pricing, hardware, features, and network infrastructure also play an important role in selecting an appropriate database. Generally, electronic databases present several features, which are ranging from basic to optional features, where basic features are inbuilt into a system, optional are value-
added features, provided at an extra charge. Database features varies from vendors to vendors, some vendors provide different versions of single database, like non networked version, LAN, and remote access versions of a database. Therefore, while selecting a database, libraries should chose those features, which will be helpful for proper utilization and their implementation in libraries (Allison, McNeil, & Swanson, 2000).

The exponential proliferation of ICTs, impels libraries to provide technology enabled sources and services to the patrons. The proper utilization and management of these technology based services require the involvement and support of library personnel. Now, the role of librarian is no more that of a document curator rather it has turned to information disseminator and consultant of information services. These changes require library personnel to be proficient in these sources and services and possess skills to operate them efficiently (Hoskins, 2005). Librarians usually play an important role in the enhancement and promotion of electronic resources. In a study, Schaffer (2001) noticed that the instructions provided by the reference librarians greatly helped the users in using electronic resources. They influenced patrons to use more electronic resources and facilitate more comprehensive searches. Therefore, librarians have to take steps to promote electronic resources by providing instructions and organizing training programs to influence theirs users. According to Kaur and Verma (2009), librarians should examine collection development strategies for better use of e-resources. In selection of e-resources libraries should include faculty members and research scholars to identify important information sources. Feedback must be taken from them to find out their needs and reasons of not using e-resources.

Ali (2005) suggested that libraries should keep pace with changing prospects of ICTs to provide effective services to their clientele and take steps to transform itself into a modern library. According to the Pangannay and Kumar (2000), modification of libraries can be done by timely evaluation of its services and practices and getting feedback from users for better provision of services. Libraries have to move on with changing demands of users to modify and update their services in accordance with their needs. In the study, Wu and Chen (2010) suggested to add more electronic resources in the collection to make library’s collection more influential and efficient.
2.8. SUMMARY OF THE CHAPTER

In the literature review, several national and international studies related to the use of online databases have been examined from different perspectives. The literature survey of previous researches and studies provide understandable information on the use of online databases. The chapter covered different topics of online databases and its use, awareness, searching, problems and its usage in the field of Arts and the Social sciences and the role of academic Libraries and training programmes.

The gathering of usage data for online library resources has increased its importance, as libraries and its users heavily rely on such resources. It helps to justify and plan expenditures, and gauge the need for information literacy initiatives (Bar-Ilan, Peritz & Wolman, 2003; Kim, 2006). The current work helped the researcher to draw findings or ideas that will create new perspectives for further study. It also facilitates the readers to know what has been done and what still needs to be accomplished on the topic of research. Thus, literature review creates a greater literary base to produce a better and more in-depth research on usability of online databases and adding knowledge to the field of inquiry.
REFERENCES


Mannan, K., Zaidi, S.M. & Bharati, S. (2009). Use of on-line databases by faculty members and research scholars of Jawaharlal Nehru University (JNU) and...


CiteSeerx Database.
http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.98.1778


CHAPTER 3
INTRODUCTION TO ONLINE DATABASES

Online database is a record of logically related information, recorded in computer files in a uniform form to facilitate easy and efficient retrieving of data by means of internet or communication networks. The emergence of online databases has introduced a new era for information searching and retrieval from traditional retrieval systems to network based IR systems. Gray (1976) defined online database as “a collection of bibliographic information stored in a computer or a central computer and retrospective search is made possible remotely from a distance computer through the use of softwares”. Basically, it is an integrated collection of bibliographic information arranged logically in a far located central computer with which users can communicate via telecommunication networks. Online database is a product of information retrieval services provided by producers or vendors of online databases in which searches are carried out by means of a local computer that interacts with far-off systems containing information contents. Soyizwapi (2005) stated that electronic databases can be accessed anywhere from remote location and users do not need to go to the library to get information. Online databases involve searching of remotely located information through interactive computer and communications networks irrespective of any physical or geographical location. Today’s online databases typically work on time-sharing and real-time modes to enable users to access information simultaneously by communicating host computer directly.

Online databases include information that is organized and represented in a logical manner. Structurally, online database made up of records, further divided into a number of fields (author, title, etc.) for categorizing, searching and retrieving information. Initially, online databases were used to provide bibliographic information, later they started to comprise full-text information to provide actual information, since then they were called as full-text online databases. These are the vast and continuously updated records of information in the form of abstract, full-text references or citations on general or specific field of knowledge. Thus, these are the online sources that provide information on different fields of study with greater ease, accuracy and speed.
According to Sinh and Nhung (2012), “online database is an important part of the information resources provided by universities in many countries. This is a valuable and up to date source of information, therefore it is indispensable to the learning, teaching and investigating for the university communities. They become accustomed to the use of the online database to search the information and develop certain searching skills”. It is a vital source to locate different types of electronic documents, such as books, scholarly journals, theses, reviews, official documents and so on. These are the collection of logically arranged information sources that enable a user to search information on a particular topic, article, or book by using different descriptive elements, i.e., keyword, author, title, subject and date of publication etc. However, some of these databases contain full-text information, while others contain only abstracts and indexes; and citations of published literature. Online databases can be general, multidisciplinary or subject specific in scope. The availability of these databases enables users to search information in a variety of forms and formats, such as HTML, PDF, RTF, etc. In online databases, contents are arranged in such a way that it can be easily searched and retrieved without the help of any intermediaries. These are excellent tools for in-depth study, providing a range of consistent and scholarly literature from well known online database producers or publishers.

Online databases provide access to those digitalized resources that are not generally available on the World Wide Web. These databases make use of computers and communications to offer various types of information for serving the academic and research community globally. Furthermore, the information provided by online databases is scholarly in nature and users may possibly need to pay an amount of money to subscribe it. Each database varies from the other in terms of their features and functionality, types of documents (books, journal articles, theses, etc.) included, coverage of contents, language and date of contents, searching capabilities and interfaces. Some of the well known online databases in the field of education and research are: JSTOR, Lexus-Nexus, Medline, ProQuest, ScienceDirect, Compendex, ERIC, Cambridge University Press, Project Muse, Project Euclid, SIAM, MLA (English), WorldCat and so forth. Thus, these are the excellent sources for those who are looking for authentic and credible sources of information.

3.1. CONCEPT OF ONLINE DATABASES

Information retrieval is concerned with all the activities that related to the organization of information, its processing and providing access to the recorded
information in different forms and formats. The practice of Information Retrieval has been a part of human technological development since the time of writing. Information retrieval (IR) systems were developed to retrieve relevant data from the huge collection of information in response to users’ queries. These systems are the results of many research and development activities that were carried out more than 50 years ago. Before 1960s, the major function of IRs was to organize information. The examples of earliest IR systems included the tools or organization schemes of ancient archives and libraries, viz. ‘Sumerian archives’ or the ‘Pinakes’ developed by Callimachus for the library of Alexandria. With the evolution time and techniques many IR systems evolved. However, the strong need for managing the increasing amount of information in the field of business and scientific development gave impetus for the development of automated IR systems. Consequently, the concept of automated retrieval system was developed for carried out automated searches for recorded collections of information. However in 1945, the concept of using machine-based systems for storage and retrieval of information was got recognition after a writing by Vannevar Bush (Larson, 2010). Hence, initial IR systems allowed people to interact with an information system in which information is recorded to find relevant information of all forms, i.e., text, images, audio video recordings to fulfill their specific needs. A typical information retrieval system functions in a two ways, on the one side it analyse the contents, on other the side, it evaluates the user queries to match them with each other and retrieve the relevant information from an organized collection of documents according to users’ needs.

Generally, the term automated IR systems were used in computer-based systems for different types of computer methods have been used for information storage and retrieval, accommodating significant growth of both information and its needs. These IR Systems stored data in computer files, accept requests, search the files against the request and provide information that is relevant for the requester. These systems were mainly designed to store large number of record and to facilitate its quick and easy access in response to the request. Later on, the hasty developments in information and communication technologies (ICTs) such as, emergence of internet and World Wide Web (www) technologies have brought major changes and improvements in the way the information was collected, stored, retrieved, and distributed. The introduction of online Information Retrieval systems is one of the major outcomes of application ICTs in information retrieval. These new systems
facilitated searching of remotely located records of information with the help of ICTs. According to Xie (2010), “Online IR systems can be characterized as IR systems that allow remote access with searches conducted in real time. Users generally search information from four types of online IR systems: online databases, online public access catalogs (OPACs), Web search engines and digital libraries”. While, online IR systems are also known as professional online systems, which are also abbreviated as online systems or online databases (Chu, 2009). Therefore, an online database is widely recognized as a typical online IR system.

Online database is one of the products of information and communication technologies involving searching of information from remote located databases via computers and communication networks. The database can be accessed through some intermediaries or vendors by means of online networks. Before the 1980s, online databases were mostly concerned with the retrieval of bibliographic information from recorded contents of information. Afterwards, these databases began to be include as numeric information, then full-text information was incorporated in these systems. The main purpose of an online database is to retrieve the information that fully or partially matches with the user’s query. Presently, the online databases comprise of abstracts, citations, full texts, statistical information in the form of journals, magazines, dictionaries, government documents, financial reports, audio and video contents and so on.

3.2. HISTORICAL OVERVIEW OF ONLINE DATABASES

Online database systems developed as a result of ICT applications in the process of information retrieval, and over the past five decades these have undergone several changes in their searching and retrieval capabilities. Online databases have the long history of developments that fall into several periods of time as stated in the Online Information System (1977) and Information Storage and Retrieval (1829).

Before the 1940s the information retrieval systems were purely of manual type, such as indexes and catalogues. These systems included pre-coordinate and non-manipulative retrieval devices. While, during the period of 1940sbrought about an important development in the history of information retrieval, i.e., the invention of post-coordinate and manipulative retrieval systems, though these systems were entirely manually operated. These included Peek-a-Boo or Optical Co-Incidence Systems introduced by Batten and Cordonnier, Edge-Notched Cards System developed by Mooers and the Uniterm System of Taube. These early post coordinate
systems were the predecessors of modern computer-based systems, actually the two fundamental forms of file organization i.e., term entry and item entry were introduced by Batten and Mooers in the 1940s, became the base element in the designing and development of modern information retrieval systems.

In the 1950s, Punched Card Data Processing Systems based on the earlier forms of mechanization was introduced in the late 1950s, techniques of automatic indexing were developed by Hans Peter Luhn. During 1950s, the first computer based retrieval systems were introduced as the immediate predecessors of the computer-based systems of the 1960s.

The period of 1960s was identified as the era of computer retrieval with an off-line, batch-processing, tape-oriented model. In the early 1960s, a number of information centers and government agencies in the United States started to use these information retrieval techniques for developing their operations, e.g., the National Aeronautics and Space Administration (NASA) used computer systems to publish its index in Aerospace reports and the National Library of Medicine (NLM) used these techniques to publish Index Medicus (index to medical literature). However, the major off-line systems were developed during the 1960s, but the widespread transformation of operations from off-line to the on-line mode was observed in 1970s.

In the late 1960s and early 1970s, different types of reference databases were made available through different online national database services including, MEDLINE service of the National Library of Medicine, the bibliographic services of OCLC and RLIN and many other commercial and governmental services. Presently, these online IRS are globally used along with hundreds of reference databases accessible through them. Since 1975, on-line systems were used more frequently for providing information services. Some of the online databases developed to provide access to a wide range of information including, Chemical Abstracts Service (CHEMCON), Engineering Index (COMPENDEX), the National Technical Information Service, the Science Citation Index, ERIC (the Educational Resources Information Center), and CAIN (the machine-readable data base of the National Agricultural Library).

The growth of online databases can also be interpreted in terms of number of database producers, providers or vendors. During the 1970s online service industry had continued to grow. Online search services, or vendors, are those organizations that provided value-added services to databases with several search capabilities.
online service providers obtained databases through licensing agreements and loaded these on its own computer to provide subscriptions of them on payment basis to institutions and libraries. The major online service providers included; the Dialog(System Development Corporation, SDC), ORBIT (Lockheed Information Systems), Mead Data Central and Bibliographic Retrieval Service (BRS). Several major online service providers are now providing access to a number of online databases that became the central interest of libraries.

In addition to this, the Text Retrieval Conference (TREC) series of experiments and conferences have also played an important role in the development of information retrieval research and development activities (Chowdury, 2010). The TREC (Text Retrieval Conference) project was launched in 1992, under the sponsorship of the U.S. National Institute of Standards and Technology and the U.S. Advanced Research Projects Agency, has conducted many constant and dedicated attempts on interactive searching. The purpose of the TREC project was to provide a forum to compare a variety of approaches to information representation and retrieval (Sutcliffe, 2010). It proposed general framework for the investigation of interactive information retrieval, evaluation and comparison of the performance of interactive IR systems (Dumais & Belkin, 2005).

3.2.1. Timeline of developments in online IRS

Online retrieval systems had been developed as a means to facilitate searching of bibliographic information. The historical developments of online databases are illustrated here were mainly focused on the developments that occurred during different periods of time:

1. The first experiments in on-line information retrieval conducted by Kessler at MIT in 1964 brought the Kessler’s experimental system in physics, known as the TIP (Technical Information Project). It was the first on-line system for bibliographic searching, which included nonconventional methods of searching

2. In 1964, the Medical Literature Analysis and Retrieval System (MEDLARS), one batch retrospective search service of the National Library of Medicine (NLM) was made available to the general public.

3. SDC Information Services (Systems Development Corporation) demonstrated the first interactive online system, ‘Protosynthex’ developed by Robert Simons and John Olney, in 1960.
4. In late 1964, the Bibliographic Organization for Library Display (BOLD), a system for browsing of literature citations on magnetic tapes was developed by Harold Borko, H. P. Burnaugh and W. H. Moore at SDC. It was one of the first systems capable of displaying an online thesaurus.

5. In late 1967 NLM (National Library of Medicine) experimented with SDC's Online Retrieval of Bibliographic Information Timeshared (ORBIT) retrieval language to search NLM'S database of 10,000 citations on neurology.

6. In 1970 NLM introduced MEDLINE as a free database of more than 400,000 citations. While, in 1972 NLM started to use TYMNET, the first public telecommunication network to access to MEDLINE.

7. In 1962 Roger K. Summit designed the DIALOG language for the Lockheed Information Sciences Laboratory.

8. RECON (Remote Console), the first large-scale, on-line, retrieval system of the National Aeronautics and Space Administration (NASA) became fully operational in 1969. Now, the RECON, a NASA database is recognized as an international system for on-line search in Europe through the European Space Agency.

9. In 1970s, ‘The New York Times Information Bank’ an important on-line system became operational for providing access to current awareness information from The Times and other selected sources.

10. In 1972, Lockheed's information service became commercially available as DIALOG information retrieval Service with two bibliographic databases of scientific and technical information.

11. By 1985, DIALOG had become the most comprehensive online information service in the world, with more than 200 separate databases in business and economics, chemical, patent and trademark information, science and technology, medicine and the biosciences, news and current events, education, directories, energy and the environment, law and government, computer science and microcomputers, books, the social sciences, and the humanities.

12. Mead was mainly associated with the development of full-text online information services primarily for law and legal research. In 1972, this
service introduced commercially as LEXIS an outgrowth of OBAR (Ohio Bar Automated Research) and in 1980 NEXIS, a full text information service for news and current events; and MEDIS was introduced in 1985 for medicine.

13. BRS (Bibliographic Retrieval services) expanded by 1985 to include 73 separate databases in the life sciences, medicine and pharmacology; the physical and applied sciences; education; the social sciences and humanities; and business.

14. In 1907, the American Chemical Society (ACS) published Chemical Abstracts as an index to chemical literature.

15. In 1980, CAS introduced CAS ONLINE as an online dictionary of chemical substances and it was expanded in late 1983 to include the database of Chemical Abstracts citations dating back to 1967. CAS made available several million of unlicensed abstracts for citations in the database available through CAS ONLINE.

16. In the late 1970s a consortium of British producers of scientific, technical, and patent databases created INFOLINE. In 1981, INFOLINE was purchased by Pergamon Press and developed as Pergamon INFOLINE.

Since then, the online databases have continuously growing in numbers and scope. Today millions of online databases are available in different fields of education and research to cater to diverse needs of different types of users and these may be subject specific, interdisciplinary or multidisciplinary. Some of the well-known online databases are: Medline, ScienceDirect, BIOSIS, JSTOR, Annual Reviews, Emeradinsight, Cambridge University Press, Oxford University Press, Chemical Abstract, Web of Science, Scopus and LEXIS and Taylor & Francis.

3.3. DEFINITIONS

- ODLIS (2012) defines databases as, “A large, regularly updated file of digitized information (bibliographic records, abstracts, full-text documents, directory entries, images, statistics etc.) related to a specific subject or field, consisting of records of uniform format organized for ease and speed of search and retrieval and managed with the aid of database management system (DBMS) software. Content is created by the database producer (for example, the American Psychological Association), which usually publishes a print version (Psychological Abstracts) and leases the
content to one or more database vendors (EBSCO, OCLC etc.) that provide electronic access to the data after it has been converted to machine-readable form (PsycINFO), usually on CD-ROM or online via the Internet, using proprietary search software.

- According to the Macmillan Dictionary of Information Technology (2014), “Database is a collection of interrelated stored data so that it may be accessed by users with simple user friendly dialogues”.
- The Law dictionary (2012), defines online databases as “A web-based filing system used to store information or records, accessible by using web scripts. Use often requires a paid subscription”.
- According to the University Santo Tomas (2008), “Online databases are collections of computerized information or data such as articles, books, graphics and multimedia that can be searched to find information. Databases can be general or subject based in form of abstracts and or full text”.

### 3.4 CHARACTERISTICS

i. **Organized Collection**

In an online database, contents are arranged logically to facilitate easy access and retrieval. Documents in such types of systems are organized in a suitable manner for carrying out easy and fast retrieval of information.

ii. **Credibility**

In online databases, recorded contents of information are reviewed by subject experts and publishers to maintain credibility and authenticity of the resources. The contents of database are finely evaluated in terms of their accuracy and credibility.

iii. **Usability**

The well defined organization of information contents and search capabilities of online databases allow users to search and retrieve results more efficiently and effectively.

iv. **Conversational**

Searches in online databases are conducted as a two-way communication between the searcher and the system, in which each get a chance to communicate with each other. Therefore, online databases are referred to as interactive or conversational.
v. Expert System

Online databases are characterized as expert systems that provide information on specialized areas of knowledge, e.g., a nuclear database gathers specific information on nuclear sciences from experts or specialized associations and provides particulars of the nuclear sciences.

vi. Controlled Vocabulary

To support searching, online databases usually have their own controlled vocabulary. Controlled vocabulary is largely used for information presentation and retrieval, though the keyword searching is also supported by almost all the online systems.

vii. Permanence

Published documents, such as journals, reviews, and books, etc. in online databases do not change frequently. These information documents remain in databases for a long time in the form of archives to again retrieve the information.

viii. Up-to-Date

All the online databases comprise current information on its concerned areas. Online database providers or publishers are regularly updating their contents by adding new information to provide current and copyrighted scholarly materials.

ix. Time-sharing

Real time in online database operations implies that the remote terminals respond quickly to the user's search processes. Remote terminals receive data, search the information, and return the results more frequently to be utilized by the users in ongoing activities.

x. Time-sharing

Online databases are divided into the two main categories; Reference and Sources databases, on the basis of information incorporated in them. According to Chowdhury (2010), online databases are categorized under the two major divisions include, reference databases and source databases. Reference databases direct seekers towards the source of information, while source databases include actual
information itself. On basis of content, scope and the information incorporated, online databases are grouped under the following categories:

- On the Basis of Information Incorporated
- On the Basis of Scope of Data
- On the Basis of Contents
- On the Basis of Providers

I. On the Basis of Information Incorporated

Based on the information included in online databases, this category comprises the most common forms of online databases, which are grouped into following four types:

a. Full-text Online Databases
b. Reference Databases
c. Numeric Databases
d. Multimedia Databases

a. Full-text Online Databases

A full-text database is a compilation of documents or other information in the form of database in which complete text of each referenced document is available for online viewing, printing, or downloading. In addition to, text documents, images are often included as graphs, maps, photos, and diagrams. Full text online databases are comprising full text information of the publications that are basically either print or online in origin. It includes large files of text such as, all the paragraphs of a journal article or all the chapters from a book along with abstract or citations of the text files incorporated in them. According to Bandyopadhyay (1999), Full text online databases are now being using as effective and important sources of periodical literature that are not usually available in local collection of libraries.

Examples: JSTOR, EmeraldInsight and Wiley Online Library etc.

b. Reference Databases

The references databases include terms descriptive of content on which retrieval is based and some databases also provide abstract to give brief description of original documents and in these databases the retrieval of information is mostly based on the words appeared in abstract. The retrieved data helps requester to identify where an original source can then be found (Information Storage and Retrieval, 1829). The reference databases provide bibliographic descriptions to published literature. It
provides abstract, references or citations to documents. These databases are divided into two main categories:

- **Bibliographic Databases**
  
  Bibliographic database is one of the most important forms of reference databases. These databases are widely used as reference tools and provide citations or references, abstracts and index to published literature. Online bibliographic databases provide quick information about publications, which may or may not be available in library’s own collection. These are the excellent means to access information, rather than merely an item of information in the collection of any library. Bibliographic databases contain elements of bibliographic description that used to describe books, journals, documents, and other publications or portions. Rice (1985) stated that these databases are typically online bibliographic files, are the online equivalent of print abstracts and indexing services and mostly used for bibliographic verification of literature.

  Examples: LISA, Indian Citation Index, Scopus and Web of Science etc.

- **Referral databases**
  
  Referral databases direct users towards the particulars of actual source of information i.e. name of a person or institution. It offers references to information, such as names, address, specialization of persons, institutions, information systems, and so forth.

  Examples: Ulrich’s Periodicals Directory and Electronic Yellow Pages

c. **Numeric Databases**

  A numeric database is a computer-readable collection of data that are primarily numeric in nature. These are also known as the fact sources and non bibliographic databases and are mostly used for supporting business or financial research. These databases include organized numerical data along with brief textual description and provide it access in the form of statistics, demographic and financial reports, stock market quotations, chemical and physical properties, and chemical nomenclature and graphic structures, etc. These are the files of primarily statistical information from which a user can extract specific forms of data.

  Examples: COMPUSTAT and ProQuest Statistical Insight

d. **Multimedia Databases**

  A multimedia database is a collection of related multimedia data objects of different types. A multimedia database contains various data types such as images,
sound recordings, video recordings, signals, graphics together with text data etc. Multimedia databases host different types of media file, such as .txt for documents, .jpg used for images, .swf deals with videos, .mp3 use for generating audio files etc. These databases involve the activities related to acquisition, generation, storage, processing and transmission of multimedia data over networks. The databases primarily provide access to art prints, animations, photos, audio clips, videos and others multimedia contents.

Examples: Artstor and Academic Video Online

II. On the Basis of Scope of Data

Online databases can be classified by the scope of information contained in them.

a. General interest Databases

Such types of databases provide a broad range of information on different subject and disciplines. General interest databases comprise of information that is more general in nature, like current news and opinion, social and political affairs, cultural, educational, health and on public issues.

Example: Academic Search Complete (EBSCO) and Encyclopaedia Britannica

b. Discipline Specific Databases

Discipline-based databases are somewhat more specific than general interest databases. These provide information on several related areas. If information is not found in general interest databases then it is better to search in such types of databases.

Examples: SocINDEX and PAIS (Public Affairs Information Service)

c. Subject Specific Databases

These databases are well suited for in-depth research and study on a particular topic. These databases provide information from professional publications and scholarly journals. The subject specific databases are devoted to only one subject. Searches in subject specific databases are more comprehensive in nature to provide access to more scholarly articles.

Example: Historical abstracts and PsycINFO

III. On the Basis of Contents

Online databases can be organized according to the type of documents they possessed.
a. Article Database

An article database allows a person to search across thousands of various journals and magazines to locate an article on any specified subject. Articles databases mostly provide full text of articles, but sometimes they also provide abstracts of articles. Some online databases only present citations instead of full text article or an abstract that helps to locate the original article.

Example: Google Scholar and Annual Reviews

b. Theses/Dissertation Database

Theses/dissertations databases are developed to maximize the visibility and availability of research output and to provide opportunities for further research. Such databases enable searching for dissertations and theses through a single access point, which presents an extensive and authentic collection of millions of research works in full-text. These databases are the record of doctoral theses or dissertations awarded by Higher Education institutions.

Example: ProQuest Dissertations and Theses and EThOS- Electronic Theses Online Service

c. Citation Database

Citation databases are index of citations of published literature. It enables to locate bibliographic citations for journal articles and track articles in a specific subject. It allows users to track which current documents cite which previous documents. Many citation databases include index of journal articles along with its abstracts. By searching with keywords that might appear in an article, users can retrieve citations of an article.

Example: Scopus and Web of science

d. Audio / video Database

An Audio video database is a collection of Audio Video materials such as digital audio and video data and Audio video activities.

Example: Audiovisual Database of Spoken American English and Academic Video Online

e. Online Catalogue Databases

An online catalogue database is a bibliographic database that describes the books, periodicals, and electronic resources, etc. that are available in the library. Online catalogues are those online databases that enable searchers to search for
documents by author, title, subject heading, keyword, call number, or government documents number available in a particular library.

Examples: IndCAT and WorldCat

**f. Dictionary Databases**

In dictionary databases, likewise of directory catalogue each record identifies something. The purpose of dictionary databases is to provide a measure of control in the use of bibliographic databases.

Examples: Oxford English Dictionary and Chemical substance Dictionary

**g. Directory Databases.**

Directory databases offer the information of published directories or serve a purpose similar to that of published directories without having published equivalents. These are not full-text databases although they may represent the complete text of a publication in machine-readable form; nor are they numeric in nature.

Examples: Electronic Yellow Pages and Encyclopedia of Associations

**h. Indexing & Abstracting Databases**

These databases provide brief summary of publications along with descriptors as access points to documents. Such databases provide clues to the relevance and location of the publication.

Example: SocINDEX and Educational Research Abstracts Online (ERA)

**IV. On the Basis of Providers**

Based on their providers, online databases can be classified into the following categories:

**a. Publisher /Commercial Databases**

Publisher databases are produced by online commercial service provider that sell their data to the clients and deliver information through the telecommunication networks. These databases are commercial electronic information services that people access through the Web or internet. Anyone can download or electronically copy of the information contents from the Internet anywhere in the world through database’s home page. To access such types of databases, searchers need to have an authorization number and password provided by the publishers.

Example: Oxford University Press and Taylor & Francis
b. Institutional Databases

These types of online databases are developed by the professional associations or institutions to increase the knowledge of their concerned areas among the people. These associations mainly work for promoting research and developments in their working areas in the broadest manner. They develop different types of information sources to increase dissemination of knowledge related to their concerned areas, including books, journals, reports, and databases etc. The online databases produced by them are mainly subject specific in nature.

Example: PsycInfo (American Psychological Association) and EconLit (American Economic Association)

c. Aggregator Databases

Aggregator databases are defined as the service providers that make available contents, licensed by several publishers and is offered in packages at a single price to libraries. These offer extensive depth and breadth of contents of information along with effective features and functionalities.

Examples: ProQuest and EBSCO's

3.6. SEARCH STRATEGIES

Search strategies are a combination of different methods used for searching documents and can be identified by types of search methods used and dimensions related to searches such as purpose, type of resources to be searched, methods for searching. According to Bates (1996), “A search strategy is a plan for the whole search, while a tactic is a move made to further a search”. Search strategies are the demonstration of patterns used in search processes and for searching the information.

Database searching allows users to search information from an organized collection of records. Users can search through by using different moves and tactics to get efficient results. In online databases, search strategies can be classified in two types, Search and Browsing. These are the main strategies employed by users while communicating with online databases. Browsing needs more interactions with online databases than logic based search strategies use in searching.

3.6.1. Search Methods

Search Methods are defined as methods that assist users in constructing their queries that include two types of searches, viz., basic and advanced searches. All online systems possess these two search methods, which further provide different retrieval techniques, such as Keyword search, Boolean operators, truncation, phrase
searching, proximity search and so on for more effective and efficient information retrieval.

I. Basic or Simple search

It is a commonly used search method in database searching. It is also referred to as keyword searching, as keywords are important words that are used as index to the information in a database. In basic or keyword searching, online database searches the whole document to locate words and phrases defined by the users. Thus, it is useful, when user do not know the exact title or author name and want to link terms from different parts of a record, such as title, abstract, author etc.

II. Advanced search

This search provides the following search options:

a. Boolean operators:

In database searching, Boolean operators are used to narrow or broaden the search. The most useful logical connectors include, AND, OR, NOT. Amongst which AND is used to narrow the search, OR to broaden the scope of search, whereas NOT is use to eliminate unwanted terms from the search. Boolean operators are considered as a common technique for advanced searching. For example:

- Online AND Database
- Academic database OR Library database
- Electronic database NOT CD-ROM

b. Combined search

This method provides the opportunity to combine two or more Boolean operators in the same search statement. Combined search allows users to search databases by adding different logical operators at the end of each search string.

Example: Online AND Databases NOT Journals

c. Phrase searching

Phrase search retrieves exact words in the same order mentioned by a searcher. This feature produces that a result, in which exact phrase is retrieved within a document or any specified field (title, abstract etc.) of documents. It retrieves documents with exact terms adjacent to each other within the same document. Each database provider allows phrase searching as exact word search by using different command, for examples; the symbols (" ", {}) are used for “Online databases” to retrieve all the words in a phrase in an exact order.
d. Field specific searches
Field specific searches facilitate users to limit their search terms to a specific field(s) of documents including author, title, abstracts, subjects and volume, etc. Thus it allows users to search within specified fields of recorded documents.

e. Limiters
While searching databases, users are provided the facility to limit their searches by using different types of elements. Limiters constrain a users’ query within a specified requirement by imposing limit using specific elements, i.e., date, type, etc. Almost all the online databases have limiters to control the results by using specified parameters; this retrieval feature is helpful in eliminating records that are outside the scope of defined limits. Users can narrow their searches limiting; by date, language, title of article, author(s) of article, subject and limit to a particular journal.

f. Truncation and wildcard
Truncation and wildcard search techniques are used to retrieve variations of a word. In truncation user can enter a base word (prefix) to retrieve all the words beginning with that base term. Generally, these techniques are used to truncate or shorten a word to retrieve singular, plural and its variant spellings. The symbols (*, $, ?) are used to represent truncation in some online databases, while in others these are used to represent wildcard searching. Examples for searching variants of the word politics: poli* (policy, politics, political, politically, etc.)

g. Proximity search
A proximity search is used for fixing the distance between two words in the same sentence or paragraph of a document. It sets search terms that occur in the same order as defined by the searcher. Commands used for proximity search include; ADJ, WITH and/or WITHIN and NEAR. For example, the statement STRUCTURE (WITH7) DATABASE indicates that the word STRUCTURE must not be separated from the word DATABASE by more than seven intervening words.

h. Stemming (related terms)
Stemming technique allows searching of all the related variants of a term. It uses the base words of the search term as the stem to retrieve all the related terms as its stem variations. This retrieval feature is presented by many of the online databases but their implementation and interpretation may differ from one another, such as in EI Village and Ovid dollar sign ($) is required before the search terms, whereas the
databases, ACM Digital Library and Emerald automatically stemmed the search terms.

i. Term Boosting

The online database provides the relevance level of matching descriptions based on the terms found. The higher the boost factor, the more relevant the term will be. Term boosting is the ability used to assign higher weightage to specific words in a query. It provides facility to users to control the significance of a description by boosting its term. A symbol of caret, "^", is used at the end of the term to boost its relevance in retrieved contents. For example: electronic database^4 journal. This reflects that the term electronic database is four times more relevant in a description than journal.

III. Expert search

Expert searching implies the application of a range of advanced search skills and knowledge to get more specific information. It allows users to perform more complex and complicated searches in multiple sources simultaneously, which include all sources or journals, books or reference works, etc. With expert search users can enable to prioritize their search terms to access the most appropriate item of information. The online databases ScienceDirect and MEDLINE are providing this option for searching.

IV. Citation Locators/Trackers

Citation Locators enable users to locate any article by entering its details from an article reference or citation. It searches throughout the different fields of a citation including author name, article title, journal title, volume/issue information, year, etc. In case, if an exact match to the citation is not found, then it will retrieve closely matched articles or information. Some of the online databases provide the citation locator or tracker to find, check, and track citations. Citation tracker/locator offers citations to users to provide an overview of how many times a chosen document has been cited in other works and the number of documents that cited it.

3.6.2. Browsing

Browsing is another type of search strategy. It is a process of seeking searching of information by skimming and scanning of contents mainly in leisure. Browsing is exploration of information with a specific goal but without any planned search strategy. It is a technique to look through documents in an informal manner, to search information without any defined purpose, to look and learn new information
and to obtain an overview of the information offered by online databases. Browsing is a technique of information retrieval where the initial attempt of searching is usually undefined.

While, browsing users do not need to define specific terms as required in the searching, so, it requires less intellect than searching. Irrespective of searching, browsing can be done without any training and practice. Hence, it is a rewarding exercise that is mainly based on serendipity in finding some useful information unexpectedly, because it is carried out unstructurally. Browsing can be done by using different components of a document, the common browsing options are:

- ‘Browse by title of journals’, allows users to browse alphabetical list of journals available in that particular online database.
- ‘Browse by keywords’, facilitates users to browse different types of collections (journals, books, reviews and reports etc.) available in online databases by using keywords.
- ‘Browse by subjects’, feature allows users to browse contents by subjects.

However, all the online databases are providing this retrieval capability, but differ in implementation of the components used for browsing.

3.7. OTHER FEATURES

Online databases also offer some more retrieval features other than basic, which are discussed as follow:

- **Links**
  
  This feature helps users in getting full-text items or articles available in other databases or e-journals of the same publisher.

- **Report**
  
  Online databases generate Electronic holding reports of an institution. It provides a list of content subscribed by the institution.

- **Login/ Register**
  
  Allow personalization of contents and features of online databases by creating personal account. By this facility users can customized their usage by save searches, subscribe different types of alerts (table of content alerts, favourite topic or journals alerts etc.) through e-mail and create a list of favourite journals, books and topic. Users can also do purchasing of any item of database through their account.
Modify Search

It allows users to modify or change search strategy to get better result. It is done by adding or removing the elements of content for which search is conducted.

Export Data

Users can generate bibliographic data of the article by using different citation manager formats including EndNote, CSV, BibTex and TSV.

News and Updates

Provide information regarding the new launches and acquisitions made by database providers.

3.8. ONLINE DATABASES IN THE ARTS AND SOCIAL SCIENCES

Online databases are now became an important source in online collection of libraries. Libraries are acquiring online databases through different sources, i.e., vendors or intermediaries. In India, UGC INFONET Consortium is the central source of acquiring online databases to the libraries. UGC INFONET Consortium is initiated by the UGC (University Grant Commission). The consortium acts as an intermediary to provide access to scholarly online resources to the academic libraries from reputed publishers, aggregators and society. According to Madhusudhan (2008), consortium covers almost all areas of knowledge, such as Arts, Humanities, Social Sciences, Computer Sciences, Life Sciences, Physical Sciences, Chemical Sciences, Mathematics and Statistics etc.

The libraries under study are acquiring an adequate number of online databases in different fields of learning from UGC INFONET Consortium. Online databases that comprises of literature on the Arts and Social Sciences are listed below:

I. Annual Reviews

Annual Reviews provides researchers, professors, and scientific professionals with a definitive academic resource in 37 scientific disciplines, also covering some areas of social sciences. Annual Reviews provides primary research literature and identifying the principal contributions in the field. It provides access to 33 full text journals and archival access is provided up to 10 years back issues.

II. Cambridge University Press (CUP)

Cambridge University Press is a publisher online database. It is dedicated to advance learning, knowledge and research worldwide, the database currently publishes over 220 peer-reviewed academic journals for the global market, containing the latest research from a broad sweep of subject areas. The CUP database also
publishes on behalf of over 100 learned and professional societies. UGC INFONET Digital Library Consortium provides access to 224 Cambridge University Press journals with back files since 1997.

III. Emerald

Emerald is a publisher based journal online database, linking research and practice to the benefit of society. The database covers nearly 300 journals and over 2,350 books and book series volumes in business and management, library and information sciences, engineering and materials science. As the leading publisher database for LIS research, Emerald's Library and Information Studies publications provide comprehensive and quality coverage in all areas of this field. Spanning a range of topics such as collection building to library finances, to document supply and inter-library lending, this is an essential resource for information professionals, librarians, educators, students and researchers around the world. Under UGC INFONET e-journals consortium access is made available for 29 e-journals from Library and Information Science full text database and archival access is varies from journal to journal (mostly 2001- onwards).

IV. JSTOR

JSTOR (Journal Storage) is full-text database for scholarship, established in 1995 as digital archives. The majority of content in the archive is journal literature, though inclusion of other materials such as conference proceedings, transactions, pamphlets, monographs, manuscripts, and other materials is continuously growing. At present, there are 2,000 journals, including previous titles, as well as other content available. New titles and other materials are being added regularly. It provides full text searches of almost.

V. Oxford University Press (OUP)

Oxford University Press provides access to Oxford Journals. It publishes well over 230 academic and research journals covering a broad range of subject areas. OUP database covers Life Sciences, Mathematics & Physical Sciences, Medicine, Social Sciences, Humanities and Law and include some of the most authoritative journals in these fields. Through UGC INFONET consortium, 198 Oxford University Press journals are available with back files since 1998 to the members libraries.

VI. Project MUSE

Project MUSE is an excellent full-text online database, provides affordable and user-friendly online access to a comprehensive selection of prestigious humanities
and social sciences journals. MUSE's online journal collections support a diverse array of research needs at academic, public, special and school libraries worldwide. It’s journals are heavily indexed and peer-reviewed, with critically acclaimed articles by the most respected scholars in their fields. MUSE is also the sole source of complete, full-text versions of titles from many of the world's leading university presses and scholarly societies. Currently, MUSE provides full-text access to current content from over 400 titles representing nearly 100 not-for-profit publishers.

**VII. ScienceDirect**

ScienceDirect is the world's renowned multidisciplinary online database, publishes over 2,000 journals as well as books and secondary databases. There are currently more than 9.5 million articles or chapters, a content base that is growing at a rate of almost 0.5 million additions per year. It offers subject coverage broadly includes all aspects of Physical Sciences and Engineering, Life Sciences, Health Sciences, Social Sciences and Humanities. It includes over 2,000 peer-reviewed journals and over 8,057,764 articles. It includes over hundreds of book series, handbooks and reference works and collection contain 4 million articles prior to 1995, and 2.75 million articles from after 1994.

**VIII. Taylor and Francis**

It is the oldest commercial journals publisher in the world, by providing access to its collection through online it comes under the category of a commercial online database. It provides access to more than 1100 journals and around 1,800 new books that enable the customers and end-users to perform their jobs efficiently, continue their education, and help contribute to the advancement of their chosen profession. It is a widely known online source among researchers, students, academics and increasingly professionals. UGC INFONET Consortium access more than 1365 journals with archival access to 1998 onwards issues.

**IX. Web of Science**

The Web of Science provides access to three major databases in Sciences, Social Sciences, Arts and Humanities. It provides seamless access to information from the world’s most influential, highly-utilized scholarly literature across a broad range of topics which covers more than 12200 of the most prestigious, high impact research journals in the world going back to 1898. With web of Science users can also navigate to electronic full-text journal articles. It also provides a unique search
method called cited reference searching. With it, users can navigate forward, backward, and through the literature, searching all disciplines and time spans to uncover all the information relevant to their research.

X. Wiley Online

Wiley Online is the online database of an international scientific, technical, medical and scholarly publishing business of John Wiley & Sons that provides literature in every major academic and professional field. Wiley Online is of the world's foremost academic and professional database. It provides access to more than 1,400 scholarly peer-reviewed journals and an extensive collection of books with global appeal in the life and physical sciences, medicine and allied health, engineering, humanities and social sciences. The UGC consortium accesses 908 journals from Blackwell publishing with back files since 1997.

3.9. SUMMARY

Online databases have developed as benchmark systems of information retrieval, mainly designed to retrieve documents required by the users. It works on the principle of providing right information to the right user instantly. These types of online systems designed with the aims of providing scholarly information in one or more areas of education and research. Online databases deal with a variety of information in variant forms and formats, comprising textual information, bibliographic information, numeric and multimedia information including text, audio, images and video. The online databases are acting as a bridge between the generators of information and the seekers of that information.

The chapter provides a conceptual overview of online databases and its development. It discusses definitions, characteristics and types of online databases. In addition, search strategies used in online database searches are also discussed in detail in this chapter. The prominent online databases in the field of Social Sciences and Arts are also mentioned in this chapter.
REFERENCES


CHAPTER 4

THE ARTS AND THE SOCIAL SCIENCES:

AN OVERVIEW

Knowledge enlightens the intellect of human beings. It enables a person to be aware of oneself and others. To get an understanding of incidents or events is an everlasting quality of man, because all the men have an intrinsic trait of identifying and investigating the happenings. According to the Jain Philosophy, “knowledge is defined as that which reveals both itself and another (svaparabhasi). It is eternal, as an essential quality of the self; it is non eternal, as the perishable knowledge” (Mohanty, 2014). However, knowledge is either perpetual or provisional, but it helps one not to only know about himself, but also to get acquaintance of others.

Human beings possess different forms of knowledge, the knowledge of himself, his culture, and surroundings. From the very beginning, knowledge was a by-product of human queries and investigations. According to Mohanty (2014), the Samkhya-karika describes three modes of gaining knowledge: perception, inference, and verbal testimony. In perception, a man observes and gets knowledge through their senses, whereas inferences based on experiences and verbal testimony includes oral communication of real knowledge. In general, knowledge is a byproduct of human endeavour, awareness, and perception that is acquired by experiences, study, and evaluation of various facts and phenomenon.

The man has started the accumulation of knowledge since the times of darkness when he got his distinctive character. The knowledge that man got was mainly assembled through reasoning and their experiences. This was mostly conceptual or intuitional in nature and based on truth and reality, but not systematic or scientific in nature. They generally accumulated knowledge for getting answers to their fundamental questions and for gaining knowledge. Where, the veracity of knowledge largely depended on human awareness, consciousness and intelligence of an individual and these humans characteristics mostly vary with each other and not quite capable of providing accurate and inclusive data. Also, this knowledge could not be verified by any scientific measure, because it did not provide any accurate data or
valid reasons to justify the certainty of any activity. However, with the changing regarding world, human knowledge is continuously changing understanding the nature, its creation, and contents. In addition, it has been growing at all fronts: agriculture, arts, bureaucracy, economics, literature writing, social, political and religion, etc.

4.1. EVOLUTION OF DISCIPLINES

As human knowledge is expanding, so is the related literature. With the expansion of human knowledge, philosophers and scholars had started to accumulate and organized knowledge into some organized form. Many eminent scholars developed several major theories of knowledge organization. Among them, Aristotle (384-322 BCE) was known as the first person, who organized the human knowledge into different disciplines of study (Aristotle, 2014 April). The science, a branch of learning was divided into three major groups of learning, such as theoretical philosophy (logic, metaphysics, mathematics, physics), practical philosophy (Ethics, political science and economics) and productive arts (applied sciences and useful arts). The human knowledge was divided in these groups on the basis of their practices, like theoretical science dealt with accumulation and communication of knowledge for its own sake; while practical science were concerned with conduct and behaviour; and productive sciences were creative in nature (Shields, 2014 & Aristotle, 2014). The Francis Bacon (1561-1626) was also renowned for his contribution in the field of knowledge organization. Bacon divided all the knowledge into two categories, based on their origin, the first was described as human knowledge because it is derived from the process observation and understanding, while the second was theology obtained from disclosure with god/ divinity and it described as divine and spiritual in nature. Each of these classes was further divided into three groups, namely History, Poesy and Philosophy. These groups were categorized on the basis of their origin as, the history originates from memory, Poesy from imagination and Philosophy from (Husain, 2004) The ancient classification of knowledge that developed in India during the Vedic period is known as Vedic classification. The Vedic classification proposed four divisions of knowledge, based on four stages of life through which a person passes during his life. The four main classes of knowledge were Dharma, Artha, Kama and Moksha, in which Religio-Social
Sciences with Natural Sciences come under the Dharma, the Artha comprises Economico-political Sciences with Natural Sciences, the Kama includes Creative or Fine Arts, Literature, Linguistics and Psychology, whereas, spirituality with Logic, Epistemology, and Metaphysics covered under the Moksha (Kumar, 1983). These classifications of knowledge were the results of acute intelligence and intense memory, and finely arranged mental output of the philosophers into well-defined masses of knowledge.

There are some modern theories regarding the origin of human knowledge that defined human knowledge through different models and illustrations. Mays (2005) outlined the classification and the development of knowledge in his model of ‘Knowledge Tree’. In the model, Mays compared origin of discipline with the evolution of the universe and showed its divisions and subdivisions as branches of a tree. In the model, he kept physics at the ground position because he believed that the constituents (particles, forces, and fundamental laws) of physics had an important role in the growth of the universe. Because of this consideration, he considered the subject of physics as an originator of other subjects of knowledge. Other subjects are placed at the knowledge tree according to their role in the growth of the universe and in the development of other disciplines of knowledge. Accordingly, all the disciplines set a ground for the development of other disciplines of knowledge. The model of a ‘knowledge tree’ is illustrated in figure 4.1.

![Figure 4.1: Tree of Knowledge](source: A Tree of Knowledge)
The more defined and less universal subjects, like chemistry and astronomy are placed at the bottom, deals with those processes that occur throughout the identified universe. While, the earth sciences (geology, meteorology, and climatology), the more specific in nature are placed towards the top. As, these subjects are considered as fundamental for the development of biology, so biology is kept after these subjects. The subjects of Anthropology and archaeology concerned with the fundamentals of early biological and cultural history of humans and further setting a stage for social sciences. Therefore, social sciences are regarded as more specific and less universal and located towards the top. As move up from social sciences, the subject has become more refined, creative, imaginative and literally, and reflected intellectual aspects of humans’ life, i.e., more specific facets of human life. Therefore, the subjects of humanities are kept at the apex of the tree. The subjects like logic, mathematics, philosophy, and religion are concerned with thoughts and logic, and difficult to locate in the space and time; therefore, these are kept aside to the tree. This model of the knowledge tree helps to understand the classification and unification of many fields of human knowledge in the context of evolution of the universe. Hunt and Colander (2010) in his book illustrated the divisions of physics into natural sciences and metaphysics, which is based on empirical and non-empirical approaches of study, then later the physics, was developed in philosophy. However, there were some theories that opposed the evolution of knowledge from physics. It is believed that Philosophy is one of the world's oldest subjects of study, which developed in the sixteenth century. Philosophy comprises the concept of life, human existence and its logic and has three central areas of inquiry viz. metaphysics, epistemology, and ethics (Holden, 2004; Philosophy, 2008). This concept was further verified by the study of Kant (2002). Kant, in his book *Groundwork of the Metaphysic of Morals*, stated that "Ancient Greek philosophy was divided into three sciences: physics, ethics, and logic. This division is perfectly suitable to the nature of the thing and one cannot improve upon it, except only by adding its principle, in order in this way partly to secure its completeness and partly to be able to determine correctly the necessary subdivisions.” Based on this theory, Philosophy was considered as a systematic inquiry about the basics of human nature, knowledge, and his behaviour.
With the advancements in human culture and society, the knowledge had also started to expand and take new shapes and structures systematically. However, with the influence of systematic approach of study, the total of human knowledge was divided into three major areas of study; the Social Sciences, the Natural Sciences and the Humanities. Furthermore, each of these was further divided into a number of sub-fields to assist more reflective and inclusive study of different fields of knowledge. The Social science is a field of human knowledge that mainly deals with the all-inclusive aspects of man’s social life. The Natural science deals with natural environment in which man is lived, whereas, the humanities are closely related to the social sciences as it studies both man and his culture. The Social sciences are more concerned with those basic elements of culture that determine the general pattern of human behavior, while the humanities deal with more specific aspects of human culture (Hunt & Colander, 2010).

There is another field of knowledge referred as the ‘Arts’ and usually categorized as a separate branch of knowledge. It mainly concerns with man’s endeavour of conveying spiritual and aesthetic values through art and literature and finding out the meaning of life through religion and philosophy. The discipline ‘Arts’ has many similarities with the subjects of humanities and both the disciplines usually come with each other as the “Arts and Humanities.” In most of the Indian universities, the subjects of humanities are either as the subjects of Arts or Social Sciences. Therefore, in this chapter, only the disciplines the Arts and Social Sciences are being discussed and the humanities have been taken as their equivalent. The chapter describes the concept and contents of the discipline i.e., of Arts and Social Sciences. It notifies disparities and similarities among the subjects of these disciplines. It also discusses the present scenario of these disciplines in the Indian education system.

4.2. THE ARTS

The discipline ‘Arts’ studies various aspects of human culture and civilization to explore various fields of human intellect and creation and the meaning, and values of the human life. It deals with human’s ideas, skills, customs, and more often his relationship with its culture and surroundings. Different fields of the Arts are providing an all-round education and exposure to many areas of human endeavors and creating a wider foundation for growth and development of knowledge.
The arts is an academic discipline, which includes a vast subdivision of human culture and thought, and nonscientific branches of knowledge i.e., philosophy, languages, literature, and creative arts. The discipline Arts comprises many activities of human effort of imitating, complementing, and modifying the work of nature by using their creative impulses (The Arts, 2013). The Aristotle defined the Art as “the realization in external form of a true idea, and is traced back to that natural love of imitation, which characterizes humans, and to the pleasure which we feel in recognizing likenesses. Art however is not limited to mere copying. It idealizes nature and completes its deficiencies: it seeks to grasp the universal type in the individual phenomenon” (Aristotle, 2014, April). Hence, the study of the Arts includes knowledge of human conditions, his creativity, skills, thoughts and thinking, culture and elements of human history through different areas of knowledge and it is indicative, imperative, or speculative in nature and different from the empirical approaches as used in natural sciences.

Traditionally, the Arts in the medieval Europe wars referred to as the “Liberal arts” that included the seven branches of learning as grammar, logic and rhetoric (the trivium) and Arithmetic, Geometry, Astronomy, And Music (the quadrivium). It provided general and intellectual information about human and his culture rather than professional skills. The liberal arts initially included traditional, thoughtful fields of knowledge, different from mechanical fields and later other fields of knowledge were also included in the Arts, such as Creative Arts, Humanities, Social sciences and Sciences (Kristeller, 1965). The Liberal Arts, a group of seven areas of knowledge, which further divided into four broad areas of study; the Humanities (English Literature, Modern Languages, History, Philosophy), the creative arts (visual and performing arts); the Social Sciences (Political Science, Sociology and Anthropology); the sciences (such as Biology, Chemistry, Physics and Astronomy)(Liberal Arts, 2014b). Now, the discipline of Arts includes the subjects of humanities and creative arts and it covers a broader range of disciplines from the creative Arts to Humanities. The major constituents of the Arts discipline includes; Literary Arts (Includes poetry, novels and short Stories), Languages, Fine Arts and Performing Arts (music, theatre and film) Philosophy, Classics, Cultural Studies, Linguistic, but hardly the subject of History and Psychology are also taught under it.
Chapter 4
The Arts

The study of the Arts provides general knowledge and understanding of literature, languages, music, personality, nature, art, religion, humor, historical events and so on. Thus, the study of the Arts not only enhances human knowledge and understanding, further, it facilitates an individual to participate effectively in the intellectual and creative activities and imagine the world from different perspectives.

4.2.1. Definitions

1. According to Oxford Dictionary (2013), Arts include “Subjects of study primarily concerned with human creativity and social life, such as languages, literature, and history (as contrasted with scientific or technical subjects).

2. According to Merriam Webster dictionary (2014b), the Liberal Arts is defined as “Areas of study (such as history, language, and literature) that are intended to give you general knowledge rather than to develop specific skills needed for a profession”.

3. According to Collins English Dictionary (2014a), Liberal Arts is “the fine arts, humanities, sociology, languages, and literature. Often shortened to: arts”.

4. The American Heritage Dictionary (2009) defines the liberal arts as “Academic disciplines, such as languages, literature, history, philosophy, mathematics, and science that provide information of general cultural concern”.

4.2.2. Origin

In education, the ‘Arts’ is a name used for certain branches of study that composed of human creativity and constructive aspirations. The origin of the Arts is traced back to the ancient Greece, where it was started to impart general education for citizens. The ancient Greeks identified the "Artes liberales," or “Liberal Arts” as an important area of study that was a must for all the citizens to learn. These Liberal arts were usually comprised of seven fields of knowledge, therefore it was also known as the “Seven Liberal Arts”. The seven liberal Arts were first divided into two broad categories: the Trivium and the Quadrivium. The Trivium was the first half of the seven Liberal Arts, included three elements of learning included general grammar, formal logic and classical rhetoric. While the Quadrivium, a group of four analyzes
numbers and its relationship with the space and time was divided into Arithmetic, geometry, music and astronomy (Arts, 2002).

During the medieval period, the “seven liberal arts” used to teach the art and the science of the mind and the art of the science of matter as well. Later on, in the Renaissance, the Italian humanists renamed the old Trivium with a new Studia humanitatis. They replaced the subject ‘logic’ with ‘history’ and ‘moral philosophy’ (Kristeller, 1965). Although, the idea of Liberal Arts, or Humanistic Education that grounded in classical languages and literature continued until the middle of the twentieth century, but in modern times, liberal arts education has become a term that interpreted in a number of ways. Then, with the expansion of human knowledge, the liberal-arts curriculum has also expanded to three main branches of knowledge: the humanities (Literature, Language, Philosophy, the Fine Arts, and History), the physical and biological sciences, mathematics, and the social sciences (Liberal Arts, 2014b). Now, the liberal arts education includes the following subjects: Humanities (English Literature, Modern Languages, History, Philosophy), Social Sciences (Anthropology, Economics, Geography, Political Science, Sociology), Creative Arts (Fine Art, Theatre, Speech, Creative Writing), and the Sciences.

There is another concept related to the origin of the Arts, in Hindu mythology, it is believed that Lord Krishna possessed the 64 arts, which is known as 64 Kalas (Chausath Kalas). It constitutes 64 different areas of arts, which are; Singing, Dancing, Painting, Secret mantras, Skills of cooking, Sewing, Poetry games, Literary recitation, Drama and storytelling, Architecture and house construction, Knowledge of foreign languages and dialects, Spells, charms and omens, making simple mechanical devices, Knowledge of dharmic warfare and victory, Physical culture, etc. (Himalayan Academy, 2009; Shrivedant foundation 2013). In another theory f primitive India, knowledge was divided into two main classes; the Kala (Arts) and the Sastra (science) as shown in figure 4.2.
The Arts

4.2.3. Composition of Subjects in the Arts

The Arts, usually the liberal arts refer to the study of human imaginative, creative and living conditions. Traditionally, the Arts as ‘the liberal arts’ were classified into seven: grammar, rhetoric, logic (the trivium) and arithmetic, geometry, astronomy and music (the quadrivium). Later on, during the Renaissance these subjects had been expanded to Humanities (English Literature, Modern Languages, History, Philosophy), Social Sciences (Anthropology, Economics, Geography, Political Science, Sociology), Creative Arts (Fine Art, Theatre, Speech, Creative Writing), and the Sciences. In the modern academic world, the discipline Arts is usually taught with or comprise the subjects of Humanities. The subjects, generally taught in the Arts curriculum include; Architecture, Creative arts, History, Linguistics, Philosophy, Ancient and Modern Languages, Literature, Religion, etc. According to the Encyclopedia Britannica (Liberal Arts, 2014b), the Arts are classified into the following categories:
1. Technical and theoretical arts, which include architecture, calligraphy, dance, drawing, literature, motion picture, music, painting, photography, printmaking, sculpture, and theatre.

2. The Arts, which are practiced by specific people and cultures, such as African architecture, African art, African dance, African literature, Native American literature, Oceanic literature.

3. The Arts, which are treated by the languages in which these are written, i.e., Hindi literature, Slovene literature and Mongolian literature, etc.

It has been identified from the present scenario of the Arts discipline in Indian education system, the subjects of the Arts have been included in the combination of two liberal arts, i.e. the humanities and the creative arts. Amongst them, some provide general knowledge of human endeavours, while others have a specific focal point and all these include; creative arts, literature, linguistics, languages, philosophy, history, mathematics and religious studies, etc. On the basis of the literature studied and organization of the Arts in Indian universities, the evolution of the Arts is represented in the figure 4.3.

![Figure 4.3: Evolution of the Arts]

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100
The study of the Arts facilitates to explore how people interact, how the ideas and thoughts are expressed through their skills, and how their experiences are articulated and interpreted by their writings and actions. Furthermore, it deals with the study of morals and ethics of human civilizations and helps to understand different human system at different times. It provides all-inclusive study of the human literary, intellectual and creative skills that further explains the cultural, communal, physical and political development in terms of human endeavours.

4.3. SOCIAL SCIENCES

Social Science is one of the fields of knowledge that studies the society and social behaviour of humans. It is a term used for imparting knowledge about activities, growth and developments of human society and applied to study society from different perspectives of social behaviour of human. By providing a vast amount of information on the social life of human beings, it helps in building a system of knowledge that relates to the growth and development, nature and functioning of men and their societies. Thus, it presents to that scheme of knowledge, which comprises of human Knowledge, their culture and social environment (Hunt & Colander, 2010).

During the 18th century, the social sciences were started to develop from moral philosophy. Since then, people started to take an interest in investigating some more aspects of man and its society and from the period of Enlightenment, it gained recognition as an academic discipline. Social Sciences are those fields of learning and research that mainly concern with human and its relationships with society (Social Science, 2013a).

Moreover, the Economic and Social Research Council (2014a) defines Social science in its broadest sense as, “The study of society and the manner in which people behave and influence the world around them. It tells about the world beyond our immediate experience, and can help explain how our own society works - from the causes of unemployment or what helps economic growth, to how and why people vote, or what makes people happy. It provides vital information for governments and policymakers, local authorities, non-governmental organizations and others.” Thus, it is such a vast and complex field of knowledge, which not only provides a broad prospect of a society, but also provides a deep insight into a society in which an individual lives, information about social incidents, why and how the historical and
social events took place. In addition, it provides various opportunities to learn and understand various national and international social acts and events and different systems of the human world through different areas of knowledge. The commonly accepted branches of Social Sciences are anthropology, economics, geography, political science, psychology and sociology.

4.3.1. Definitions

Social science, in its broadest sense, is the study of society and the manner in which people behave and influence the world around them, thus, no single definition is sufficient to define the concept and scope of social science, which cover a broad range of disciplines.

1. Collin English Dictionary (2014a) defines social science as, “The study of society and of the relationship of individual members within society, including economics, history, political science, psychology, anthropology, and sociology”.

2. According to the Oxford Advanced American Dictionary (2014d) Social Science, “A particular subject connected with the study of people in society, for example geography, economics, or sociology”.

3. According to Longman Dictionary of contemporary English (2014b) Social Science is, “A particular subject relating to the study of people in society, such as history, politics, sociology, or anthropology”.

4. The Macmillan Dictionary (2014c) defines social science as, “One of the separate subjects that deal with the way societies are organized, for example history or sociology. These subjects are referred to as the social sciences”.

5. The American Heritage New Dictionary (2013c) of Cultural Literacy defines Social Science as, “The study of how groups of people behave, often in an effort to predict how they will behave in the future. The social sciences include economics, anthropology, sociology, political science, and aspects of psychology and history”.

102
6. According to Merriam-Webster Dictionary (2014c), Social science is, “A branch of science that deals with the institutions and functioning of human society and with the interpersonal relationships of individuals as members of society.

4.3.2. Origin

Social science is a phrase used for the subjects of knowledge that study human(s) in their association with culture and society. While considering the comprehensive history of social sciences from the two vast sources of information: According to the Columbia Encyclopedia (Social Science, 2013a) and Nisbet (2014), the development of social fields had already started since the time of the Dark Ages. The various famous philosophers of that time had started to work on economic issues and made several remarks, while the thinkers of 13th century took more interest in political and social issues, along with various economics areas. During the medieval Islamic period, some significant contributions had been made in the fields of anthropology, historiography, economics, sociology and philosophy of history.

In the 17th century, the emphasis began regarding the use of scientific methods in the field of social sciences as to learn about scientific traits of Social Sciences. Although, the human social behaviour had been studied since the ancient times, but the proper comprehension of social sciences has came since the period of Enlightenment in the 18th century, then the term Social Sciences was started to recognize as a distinct conceptual field of study. It is believed that the Social Sciences were developed from the moral philosophy of the period of 18th century and influenced by the Industrial and the French revolution. Since then, the field of natural theology, natural ethics, natural jurisprudence, and policy has been treated as part of Social Sciences. In the later 18th century, with the effect of positivism (positivist philosophy sciences), the concept of social philosophy has changed to social sciences and till the 19th century, several new disciplines of Social Sciences have emerged that included, Anthropology, Political science, Psychology, and Sociology. Thus, the period of 19th century was marked by the development of wide-ranging theories of Auguste Comte, Karl Marx, and Herbert Spencer and inclusion of these theories for further development and organization of Social Sciences.
At the beginning of the 20th century, the Enlightenment philosophy was challenged at different aspects because of the use of quantitative and statistical techniques. Since then, the subject of statistics has emerged as a free-standing discipline of applied mathematics and used to apply in different areas of Social Sciences. By the mid-20th century, the term Social science began to be used for all those disciplines that related to the study of society and nations. However, in the contemporary period, researchers made efforts to develop a ‘grand theory’, which could help them to assimilate all or more specified theories of Social sciences, but they did not get success and efforts remained unnoticed. While as, in the twenty-first century, some of social science’s field, viz. economics and psychology gained status and various new areas, which having less association with traditional social sciences, such as African American studies, Women’s studies, Cultural studies and Development studies, etc., were started to be included in the field of Social Sciences. Now, the discipline Social Sciences is taught as an academic discipline in most of the institutes and universities of the world.

With the increase of human knowledge, the amount of information is also increasing and this makes difficult for a person to consume all the knowledge. Thus, to gain specialization in one or more areas of knowledge, the social sciences have started to break down or merged out with other disciplines of knowledge. The resultant that evolved came out from this process are referred to as interdisciplinary disciplines. The interaction among different social sciences has introduced various new interdisciplinary fields that include, Economic psychology, Psychological economics, Political psychology and Behavioural economics, socio-political, Women’s studies, Marketing Research, Media Studies, cultural studies, regional studies, etc. Hence, the Social Sciences have emerged as a distinct area of study, which involves the multiple fields of knowledge related to the social issues. The various fields of Social Sciences help to understand the role of a man in building the economy and social order of the world.

4.3.3. Social Science as a Discipline

The discipline Social Sciences has a composition of various academic disciplines, which provides actual insight about the human and its association with the society. To understand the concept of Social Sciences, the discipline has been broken
down into Anthropology, Sociology, History, Geography, Economics, Political Science, and Psychology (Hunt & colander, 2010). As, the Sociology studies about the society, social institutions, and other related fields of human culture and society, while Political Science examines the political systems by analyzing the theories and practices of politics. However, the subject Economics deals with economic issues whereas, Geography examines the physical and the natural environment of the earth and provides information of its climate and vegetation. History provides information on humans’ past. Thus, a term Social Science is mainly applied for all the branches of knowledge, which studies humans in their societal relationship.

According to the Economic and Social Research Council (ESRC, 2014b), Social science includes the following disciplines:

(a) Demography and Social Statistics, Methods and Computing
(b) Development Studies, Human Geography and Environmental Planning
(c) Economics, Management and Business Studies
(d) Education, Social Anthropology, and Linguistics
(e) Law, Economic and Social History
(f) Politics and International Relations
(g) Psychology and Sociology
(h) Science and Technology Studies
(i) Social Policy and Social work

In India, the term social science gained credence by the efforts of the Indian Council of Social Science Research (ICSSR) (2013). The ICSSR is an autonomous research institution, established to promote research in the areas of Social Sciences. It categorizes the Social Sciences into various fields and sub-fields:

(i) Economics / Commerce / Management / Business Administration
(ii) Sociology/ Social Work/Social Anthropology
(iii) Political Science/International Studies/Public Administration
(iv) Geography/Demography
(v) Psychology/Education
(vi) Legal Studies
(vii) Gender/ Marginalized Groups/Human Rights
(viii) Philosophy
(ix) Media/ Mass Communication

(x) Other Interdisciplinary areas in Social Sciences and areas of its interface with other disciplines of research

Generally, it encompasses Economics, Geography, Law, Political Science, Psychology and Sociology along with some older branches of societal study, like Ethnology, Anthropology, Criminology and Demography, etc. Additionally, it may also include some areas of humanities, i.e., Archaeology, Area studies, Communication Studies, Cultural Studies, Folkloristics, History and Law, etc. The major subjects of Social Sciences are represented in figure 4.4.

![Figure 4.4: Subjects of Social Sciences](source: Subrealism)

The areas of Social Sciences are both too broad and too narrow. It is too broad, because it includes several fields of other disciplines, like some subjects from the Arts and Humanities, such as, the subject of History and Geography belong to the Arts and Humanities, while Psychology is associated with Natural Sciences, but now these are mainly taught under the Social Sciences. The field is too narrow, because of various new interdisciplinary subjects, which have emerged from merging or breaking
of various Social Sciences fields. Therefore, Social Sciences are more diversified in nature and incorporates large number of research fields.

4.4. RELATIONSHIP BETWEEN THE ARTS AND THE SOCIAL SCIENCES

In education system, the human knowledge is divided into three main areas of study, as Sciences, Arts and Social Sciences. Among these three, the Social Sciences is the youngest one, while the Arts include the disciplines that were taught in the mediaeval universities.

The ‘Arts’ is considered as one of the oldest fields of knowledge available to man. It gives emphasis to a more systematic and vital method of study, including emotionally-biased thoughts of creative arts. It is broader in scope include Language, History, Literature, Religion, Philosophy, Theater, Music, etc. Mostly, the terms Arts and Humanities are used together or side-by-side as the “Arts and Humanities.” In some institutes, the arts curriculum includes the humanities fields, whereas in others the arts are taught under the humanities. Thus, it is a matter of concern that what subjects come under which discipline? There is still confusion about the composition of both the disciplines. The Creativity, expression, exploration, imagination and passion are some of the human qualities that create a common bond between the arts and the humanities to link them together. Thus, it is not wrong to say that both the arts and the humanities are the counterpart of each other. In that case, the discipline Arts is defined as the amalgamation of the subjects of the Humanities and the Creative arts, which comprise of illustrations, imaginations, application of man artistic skills, also concerned with human experiences, his culture and civilizations.

However, the contradictions are not only laid between the Arts and the Humanities, but the fields also coincide with Social Sciences. The discipline Arts or Humanities also include some of the Social Sciences subjects and vice versa. Social Science is a varied field of knowledge, deal with all the social activities and attainments of man, and treats the other fields of knowledge related to the human’s social life. In a broader sense, it might include some aspects of the humanities, such as archaeology, area studies, communication studies, cultural studies, folkloristic, history, linguistics, etc. While, on the other hand, some subjects of the Social Sciences
are also taught under the Humanities, like Psychology, Area Studies and Cultural Studies, etc.

The organization of the subjects in the disciplines of the Arts and Social Sciences face complications, because these are not being distinguished clearly from each other. While comparing the disciplines, it is found that Social Sciences is the field of human knowledge, covering all aspects of human life, their traditions and customs, and studies concepts in a more systematic, or scientific ways. Whereas, the Arts or Humanities focus on human attitudes, opinions, theirs works and actions. Social Sciences, however, is most concerned with those fundamental aspects of culture that ascertain the common patterns of human behaviour. The humanities deal with specific elements of human culture that are mainly concerned with the attempts of conveying aesthetic, creative and spiritual values and determining the meaning of life (Hunt & Colander, 2010). All these three disciplines are man-centered and concerned with human conditions, their spirituality, their actions, and reactions and almost with all aspects of human life. Because, all the phases of human behaviour are interrelated and interdependent with each other and this may result the subjects of similar characteristics. Consequently, the disciplines Arts, Humanities and Social Sciences are closely related with each other, as all of them deal with human and their culture.

Furthermore, the emergence of interdisciplinary fields such as Area Studies, Gender Studies and Cultural Studies, etc. is also blurred as the distinction between the Social sciences and the Arts. These interdisciplinary disciplines came into existence in response to the influence of cultural, social, political, and technical interests. Grieb (1974) described the concept of interdisciplinary subjects in another way, as a process of ‘maturing’ in which a discipline broadens its scope so much as it begins to overlap with other disciplines. The new subjects are constantly integrated into other areas of study that makes a field to lose its rigidity and become more flexible. According to Klein (1999), “All disciplines are troubled by the explosion and increasing fragmentation of knowledge. Disciplinary boundary lines would be nowadays much harder to draw and this has already led to the creation of genuinely interdisciplinary courses like environmental studies, which combine a larger number of subjects.” Hence, the emergence of interdisciplinary fields transgresses the borders between the
Arts and the Social Sciences, these are related with each other in terms of human growth, development and progress, and in cultural terms as the contents of the study.

Figure 4.5: Links between the Arts and the Social Sciences

Here, the figure 4.5 shows the relationship between the Arts and Social Sciences, as both the disciplines deal with some common aspects of human life. For this reason, Archaeology, Law, Linguistics, History, Psychology, Area And Cultural Studies, etc., are considered as the fields of Arts as well as of Social Sciences. History is taught in both the arts and the Social Sciences and it studies about individuals, events, or eras. The history is taught under the Social Science, because it looks at the past events of the people or groups in association with their society. The Law intersects the boundaries between the Arts and Social Sciences. Law belongs to Social Sciences, because it relates to politics and legal matters of a country. It is also associated with Philosophy and History, as it values the ideas and thought that teaches the moral and ethics of life. While certain areas of Linguistics are covered under the
Social Sciences, while as others are taught in the Arts and Humanities. The Psychology is one of the Social Sciences field that may be taught under the humanities, as it concerns with how an individual thinks, imagines and creates a relationship with other social animals? Accordingly, structures of both the disciplines are still quite coinciding with each other, as both disciplines deal with human beings in their artistic and social behaviour.

Despite their rich contents and well-defined structures, some queries remained unanswered, as to what relationship exists between the Arts and Humanities disciplines and, what subjects are covered under the Arts and the Social Sciences? These are some of the questions is unclear to the academic world, but whatever the contradictions that lay between the disciplines, the study of these always gives a comprehensive outlook of our social and intellectual world.

4.5. COMPOSITION OF THE ARTS AND SOCIAL SCIENCES IN THE UNIVERSITIES UNDER STUDY

The present study is concerned with the use of online databases in the faculties of Arts and Social Sciences in central universities of UP and Delhi. As, it is discussed in the earlier section that there is seen some similarities and disparities between the subjects of Arts and Social Sciences, therefore the researcher attempted to give an overview of the compositions of both the disciplines that are being taught in the central universities under study. Thus, the present section provides an overview of the departments schools rendered under the faculties of Arts and Social Sciences in the surveyed universities.

The following departments are included in the faculties of Arts and Social Sciences in Aligarh Muslim University (AMU)

A. Faculty of Arts

- Arabic
- English
- Fine Arts
- Hindi
- Linguistics
- Modern Indian Languages
- Persian
- Philosophy
Chapter 4

The Arts

- Sanskrit
- Urdu

B. Faculty of Social Sciences

- Economics
- Mass Communication
- Education
- Psychology
- History
- Physical Education
- Islamic Studies
- Political Science
- Library and Information Sciences
- Sociology
- Departments that are included in the faculties of Arts and Social Sciences in Banaras Hindu University (BHU) are as follow:

A. Faculty of Arts

- A.I.H.C. & Archaeology
- Hindi
- Arabic
- Philosophy & Religion
- Bengali
- History of Art
- English
- Physical Education
- Linguistics
- Indian Languages
- Foreign Languages
- Sanskrit
- Marathi
- Journalism & Mass Communication
- French Studies
- Tourism Management
- Pali & Buddhist Studies
- Telgu
- German Studies
- Library & Information Science
- Persian
The faculties of Arts and Social Sciences in University of Delhi (DU) comprise the following departments:

A. Faculty of Arts

- Arabic
- Buddhist Studies
- English
- Germanic & Romance Studies
- Hindi
- Library & Information Science
- Linguistics
- Modern Indian Languages and Literary Studies
- Persian

B. Faculty of Social Sciences

- Economics
- History
- Political Science
- Psychology
- Sociology
- Center for Women's Studies and Development
- Center for the Study of Nepal
- Malaviya Center for Peace Research
- Center for Rural Development
- Centre for Study of Social Exclusion and Inclusive Policy

- Urdu
- Bhojpuri Study Centre Under Hindi Department
A. School of Language, Literature and Culture Studies

- Centre of Arabic and African studies
- Centre for Chinese and South East Asian Studies
- Centre for English Studies
- Centre for French and Francophone Studies
- Centre of German Studies
- Centre of Indian Languages
- Centre for Japanese Studies
- Centre for Korean Studies
- Centre for Linguistics

In Jawaharlal Nehru University (JNU), subjects of the Arts and Social Sciences are rendered under the School of Language, Literature and Culture School of International Studies and School of Social Sciences.
• Centre of Persian and Central Asian Studies
• Centre of Russian Studies

B. School of International Studies
• Centre for African Studies
• Centre for Canadian, US and Latin American Studies
• Centre for Comparative Politics & Political Theory
• Centre for East Asian Studies
• Centre for European Studies
• Centre for International Legal Studies
• Centre of Spanish, Portuguese, Italian & Latin American Studies
• Centre for International Politics, Organisation and Disarmament
• Centre for International Trade and Development
• Centre for Inner Asian Studies
• Centre for Indo-Pacific Studies
• Centre for Russian and Central Asian Studies
• Centre for South Asian Studies
• Centre for West Asian Studies

C. School of Social Sciences
• Centre for Economic Studies and Planning
• Centre for Historical Studies
4.6. SUMMARY

Generally, the Arts deal with specific aspects of human beings and concern with spiritual and aesthetic values of the human culture and it includes Literature, Languages, Philosophy, Creative Arts and Music. The Social Sciences, however, concern with those elements of culture that determine general patterns of human’s social behaviour and phenomenon. This chapter discusses about the two disciplines of scholarship i.e., the Arts and the Social Sciences.

The study provides a brief understanding of the general structure and new interdisciplinary areas of the Arts and the Social Sciences. It explains the difference and similarities between these two academic disciplines. Also, discusses the possible reasons for the similarities and distinctions among the subjects of the disciplines. It also provides an all-inclusive understanding of the disciplines of the Arts and the Social Sciences that are being taught in the select Central Universities of UP and Delhi.
The outline of the disciplines might help the experts and academicians to better place the subjects under these disciplines. The study recommends that there is a strong need for research, collaborative efforts, to analyze and develop frameworks and guidelines for the domains of the Arts and the Social Sciences that will remain consistent in all Universities of India. There is a need for the development of an authority, which will look at and develop new policies and frameworks for higher education in the existing and emerging circumstances.
REFERENCES


CHAPTER 5
DATA ANALYSIS AND INTERPRETATION

The chapter gives an overall description of the collected data and the techniques used to analyze the result. It discusses in detail the analysis and interpretation of responses received from the librarians and the users of select libraries under study i.e. Central Library, University of Delhi, Delhi and Central Library; Jawaharlal Nehru University, Delhi; Maulana Azad Library, Aligarh Muslim University, Aligarh and Sayaji Rao Gaekwad Library, Banaras Hindu University, Varanasi. The data was collected using structured questionnaires. For this study two set of questionnaires were designed, one for librarians of the central libraries of select universities under study and another for the online database users of Faculties of Social Sciences and Arts in select central universities of Delhi and Uttar Pradesh.

This chapter is divided into two parts:

Part A: Consists of analysis and interpretation of responses received from the Librarians of Central Libraries of select universities in Delhi and UP, on various aspects related to online database services and their perceptions and perspectives towards the provision and usage of online database services.

Part B: Contains the analysis and interpretation of responses received from the library users of the faculties of Social Sciences and Arts in the Central Universities under study in Delhi and UP on various issues related to the use of online databases.

The collected data has been analyzed and tabulated with the help of tables, graphs and statistical methods.

PART-A

5.1. ANALYSIS AND INTERPRETATION OF RESPONSES RECEIVED FROM LIBRARIANS

This section discusses librarians’ views on different aspects of provision of online database services such as total collection, annual budget for online databases, modes of acquisition of online databases, methods for providing access to online databases to users, methods for alerting/updating the users about online database services and problems faced while subscribing to online databases in DU, JNU AMU and BHU, libraries. The questionnaire was administered among the librarians of select
central university libraries for data collection, where hundred percent responses were received.

5.1.1. BUDGET

Budget has its worthiness in the smooth functioning of libraries, but in the recent years, it is seen that the library budget is not increasing in proportion to the rising as much as the cost of information resources is increasing. According to Irivwieri (2009), the journals and articles have been continuously increasing in numbers with higher pace, but library budget are still at a constant position with more or very less hikes and this cause the libraries to limit or cut off the number of their important possessions. To find out the budget for online database in the libraries of selected universities of Delhi and UP, librarians of the concerned libraries were asked to provide their annual budget that was allocated for subscription of online databases. However, the central library of DU did not have any separate budget or fund for subscribing to online databases, though they prescribed to a number of online databases through the budget subscribed for e-resources. It is quite surprising to know that in JNU, central university did not have a separate budget neither for online databases nor for e-resources. The e-resources were procured through the budget sanctioned for Plan and Non plan grants.

Unexpectedly, the situation is alike of JNU is seen in AMU, as the central library did not have separate budget for subscription of online databases, not even for the electronic resources. They are acquiring few online databases under the policy of UGC which provided each central university access to a number of online databases through UGC-INFONET consortia.

The budget allocated for BHU from the year 2008-09 to 2012-13 has been given in table 5.1. In BHU, the growth in budget allocated for online databases shows an inconsistency. The budget allocated for online databases during the year 2008-09 was Rs.2516763. The data shows that during the year 2009-10, there is an increase of more than hundred percent in the budget allocated for online databases. In the year 2010-11, the budget is decreases to Rs. 2610674, further there is a decrease to Rs. 2092122 in the year of 2011-12. Again there was an increase of 12.54% (Rs. 2354547) by the year 2012-13. During the year 2013-14, the growth in budget was again increases to 246.78 percent as Rs. 8165207 was allocated for online databases. Overall, there is an increase of 224.43 percent in the annual budget allocated for online databases from the year 2008-09 to 2013-14.
Table 5.1: Budget Allocated for Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Year</th>
<th>Budget (Rs.)</th>
<th>% Growth Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2008-09</td>
<td>2516763</td>
<td>---</td>
</tr>
<tr>
<td>2.</td>
<td>2009-10</td>
<td>5119120</td>
<td>103.4</td>
</tr>
<tr>
<td>3.</td>
<td>2010-11</td>
<td>2610674</td>
<td>-49</td>
</tr>
<tr>
<td>4.</td>
<td>2011-12</td>
<td>2092122</td>
<td>-19.86</td>
</tr>
<tr>
<td>5.</td>
<td>2012-13</td>
<td>2354547</td>
<td>12.54</td>
</tr>
<tr>
<td>6.</td>
<td>2013-14</td>
<td>8165207</td>
<td>246.78</td>
</tr>
</tbody>
</table>

It is concluded on the basis of the collected data that the situation of all the surveyed libraries except BHU was quite disappointing in terms of budget allocation for online databases. Although all are having the same status of being central university libraries, but only the library of BHU had substantial budget for subscribing to online databases, while the rest were adjusting their online database budget under different heads.

5.1.2. COLLECTION DEVELOPMENT

The goal of the academic libraries is to build an effective collection of both print and electronic resources, and to ensure optimum use of these resources in use to support teaching, learning and research activities in the Universities. However, access and selection of electronic resources creates various challenges, such as mode of access and acquisition, technical support and licensing, etc. Therefore, libraries have to develop a separate collection development policy to address the issues related to collection development of its resources.

The Collection Development Policy guides the processes involved in planning, development and maintenance of the library’s collections to support academic activities. A collection development policy is an important written document drafted to provide guidance on all activities relating to acquisition, budgeting, planning, and selection of library materials (Magrill and Hickey, 1984). It provides guidance to a library for building a strong and balanced collection of information resources as per the needs of their users. The libraries have collection of both electronic and analog resources and for their proper access and organization, libraries must adopt some standard guidelines practices (Library of Congress, 2008). According to LRC (2012) “Collection development policies are used by libraries to ensure that their collections remain relevant to their clientele community while taking into consideration
collection, budget and spatial limitations”. By defining the scope and nature of the existing collection, these guidelines help a library to match their collection with the objectives of their parent institution. Besides, providing guidelines for selection, it also helps in allocation of funds. In order to know about the collection development policy adopted by the libraries under study, librarians views and needed data were gathered on the following issues:

5.1.2.1. Total collection of Online Databases available in the Libraries

The primary objective of an academic library is to support teaching and learning, research and development activities by providing adequate number of information sources to academia. Therefore, libraries have to build a substantial collection of cost-effective and significant information sources to help their users in seeking their information.

A good library collection is developed by the collaborative efforts of the library staff as they play an important role in the process of acquisition and selection of information sources. Collection development includes selection and acquisition of library materials by considering users' current and future requirements. According to Olaojo and Akewukereke (2006), collection development is a planned and continuous process of acquiring quality and cost effective material relevant to the users and to fulfill the objectives of the library. The library staff is responsible for developing a collection according to the university’s mission, so, they have to strive continuously to develop a worthwhile collection of online sources. In a case study, Atkinson (1989) discussed the collection development policy of University of Bostwana Library (UBL), where author determined two ways of building a collection; either on the basis of publications or by the use of library materials, where the later is influenced by the lecturers and students. Nowadays, academic libraries are continuously striving to build an extensive collection by possessing different types of online sources according to the requirements of their users and universities. The data regarding the total collection of online databases in select libraries is given in table 5.2 and figure 6.1.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Libraries</th>
<th>Online Databases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>DU</td>
<td>79</td>
</tr>
<tr>
<td>2.</td>
<td>JNU</td>
<td>66</td>
</tr>
<tr>
<td>3.</td>
<td>AMU</td>
<td>24</td>
</tr>
<tr>
<td>4.</td>
<td>BHU</td>
<td>24</td>
</tr>
</tbody>
</table>
According to the collected data and Annual report (2013-2014), amongst, the four libraries, DU possesses 79 online databases, whereas JNU, AMU and BHU have 66, 24 and 24 online databases acquired from different sources respectively.

Figure 5.1 shows that the above data that amongst the four libraries, DU has the highest number of online databases (79) followed by JNU (66), BHU (24) and AMU (24). It is quiet surprising that, central library of JNU being a well-equipped library in terms of good infrastructure and sources, it is behind the DU library in terms of possession of online databases. However, JNU library also has some self-subscribed online databases in addition to consortium based databases, but it possesses less numbers of online databases as compared to DU library. With such collection of online databases, JNU library is followed by AMU and BHU libraries respectively. While, both AMU and BHU are well known universities among the Indian academia and their libraries are having a rich collection of valuable information sources, but having the same status as of DU and JNU libraries, they still have less number of online as well as consortium based databases than other libraries.

5.1.2.2. Selection of Online Databases

Selection of materials is a collaborative effort, which involves various sources and activities necessary for the fulfillment of library’s objectives. The selection of an appropriate library material is one of the major tasks in collection development process. While selecting information sources for a library, each type of resource should be considered, either it is book, journal or electronic database (Tucker, 2004).
Table 5.3: Source for Selecting Online Databases in Libraries

<table>
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<tr>
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<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DELHI</td>
<td>JNU</td>
<td>AMU</td>
<td>BHU</td>
</tr>
<tr>
<td>1.</td>
<td>Faculty recommendations</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>2.</td>
<td>Users recommendations</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Staff/ Library committee recommendations</td>
<td>---</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>4.</td>
<td>Books/ Newsletter reviews</td>
<td>---</td>
<td>---</td>
<td>√</td>
<td>---</td>
</tr>
<tr>
<td>5.</td>
<td>Consulting News groups (listserve)</td>
<td>√</td>
<td>---</td>
<td>√</td>
<td>---</td>
</tr>
<tr>
<td>6.</td>
<td>Through vendors</td>
<td>---</td>
<td>---</td>
<td>√</td>
<td>---</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)

In selection process library staff has an important role, as they bear the major responsibility of selection by identifying the weakness of a library collection and finding suitable material to strengthen it. Besides library staff, faculty members are also involved in the selection process, as they serve as experts of different subjects. All the professionals involved in selection process should communicate and collaborate with each other as well as consult other prominent sources to select and manage the best e-resources for a library (Library Resource Centre, 2012). Libraries consult different sources for selection of documents as per their collection development policy. Table 5.3 displays different categories of sources consulted for selection of online databases in select libraries.

The librarians of DU, JNU, AMU and BHU prefer to take recommendations from faculty members, as they are the prominent source of subject knowledge. According to Tucker (2004) faculty members are experts in the subjects and provide vast information on specific areas of study. Therefore, their recommendations should be considered while selecting library resources.

The recommendations of users are also considered as an important source to get acquainted with online databases in the libraries of DU, JNU and AMU, whereas the libraries of JNU, AMU and BHU, also take into account the staff or the library committee recommendations for developing a substantial collection of online database. Fombad and Mutula (2003) stated that selection process, however a coordinated effort carried out between subject librarians and faculty members, besides this users’ opinions should also be invited for selecting the titles for a library. In this concern, King (2004) suggested that the purchase related decisions should be made in accordance with users’ needs.
However, the professional organizations or news groups play an important role in promotion of different disciplines, but libraries hardly consider their role in selection practices. Amongst select libraries under study, only DU and AMU libraries take help of news groups for identifying appropriate online databases for their libraries. A study by Tucker (2004), suggested consulting with those professional organizations that have sections devoted to specific areas of study, viz., the American Library Association and Special Libraries Association have sections for different disciplines.

Certainly, reviews and vendor updates are the important tools of selection for library materials and their worthiness cannot be neglected while making selection decisions. Unfortunately, none of the select libraries except library of AMU uses all these sources while choosing online databases for their library.

5.1.2.3. Criteria Adopted for Selecting the Online Databases

The advent of electronic resources has changed the state of academic libraries. Selection decisions in libraries are ruled by same basic criteria that have been governed by them for decades. However, the process of selection of library’s electronic materials has changed greatly, though some of the basic criterions still remain the same for selection of electronic resources. These basic criterions are; aesthetic and technical aspects, cost related issues, quality and relevancy of the sources (Hollem, 2000). The online access to textual materials provides various new opportunities for accessing and searching of information. As per the policy of UBL (University of Botswana Library) all the new information communication technology (ICT) resources and electronic resources should be collected and subscribed for the library. While choosing between two sources, like CD-ROM and online databases, the UBL usually makes decision on the basis of cost incurred in the subscription of these resources (Fombad and Mutula, 2003). The quality and use of library’s collection depends mainly on policies followed by libraries for selection of information material. Different libraries adopt different criterion for database selection depending on their scope and services. According to Rowley (1998) the following important issues should be considered while selecting an online search service: number of databases offered, search and retrieval facilities, search interfaces (simple and advanced user interface), database structure and record formats, cost, time required to develop searching facility, cross database searching facility/ cross linking, communication
facility, support services and usage reports. Tucker (2004) also discussed some issues that should be taken into consideration while selecting databases, which include: inflation (as the cost of databases are influenced by inflation and publisher pricing models), test the database to see how the database is delivered (IP address or password) and test the usability of the database), statistics (whether vendor provides monthly, yearly use statistics?), consortia (does the library subscribe to any consortia?, does it provide discount for databases?) and licensing.

**Table 5.4: Criteria Adopted for Selecting the Online Databases**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Categories</th>
<th>Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DELHI</td>
</tr>
<tr>
<td>1.</td>
<td>Coverage of the database</td>
<td>√</td>
</tr>
<tr>
<td>2.</td>
<td>Authority/Publisher</td>
<td>√</td>
</tr>
<tr>
<td>3.</td>
<td>User’s need</td>
<td>√</td>
</tr>
<tr>
<td>4.</td>
<td>Quality</td>
<td>√</td>
</tr>
<tr>
<td>5.</td>
<td>Cost</td>
<td>√</td>
</tr>
<tr>
<td>6.</td>
<td>Authentication (access options)</td>
<td>---</td>
</tr>
<tr>
<td>7.</td>
<td>User interface</td>
<td>---</td>
</tr>
<tr>
<td>8.</td>
<td>Functionality &amp; reliability</td>
<td>√</td>
</tr>
<tr>
<td>9.</td>
<td>Technical Feasibility</td>
<td>---</td>
</tr>
<tr>
<td>10.</td>
<td>Licensing policy</td>
<td>---</td>
</tr>
<tr>
<td>11.</td>
<td>Vendor Support services</td>
<td>√</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)

The above table 5.4 illustrates the criterions adopted by the libraries for picking appropriate online databases for their users. The librarians of DU, JNU, AMU and BHU libraries prefer to select online databases according to user’s need, quality of databases and functionality and reliability of the information sources. While, in the libraries of DU, AMU and BHU databases are selected on the basis of its subject coverage, authority or publisher and most important its cost, as it is an important issue in the selection process. The pricing structure for web products is different or a bit worse than the print journals, when a library stops to pay to publishers, then nothing is left to the library to display in their collection after such expenses for years (Holleman, 2000). So it is looked up on as a serious issue while making deals.

It is also important to verify access or agreement related to formalities while selecting online sources for the library such as; which of the publishers are provided
(number of journals) and how access to it is provided (access limitations). The criterion of authentication is adopted by JNU and BHU libraries for online database selection. Other criterions, like technical requirements and licensing policies are considered in AMU and BHU, while the option of licensing policies is also considered in JNU library. The least used criterions for selection include user interfaces and support services, which are considered in BHU library only, whereas, the option of support services is identified as important factor by the librarian of DU.

Thus, the responses reveals that the library of BHU adopts all the possible criterions for selecting online databases, which include; coverage of the database, authority/publisher, user's need, scope, quality, cost, authentication (access options), user interface, functionality and reliability, technical feasibility, licensing policy and vendor support services, however AMU makes use of criterions such as, authority/publisher, user's need, quality, cost, functionality & reliability, technical feasibility as well as licensing policy to develop its online database collection. For database selection, three major criterions are used, viz.; content decisions, cost and access (remote access, simultaneous users, access vs. ownership, interlibrary loan rights, license or contract, evaluation, interoperability) (Jeff Bell Library, 2006).

5.1.3. ACQUISITION

Acquisition involves various activities from purchasing to access of library materials to the users. Today electronic sources are on the priority of most needed resources of academics. It is suggested to give special attention to those electronic resources that cover the highly demanded subject areas. In addition to this, the acquired resources should match with the current needs of patrons and relevant for a major section of the user community (University of Maryland, 2012).

5.1.3.1. Acquisition of Online Databases

Today, academic libraries all over the world are providing a range of online services to their academic community. Amongst them, providing access to online databases is one of the most popular services, as these databases offer a range of different electronic resources such as e-journals, e-books and e-theses etc. During the last few decades, there has been tremendous growth in the electronic resources because of academic libraries have started to subscribe it. Now, libraries are spending a considerable amount of their budget on subscription of electronic resources (Janaki and Pauziaah, 2007).
Chapter 5  

Data Analysis  

Table 5.5: Acquisition of Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Categories</th>
<th>Libraries</th>
<th>DELHI</th>
<th>UP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>DU</td>
<td>JNU</td>
</tr>
<tr>
<td>1.</td>
<td>Through consortium</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>2.</td>
<td>Through subscription</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
</tbody>
</table>

The sources of acquisition of online databases are shown in table 5.5. The libraries of select universities procure online databases through both consortium and through direct subscription from vendors. Both the modes of acquisition are used in all the four surveyed libraries; DU, JNU, AMU and BHU of Delhi and UP, to acquire different national and international online databases. This result supports the findings of study conducted by Rajesh and Jindal (2009) found that DULS (Delhi University Library System) has acquired a number of databases from different sources. Naqvi (2012) and Buchanan (2008) identified that the transition from print to electronic sources, increasing demands of users and growing number of databases have influenced libraries to subscribe more and more e-resources according to its patron needs.

The data with regard to the total collection of online databases acquired through different sources in the select libraries has been given in figure 5.2.

Figure 5.2 clearly shows that DU and JNU are getting 23 and 22 databases respectively through UGC INFONET consortium, while both AMU and BHU have 23
and 19 online databases respectively acquired through UGC INFONET. According to Patil & Parmeshwar (2009), UGC- INFONET consortium is one of the most popular sources of getting access to major and prominent online sources to comply with user’s demands in universities.

Three out of four libraries, DU has 56 subscribed online databases followed by JNU (44), BHU (4) and AMU (1). It is clearly depicts form figure 5.2 that among the four libraries under study, DU has the largest collection of 79 online databases followed by JNU (66), BHU (24) and AMU (24).

5.1.3.2. Modes of Acquisition of Online Databases

Acquisition is the process of acquiring materials from different modes of acquisition for building the library collection. The advent of computer-based technology in academic libraries plays a vital role in facilitating the shift from ownership to access. Today, full-text online databases are available through different producers such as EBSCO, DIALOG and UMI. As users are becoming more and more familiar with electronic information resources, full-text online databases are also gaining popularity in academics (Bandyopadhyay, 1999).

Libraries access online databases mostly through publishers, aggregators, online systems and professional organizations/ association. The different modes of acquisition of online databases in select libraries have been shown in table 5.6.

**Table 5.6: Modes of Acquisition of Subscribed Online Databases**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Categories</th>
<th>Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DELHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DU</td>
</tr>
<tr>
<td>1.</td>
<td>Through publishers</td>
<td>√</td>
</tr>
<tr>
<td>2.</td>
<td>Through aggregators</td>
<td>√</td>
</tr>
<tr>
<td>3.</td>
<td>Professional organizations/assocation</td>
<td>---</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)

In response to the question regarding different modes of acquisition of subscribed online databases, the librarians of all the select libraries (DU, JNU, AMU and BHU) opined that they procured online databases mostly through Publishers. The libraries of DU, JNU and BHU get online databases through Aggregators also. Aggregators are one of the important content providers for libraries. They provide the products from a number of producers by packaging to facilitating searching across multiple databases. Nowadays, there are a number of aggregators working in the
online industry, the three major aggregators include; Hosting Aggregators (Ovid, SilverPlatter, Dialog), Gateways Aggregators (J-Gate, ISI, CSA, INSPEC, etc.) and Full-Text Aggregators (Ovid, OCLC, ProQuest, EBSCO) (Golnessa & Mostafa, n.d.). Whereas, some primary publishers, such as Elsevier Science and Academic Press have started to take the role of aggregator and to hold control over their content and its distribution (Case, 2001).

In JNU and BHU, central libraries are also acquired online databases through some Professional Organizations or Associations. There are number of profit and nonprofit organizations to globally involved in database production. In India, government agencies including National Informatics Centre (NIC), National Institute of Science Communication and Information Resources (NISCAIR, earlier was INSDOC) etc. (Roa, 2000), while JSTOR, Project Muse Journals and Royal Society of Chemistry etc. are some of the international societies/organizations that are working continuously in the field of database production.

5.1.3.3. Access to Online Databases to Users

Provision of information to users is the main function of a library. The electronic resources are growing in number and complexity, so libraries have to develop an effective and efficient access mechanism to browse, search and navigate digital resources to access them easily (Arora, 2002). Kumar, Roy & Satija (2011) stated that most of the universities are providing online access to databases either through their intranet or directly from the Web.

Nowadays, libraries are using different means and methods for providing access to their collection. The methods that are generally used in academics to provide access to online databases include access through IP authentication, by ID & password check and allowing users to access online sources remotely. The methods used by the libraries under study have been shown in table 5.7.

Table 5.7: Access to Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Methods</th>
<th>Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DELHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DU</td>
</tr>
<tr>
<td>1.</td>
<td>On campus IP authenticated</td>
<td>√</td>
</tr>
<tr>
<td>2.</td>
<td>On campus ID &amp; password</td>
<td>---</td>
</tr>
<tr>
<td>3.</td>
<td>Remote access</td>
<td>---</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)
The analysis of above table reveals that the methods of access used to provide online information sources to the users. The libraries of DU, AMU and BHU provide on campus IP authenticated access to online databases, while out of four libraries, only three libraries i.e. JNU, AMU and BHU allow on campus access facility through ID & password restricting access to online databases only to those users who have their Id & Password. According to Kumar, Roy and Satija (2011) most of the universities provide campus-wide access to databases through login and password, but there are many chances of misuse. Therefore, access to resources through IP address is identified as a more reliable method of access.

The provision of remote access affects and enhances the use of online databases, but this practice is not applied by many libraries, amongst the universities surveyed; only the JNU library is providing remote access. This allows their registered users to access library’s resources from anywhere in the world. According to Scherrer (2002) and Madhusudhan (2010), library statistics shows that less number of users is visiting the library, as more resources are now accessible through different online modes. The remote access to online catalogues and bibliographic databases has altered the pattern of use of resources, as users mostly like to use them from their desktops.

5.1.3.4. Provisions Being Adopted While Providing Access

Libraries are committed to provide access to all their online products and services available to the users. The libraries under study i.e., DU, JNU, AMU and BHU are using proxy servers to provide access to their online database collection to the registered users only. Proxy server as a gateway to information performs various functions such as: it is used to examine usage of the library’s electronic resources (Coombs, 2005), libraries implemented a proxy server to authenticate remote users (Herrera and Aldana, 2001) and it can also be used to obtain user information (Shim and McClure, 2002).

5.1.4. USAGE

Analysis of online database usage is essential for evaluating its use and services provided by the libraries. It helps libraries in developing a notable collection of online databases. Moreover, it facilitates libraries in taking corrective measures to improve their online database services.
5.1.4.1. Impact of Online Databases on Print Sources

The growth of electronic resources has an inverse effect on the use of print resources. The print resources nowadays are facing challenges from their electronic counterparts with the thriving growth of electronic publications by reshaping the mode of accessing and delivering of information in libraries (Bandyopadhyay and Chu, 1999). In this age of electronic media, librarians have immense pressure to discard print sources in order to be active towards the future and to stop collecting all the sources and respond only to those that are in demand (Holleman, 2000). Therefore, to identify the impact of online databases on print documents, respondents were asked to give information related to the impact and usage of these resources in their respective libraries.

Table 5.8: Impact of Online Databases on Print Sources

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Impact</th>
<th>Libraries</th>
<th>DELHI</th>
<th>UP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>DU</td>
<td>JNU</td>
</tr>
<tr>
<td>1.</td>
<td>Usage increased</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>2.</td>
<td>Usage decreased</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3.</td>
<td>No effect</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)

The above table 5.9 exhibits that all the select universities libraries i.e. DU, JNU, AMU and BHU, have witnessed decrease in the use of print sources. The study found that the implementation and use of online databases in the libraries under study have reduced the use of print sources.

Several studies have determined the impact of online sources on use of print collection and noticed the decline in usage of print sources with the initiation of online sources in libraries (De Groote, 2001; Rogers, 2001; Morse & Clintworth, 2000). Armstrong (2004) observed that the availability of library resources from remote sites is one of the reasons of decline in use of print sources. Tyagi (2012) stated that users did not like to come to the library as they have access to library materials from remote sites sometimes even from other countries. This makes the users to use more electronic resources than print sources.

5.1.4.2(a). Methods Used for Determining the Use of Online Databases

Maintaining usage record of online resources helps libraries in making informed and well-rounded selection related decisions. With the increasing growth of online databases, it has become necessary for libraries to keep usage statistics of
subscribed databases to assess the use of these databases. These usage counts help libraries to ensure that whether the databases are useful or not and in deciding to continue their subscription as per the cost effectiveness (Tenopir, 2001). Besides, providing supplementary data, usability measures also help librarians to determine whether students utilize existing electronic resources properly or are having some problem. Additionally, it provides enough information to librarians regarding cost analysis, expenditures, and usage trends (McMullen, Brennan, Burkhart and Wallace, 2006). In 1998, the ICOLC (International Coalition of Library Consortia) provided the guidelines for statistical measures to determine the use of web-based, indexed, abstracted and full-text resources. It recommended five essential elements that should be included in any vendor report including Queries/Searches, Menu selections, Sessions/Logins, Turnaways and Items. Methods used for determining the use of online databases in libraries under study are represented in Table 5.8.

Table 5.8: Methods for determining the use of Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Categories</th>
<th>Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DELHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DU</td>
</tr>
<tr>
<td>1.</td>
<td>Through Usage Statistics</td>
<td>√</td>
</tr>
<tr>
<td>2.</td>
<td>By Usage register</td>
<td>√</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)

The obtained data shows that, usage Statistics is one of the most used methods for determining the use of online resources. In DU, JNU, AMU and BHU, usage statistics is used to find out the use of online databases. It helps the librarians in identifying the level as well as frequency of use and to discover the major trends in the use of online resources. Lagier (2002) examined a combination of log files, monthly usage statistics, vendor reports to determine the use and usability of online databases.

However, usage register is another means of recording the use of library resources. In the library of DU, usage of online databases is also determined by the usage Register used to record the particulars of online databases. It also helps in determining the most used online resources by using various parameters for gauging their use.

5.1.4.2(b). Usage Trends of Online Databases in Select Universities

Analysis of the usage of online databases based on the usage statistics of 2013 and 2014 received from the respective libraries of JNU, AMU and BHU. As, the
survey was carried out during the period of 2013-2014, therefore, the investigator analyzed the usage statistics of these two years to defend the data collected during the survey. For collecting data discipline wise in the Social Sciences and Arts, the usage of online databases subscribed under UGC INFONET consortium was used. The investigator has requested the concerned authorities of the select universities, i.e., DU, JNU, AMU and BHU and to provide the usage statistics of the online database that is maintained by the consortium. The investigator got all the detailed data from 2013 to 2014, but DU authorities were not able to provide it inspite of many reminders and personal correspondence. Therefore, the investigator was not able to make use of the usage statistics of online databases provided by the UGC INFONET consortium for DU.

However, the surveyed libraries are acquiring an adequate number of online databases, but the investigator, for identifying usage trends and to make a comparative study among the libraries selected only those online databases that fell into the scope of Social Sciences and Arts. In addition to this, the selected online databases are not discipline specific or subject specific databases, on the contrary all these are interdisciplinary or multidisciplinary in nature.

As it is already stated that there is no usage statistics available particularly for assessing the use of online databases in the disciplines of the Social Sciences and Arts, the investigator calculated the average use of each online databases identified for the study in the faculties of the Social Sciences and Arts in the universities under study. The usage statistics of online databases received from JNU, AMU and BHU have been analyzed and discussed below:

(i) Analysis of the Usage Trends of Online Databases in JNU

The usage of UGC consortium’s online databases amongst the users in the faculties of the Social Sciences and Arts is presented in table 5.9(a). In 2013, JSTOR was the most used online database with 54.71% downloads; Science Direct recorded 24.47% usage followed by Wiley-Blackwell with 6.35% use among the users of the faculties of the in Social Sciences and Arts. Annual Reviews with 0.59% rated as least used online database.
Table 5.9 (a): Usage Trends of Online Databases in JNU

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Online Databases</th>
<th>Total Downloads 2013</th>
<th>Average Use (%)</th>
<th>Total Downloads 2014</th>
<th>Average Use (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Annual Reviews</td>
<td>5213</td>
<td>0.59</td>
<td>5540</td>
<td>0.56</td>
</tr>
<tr>
<td>2.</td>
<td>Cambridge University Press</td>
<td>11330</td>
<td>1.29</td>
<td>9128</td>
<td>0.92</td>
</tr>
<tr>
<td>3.</td>
<td>JSTOR</td>
<td>479948</td>
<td>54.71</td>
<td>487810</td>
<td>49.1</td>
</tr>
<tr>
<td>4.</td>
<td>Oxford University Press</td>
<td>30246</td>
<td>3.45</td>
<td>32898</td>
<td>3.31</td>
</tr>
<tr>
<td>5.</td>
<td>Project Muse</td>
<td>22714</td>
<td>2.59</td>
<td>20991</td>
<td>2.11</td>
</tr>
<tr>
<td>6.</td>
<td>ScienceDirect</td>
<td>214689</td>
<td>24.47</td>
<td>303900</td>
<td>30.59</td>
</tr>
<tr>
<td>7.</td>
<td>Taylor &amp; Francis</td>
<td>55358</td>
<td>6.31</td>
<td>66387</td>
<td>6.68</td>
</tr>
<tr>
<td>8.</td>
<td>Wiley-Blackwell</td>
<td>55673</td>
<td>6.35</td>
<td>66861</td>
<td>6.73</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>875171</td>
<td>-</td>
<td>993515</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: UGC-INFONET usage statistics (2013, 2014)

The same trend was seen in the year of 2014, where JSTOR was ranked with the highest percentage of 49.1%, subsequently ScienceDirect had 30.59% usage and Wiley-Blackwell was 6.73% of usage among the users in the Social Sciences and Arts. Annual Reviews was least preferred online database with 0.56% in JNU.

It is concluded from the data analyzed in the above table relating to the usage statistics shows that usage of JSTOR is highest with 54.71% in 2013 and 49.1% in 2014 respectively, amongst the available online databases. In both the years, Annual Reviews was recorded as the least used online databases in the faculties of the Social Sciences and Arts.

(ii) Analysis of the Usage Trends of Online Databases in AMU

Table 5.9 (b) shows the total download and the average use percentage of online databases from 2013 to 2014.

The data for the year 2013 shows that, maximum usage i.e. 57.75% recorded by the ScienceDirect, followed by JSTOR, scored 12% and Wiley Blackwell had 11.11% usage in Social Sciences and Arts. Annual Reviews had the minimum usage with 0.64 % in AMU.
Table 5.9 (b): Usage Trends of Online Databases in AMU

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Online Databases</th>
<th>Total Downloads 2013</th>
<th>Average Use (%)</th>
<th>Total Downloads 2014</th>
<th>Average Use (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Annual Reviews</td>
<td>1880</td>
<td>0.64</td>
<td>1562</td>
<td>0.48</td>
</tr>
<tr>
<td>2.</td>
<td>Cambridge University Press</td>
<td>2036</td>
<td>0.69</td>
<td>2063</td>
<td>0.64</td>
</tr>
<tr>
<td>3.</td>
<td>Emerald</td>
<td>9428</td>
<td>3.19</td>
<td>7748</td>
<td>2.4</td>
</tr>
<tr>
<td>4.</td>
<td>JSTOR</td>
<td>35402</td>
<td>12</td>
<td>40430</td>
<td>12.53</td>
</tr>
<tr>
<td>5.</td>
<td>Oxford University Press</td>
<td>14217</td>
<td>4.82</td>
<td>16241</td>
<td>5.03</td>
</tr>
<tr>
<td>6.</td>
<td>Project Muse</td>
<td>2249</td>
<td>0.76</td>
<td>858</td>
<td>0.27</td>
</tr>
<tr>
<td>7.</td>
<td>ScienceDirect</td>
<td>170397</td>
<td>57.75</td>
<td>188845</td>
<td>58.55</td>
</tr>
<tr>
<td>8.</td>
<td>Taylor &amp; Francis</td>
<td>21025</td>
<td>7.125</td>
<td>23072</td>
<td>7.154</td>
</tr>
<tr>
<td>9.</td>
<td>Web of Science</td>
<td>3626</td>
<td>1.23</td>
<td>7389</td>
<td>2.29</td>
</tr>
<tr>
<td>10.</td>
<td>Wiley-Blackwell</td>
<td>32790</td>
<td>11.11</td>
<td>34311</td>
<td>10.64</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>295063</strong></td>
<td></td>
<td><strong>322519</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


The data in the table 5.9 (b) shows that in the year 2014 the ScienceDirect had maximum usage with 58.55% in the Social Sciences and Arts, followed by JSTOR (12.53%) and Wiley-Blackwell was the third most used online database with 10.64%, while the database Project Muse recorded minimum usage with 0.27% in the subjects included in the online databases having the scope of Social Sciences and Arts.

It is clear from the above table, that in the consecutive year 2013 and 2014, ScienceDirect recorded the highest usage with 57.75% and 58.55% download respectively, whereas Annual Reviews with least usage marked (0.64%) in 2013 and Project Muse was used with 0.27% in 2014.

(iii) Analysis of the Usage Trends of Online Databases in BHU

Table 5.9 (c) shows the usage of online databases for the year 2013 and 2014. The data for the year 2013, shows that out of all the online databases available in BHU through UGC consortia, ScienceDirect was highly accessed with 79.6% by the users in Social Sciences and Arts, JSTOR usage recorded 7.96% and Taylor & Francis had 5.37% downloads. However, minimum usage was recorded for Project Muse (0.43%) in the faculties of Social Sciences and Arts.
### Table 5.9 (c): Usage Trends of Online Databases in BHU

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Online Databases</th>
<th>Total Downloads 2013</th>
<th>Average Use (%)</th>
<th>Total Downloads 2014</th>
<th>Average Use (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Annual Reviews</td>
<td>7897</td>
<td>1.02</td>
<td>6520</td>
<td>0.67</td>
</tr>
<tr>
<td>2.</td>
<td>Cambridge University Press</td>
<td>5376</td>
<td>0.69</td>
<td>3757</td>
<td>0.38</td>
</tr>
<tr>
<td>3.</td>
<td>Emerald</td>
<td>6621</td>
<td>0.86</td>
<td>7938</td>
<td>0.81</td>
</tr>
<tr>
<td>4.</td>
<td>JSTOR</td>
<td>61575</td>
<td>7.96</td>
<td>58437</td>
<td>5.98</td>
</tr>
<tr>
<td>5.</td>
<td>Oxford University Press</td>
<td>29385</td>
<td>3.8</td>
<td>23855</td>
<td>2.44</td>
</tr>
<tr>
<td>6.</td>
<td>Project Muse</td>
<td>3300</td>
<td>0.43</td>
<td>3513</td>
<td>0.36</td>
</tr>
<tr>
<td>7.</td>
<td>ScienceDirect</td>
<td>615554</td>
<td>79.6</td>
<td>739188</td>
<td>75.66</td>
</tr>
<tr>
<td>8.</td>
<td>Taylor &amp; Francis</td>
<td>41552</td>
<td>5.37</td>
<td>35714</td>
<td>3.656</td>
</tr>
<tr>
<td>9.</td>
<td>Wiley-Blackwell</td>
<td>95946</td>
<td></td>
<td>97999</td>
<td>10.03</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>867206</strong></td>
<td></td>
<td><strong>976921</strong></td>
<td></td>
</tr>
</tbody>
</table>


The table shows that in 2014, ScienceDirect had the highest usage with 75.66% was found to be the most used database among the users in the faculties of Arts and Social Sciences, followed by Wiley-Blackwell (10.03%) and JSTOR with 5.98% usage was the third most used online database in BHU. Project Muse had 0.36% usage, thus was considered as the least used online database among the users of the Social Sciences and Arts in BHU.

Overall analysis of the usage statistics reveals that ScienceDirect was found to be among the highly used online databases in 2013 and 2014, while as Project Muse recorded minimum usage in both the years, i.e., in 2013 and 2014 respectively.

**Comparative Usage Trends of Online Databases in JNU, AMU and BHU**

The usage data collected regarding the use of online databases in the three select central universities to analyze changes and trends in the pattern of use of online databases and to assess the preferences of users has been given in table 5.9 (d). It also helped to identify the collection and usage trends of online databases acquired through UGC-INFONET consortium in central universities of Delhi and UP.
Table 5.9 (d): Comparison Usage Trends of Online Databases in JNU, AMU and BHU

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Online Databases</th>
<th>Average Use (%) of Online Databases</th>
<th>JNU</th>
<th>AMU</th>
<th>BHU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Annual Reviews</td>
<td></td>
<td>0.59</td>
<td>0.56</td>
<td>0.64</td>
</tr>
<tr>
<td>2.</td>
<td>Cambridge University Press</td>
<td></td>
<td>1.29</td>
<td>0.92</td>
<td>0.69</td>
</tr>
<tr>
<td>3.</td>
<td>Emerald</td>
<td></td>
<td>-</td>
<td>-</td>
<td>3.19</td>
</tr>
<tr>
<td>4.</td>
<td>JSTOR</td>
<td></td>
<td>54.71</td>
<td>49.1</td>
<td>12</td>
</tr>
<tr>
<td>5.</td>
<td>Oxford University Press</td>
<td></td>
<td>3.45</td>
<td>3.31</td>
<td>4.82</td>
</tr>
<tr>
<td>6.</td>
<td>Project Muse</td>
<td></td>
<td>2.59</td>
<td>2.11</td>
<td>0.76</td>
</tr>
<tr>
<td>7.</td>
<td>ScienceDirect</td>
<td></td>
<td>24.47</td>
<td>30.59</td>
<td>57.75</td>
</tr>
<tr>
<td>8.</td>
<td>Taylor and Francis</td>
<td></td>
<td>6.31</td>
<td>6.68</td>
<td>7.125</td>
</tr>
<tr>
<td>9.</td>
<td>Web of Science</td>
<td></td>
<td>-</td>
<td>-</td>
<td>1.23</td>
</tr>
<tr>
<td>10.</td>
<td>Wiley-Blackwell</td>
<td></td>
<td>6.35</td>
<td>6.73</td>
<td>11.11</td>
</tr>
</tbody>
</table>


The table 5.9 (d) shows the comparative study of usage statistics of online databases acquired through the UGC Infonet consortium by the universities of JNU, AMU and BHU. The analysis reveals that, in the years 2013 and 2014, JSTOR was the most used online database in the faculties of Social Sciences and Arts in JNU. However, ScienceDirect was highly used by the users in AMU in 2013 and 2014. The same pattern of usage was seen in BHU, where ScienceDirect had maximum usage of the online databases. Annual Reviews was found to be among the less used online databases in JNU, while, Annual Reviews and Project Muse had comparatively less usage in AMU for the years 2013 and 2014 respectively. In the years of 2013 and 2014, Project Muse was least used online database in BHU.

5.1.5. PROBLEMS

Problems reflect the need for corrective measures that libraries have to take to improve their services. Tenopir, Hitchcock and Pillow (2003) identified that a number of problems were encountered while using electronic databases. Problem recognition gives a chance to a library to rectify its existing online services. The different types of problems faced by the librarians while subscribing and providing access to online databases are discussed in the following sections:

5.1.5.1. Problem(s) Faced While Subscribing to Online Databases

The problems encountered by the libraries while subscribing to online databases are mentioned in table 5.10.
### Table 5.10: Problem(s) Faced while Subscribing Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Problems</th>
<th>Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DELHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DU</td>
</tr>
<tr>
<td>1.</td>
<td>Back issues &amp; Archiving</td>
<td>√</td>
</tr>
<tr>
<td>2.</td>
<td>Pricing</td>
<td>√</td>
</tr>
<tr>
<td>3.</td>
<td>Licensing</td>
<td>√</td>
</tr>
<tr>
<td>4.</td>
<td>Journal title deletion/ modification</td>
<td>---</td>
</tr>
<tr>
<td>5.</td>
<td>Renewals</td>
<td>---</td>
</tr>
<tr>
<td>6.</td>
<td>Lack of value added Services</td>
<td>---</td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td>---</td>
</tr>
<tr>
<td>8.</td>
<td>No problem</td>
<td>---</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)

Librarians from DU, AMU and BHU mostly encountered problems relating to Pricing and licensing issues. In this regard, Armstrong, Croft, Kok, Lener (2003) stated that licensing policies are restricted by site, limiting the access to on-campus use or as narrowly as the library building itself. While, a few licensing policies limited the use by patron types. According to Brach (2001), license agreements include policies related to pricing and number of users and sites. In addition, the licensing agreements also created difficulties to libraries in providing free public use of library materials.

As indicated in the above table 5.10, problems related to Back issues and Archiving are considered as other major issues faced by the librarians of DU and AMU libraries. Lack of value added services is also considered an issue while subscribing the online databases, pointed out by the AMU’s librarian only. However, Deletion or modification of Journal Titles and Renewals of the titles are some of important areas of consideration, but none of the select libraries faced any problem related to these areas. However, the librarian of JNU mentioned that they do not face any problem while subscribing online databases. Thus, it is analysed that, except three or four common problems, the librarians of select libraries are not confronted with any critical issue while subscribing to online databases.

#### 5.1.5.2. Problems Relating to Access to Online Databases

Information technologies have changed the role and responsibilities of library professionals, but side by side, they are facing many problems related to IT infrastructure. The responses regarding the problems faced by the librarians are rendered in the following table 5.11.
In the collection development of online resources many challenges are involved such as budget, policy, personnel and technology (Fombad and Mutula, 2003). Table 5.11 shows the major problems faced by the respondents of the select universities except JNU include: Networking related problems, Insufficient collection, Inadequate library resources (equipments), Lack of skilled/trained IT personnel and Technical problems were faced by the library staff of DU, AMU and BHU while providing access to online databases. According to Collard and Whatley (2010) “technical problems are not related to the actual functioning of a database, but these mainly relate with the problems caused by proxy server, URL resolver, browser as well as by vendors”.

In the present study, financial problems are reported as another common problem faced by the librarians of AMU and BHU. In a study, Fombad and Mutula (2003) observed financial problems in the University of Botswana Library (UBL) and noticed the impact of fluctuation in budget on library services and how it cut down its acquisition cost (Brach, 2001).

The above analysis shows that JNU library is very proficient in providing online database services, therefore, its staff did not encounter with any difficulty while providing access to online databases to its users.

### 5.1.6. FACILITIES

#### 5.1.6.1. Facilities Provided for Proper Exploitation of Online Databases

Today libraries are providing different facilities for proper utilization of their online sources and services. The respondents were asked about the facilities provided

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Difficulties</th>
<th>Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DELHI</td>
</tr>
<tr>
<td>1.</td>
<td>Networking problem</td>
<td>√</td>
</tr>
<tr>
<td>2.</td>
<td>Insufficient collection</td>
<td>√</td>
</tr>
<tr>
<td>3.</td>
<td>Inadequate library resources (Equipments)</td>
<td>√</td>
</tr>
<tr>
<td>4.</td>
<td>Lack of Skilled/Trained IT personnel</td>
<td>√</td>
</tr>
<tr>
<td>5.</td>
<td>Technical (System errors)</td>
<td>√</td>
</tr>
<tr>
<td>6.</td>
<td>Financial constraint</td>
<td>---</td>
</tr>
<tr>
<td>7.</td>
<td>Licensing</td>
<td>---</td>
</tr>
<tr>
<td>9.</td>
<td>No problem</td>
<td>---</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)
to their users for proper exploitation of online databases. The responses are presented in table 5.12.

**Table 5.12: Facilities Provided for Proper Exploitation of Online Databases**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Facilities</th>
<th>Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>DELHI</strong></td>
</tr>
<tr>
<td>1.</td>
<td>Computer Lab</td>
<td>√</td>
</tr>
<tr>
<td>2.</td>
<td>Adequate number of computers/ Kiosks</td>
<td>√</td>
</tr>
<tr>
<td>3.</td>
<td>Audio visual devices</td>
<td>---</td>
</tr>
<tr>
<td>4.</td>
<td>24x7 access (Wi-Fi)</td>
<td>√</td>
</tr>
<tr>
<td>5.</td>
<td>Ask a librarian/Virtual reference service</td>
<td>√</td>
</tr>
<tr>
<td>6.</td>
<td>Online tutorial</td>
<td>√</td>
</tr>
<tr>
<td>7.</td>
<td>Trial Access</td>
<td>√</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)

The libraries of AMU, BHU, DU and JNU provide access to online databases through Computer lab. In addition to this, all the four libraries under study provide adequate number of Computers/ Kiosks and 24x7 access to online databases through Wi-Fi to their users. The data analyzed in the table also shows that the libraries of AMU and JNU are providing Audio Visual devices to theirs users to enjoy and use all the features of online databases.

The libraries of DU, JNU and BHU allow users to make queries, give suggestion and file their complaints through the services of Ask a librarian/Virtual reference service. In Monash University library, virtual librarian, a virtual information literacy service is providing to help users in choosing or using an appropriate library database (Hoggard, Hoppley, Groenwegen, Horne, Smith & Leighfield, n.d.). The libraries of DU, JNU and AMU provide trial access to some databases to users.

By recognizing the benefits and impact of online tutorials on database usage, Soyizwapi (2005) suggested for online tutorials to assist users in using available electronic database. The data analyzed explores that, the library of DU is the only library amongst the select libraries under study that provides the facility of online tutorial to educate their users about the proper use of online databases.

**5.1.6.2. Method(s) used to Alert/ Update the users about Online Database Services**

Many libraries are providing alert or update services to keep their users informed about the current sources and services. Alerts are used for publicising and
promoting the library products and services in a timely and efficient manner. It allows libraries to inform their users and draw attention towards the resources. Rehman and Ramzy (2004) stated that there are several kinds of alerts that libraries use to update their users about the available electronic resources, which includes newsletters, circulars, orientation programmes, library guide, email, monthly reports and notifications through library websites. The alerts used by the libraries under study are given in the following table 5.13.

**Table 5.13: Method(s) Used to Alert/Update the Users about Online Database Services**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Categories</th>
<th>Libraries</th>
<th>DELHI</th>
<th>UP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>DU</td>
<td>JNU</td>
</tr>
<tr>
<td>1.</td>
<td>Library website</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2.</td>
<td>University web page news/ updates</td>
<td></td>
<td>---</td>
<td>✓</td>
</tr>
<tr>
<td>3.</td>
<td>E-mails</td>
<td></td>
<td>---</td>
<td>✓</td>
</tr>
<tr>
<td>4.</td>
<td>Notifications/circulations</td>
<td></td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>5.</td>
<td>University magazine/newsletter</td>
<td></td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)

Amongst the alert services mentioned in table 5.13, library website is the most popular medium used to alert the users and to get general information about the library. The libraries of DU, JNU, AMU and BHU update their users through providing information on their library websites. This finding relates with the TERI University Library (2015), where blogs, forthcoming events, daily news, recent additions, web articles used to familiarize their users with the latest sources and services.

University magazine/Newsletter is recognised as an important source to get information about university events and functioning, but it was not considered as a viable medium by any library under study for promoting their sources and services. In JNU and AMU libraries, University Web Page News/ Updates and E-mails are used to keep the users update about their newly added sources and services. According to Giles and Crossno (2000), E-mail is used as a source to alert users, as it is inexpensive in cost, provides ease in distribution and delivers information directly to users. Moreover, it is an effective mean to strengthen library loyalty and to encourage user feedback.

Libraries generally provide electronic or print notifications regarding their newly arrived resources to users. Notifications or Circulars are used in the library of
AMU only to inform the users about available online database collections or services. In this regard, Punchihewa and Jayasuriya (2008) found that promotional activities helped libraries to publicize their online resources, therefore, Majid and Tan (2002) suggested a promotional campaign for introducing electronic information sources to library users.

5.1.7. SUPPORT SERVICES

5.1.7.1. Support Services Provided by Online Database Service Providers

Database providers provide a range of support services to enable their customer to fully utilize the benefits and services of their products. These support services are provided by the providers as part of their services. However, the services vary from vendor to vendor, but some basic services are common in all the databases. In order to find out various support services provided by online database service providers to the select libraries under study, the respondents were asked to choose from the seven options listed in the questionnaire i.e. tutorials, product customization, help desk, FAQ, user manual/promotional material, feedback, trial evaluation/product demonstration and technical/customer support. The analysis of the responses received from the librarians of select libraries under study is given in table 5.14.

Table 5.14: Support Services Provided by Online Database Service Providers

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Support Services</th>
<th>Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DELHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DU</td>
</tr>
<tr>
<td>1.</td>
<td>Manuals / Tutorials</td>
<td>√</td>
</tr>
<tr>
<td>2.</td>
<td>Product customization</td>
<td>---</td>
</tr>
<tr>
<td>3.</td>
<td>Feedback</td>
<td>---</td>
</tr>
<tr>
<td>4.</td>
<td>Trial evaluation/ Promotional materials</td>
<td>√</td>
</tr>
<tr>
<td>5.</td>
<td>Technical /customer support</td>
<td>√</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)

The above table depicts that, Tutorials or Manuals are provided by the database providers in libraries of DU, JNU, AMU and BHU, to enable them to make better use of the online databases. However, database producers offer Trial evaluation/ Promotional materials and Technical/ customer support in DU, JNU and AMU libraries. While looking for other services, it is found that product customization is provided in BHU library only. While, database providers provide its feedback service to AMU library only.
### 5.1.8. SATISFACTION AND TRAINING

#### 5.1.8.1. Factor(s) Responsible for less or Unsatisfactory use of Online Databases

Libraries are continuously striving for providing smooth and uninterrupted online database services to their users. But there are many factors that are found to be responsible for causing less or unsatisfactory use of databases in libraries. The respondents were asked to reveal the factors that they find responsible for low usage of online databases in their libraries.

**Table 5.15: Factor(s) Responsible for less or Unsatisfactory use of Online Databases**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Categories</th>
<th>Libraries</th>
<th>DELHI</th>
<th>UP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>DU</td>
<td>JNU</td>
</tr>
<tr>
<td>1.</td>
<td>More dependence on print sources</td>
<td></td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>2.</td>
<td>Lack of awareness among users</td>
<td></td>
<td>---</td>
<td>√</td>
</tr>
<tr>
<td>3.</td>
<td>Lack of proper planning in providing services</td>
<td></td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>4.</td>
<td>Lack of IT skills/expertise</td>
<td></td>
<td>√</td>
<td>---</td>
</tr>
<tr>
<td>5.</td>
<td>Lack of interest in online sources</td>
<td></td>
<td>√</td>
<td>---</td>
</tr>
<tr>
<td>6.</td>
<td>Lack of orientation programme</td>
<td></td>
<td>---</td>
<td>√</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)

Data in table 5.15 indicates a wide range of factors identified by the librarians that leads to less use of online databases. The librarians of JNU, AMU and BHU libraries mentioned that lack of awareness is the common factor responsible for less use of online databases. In a study, Dadzie (2005) identified lack of awareness of electronic resources as one of the possible reasons for less use of online databases in libraries.

IT skills mainly include basic knowledge of computers, electronic communication skills and Internet skills. However, in the libraries of DU, AMU and BHU, lack of IT Skills/Expertise among users is found to be a reason for low usage of online databases. The data analyzed revealed that Lack of interest in online sources among the users caused less use of online databases in the libraries of DU and BHU while, lack of orientation programme has caused less usage of these resources in JNU and AMU. In this regard, Gash (1989) stated that the lack of basic IT skills would have an adverse effect on students’ ability to use the libraries electronic databases. He suggested that a user should have an expertise in online searches as to perform searches quickly with a higher rate of retrieval.
More Dependence on Print Sources and Lack of Proper Planning in providing services are other factors cited by the librarians of AMU only, which are found to be responsible for unsatisfactory use of online database. This result supports the findings of a study conducted by Miyanda (2011) which analyzed the same factors for unsatisfactory use of online databases including, lack of encouragement and proper guidance, lack of effective internet searching skills amongst students and lack of awareness about available electronic information resources (EIRs) etc.

5.1.8.2. Training/Orientation Programs Organized for Library Staff and Users

The purpose of training programmes is to make users well versed in using library sources and services. Therefore, libraries should organize training programmes to enable their users or staff to make best use of available online resources and services. The respondents were asked whether they have organized any training/orientation programs for their users or staff to make them efficient in using online databases. The analysis of the responses received from librarians of four select university libraries is shown in given in table 5.16.

Table 5.16: Training/Orientation Programs Organized for Library Staff and Users

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Libraries</th>
<th>Categories</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Staff</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>1.</td>
<td>DU</td>
<td>√</td>
<td>---</td>
<td>----</td>
</tr>
<tr>
<td>2.</td>
<td>JNU</td>
<td>√</td>
<td>---</td>
<td>----</td>
</tr>
<tr>
<td>3.</td>
<td>AMU</td>
<td>---</td>
<td>√</td>
<td>---</td>
</tr>
<tr>
<td>4.</td>
<td>BHU</td>
<td>√</td>
<td>---</td>
<td>√</td>
</tr>
</tbody>
</table>

The data from the above table shows that the libraries of DU, JNU and BHU are regularly organizing different types of training and orientation programmes for their staff and users to fully exploit the benefits of online databases. Adeleke and Olorunsola (2010) recognized the need to provide retraining to library professionals in computer literacy so that they can use these skills in their jobs and to educate their users.

However, the library of AMU is performing well in providing access to various online sources and services, but it does not organize any training programme either for staff or for users for better use of online databases. Emphasising the importance of training, Junni (2007) stated that those who have received some formal training in information seeking have obtained better results with more sources than
those who have not received any training. In this regard Majid and Mansoor (1996) suggested for organizing some bibliographic instruction programmes relating to the use of new electronic resources.

5.1.8.3. Training/Orientation Programmes Organized for Library Staff and Users

Training programmes help staff and users to enrich their knowledge regarding library sources and services. It helps users to know more about the organization and use of information. Libraries usually organise a variety of training programmes for users for effective use and management of online information resources, these may include Orientation Programmes, Demonstrations, Training/ Workshops and Literacy Programmes. The Library Orientation Programmes offer users an introduction to the library's resources and services and also provide information on study skills that help them in using library resources. Most of the databases vendors provide demos of their product to publicize and enhance the use of these resources. During training, libraries should provide instructions that will help to improve users’ competencies of using the library resources as well as online searching of the databases. The respondents were asked to list the type of training/orientation programmes organized for their staff and users.

Table 5.17: Training/Orientation Programmes Organized for Library Staff and Users

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Type of training/Orientation programmes</th>
<th>Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DELHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DU</td>
</tr>
<tr>
<td>1.</td>
<td>Library Orientation programmes</td>
<td>√</td>
</tr>
<tr>
<td>2.</td>
<td>Publishers/ commercial vendors demo</td>
<td>---</td>
</tr>
<tr>
<td>3.</td>
<td>Training/ workshops</td>
<td>√</td>
</tr>
<tr>
<td>4.</td>
<td>Information literacy programmes</td>
<td>√</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)

The analysis of responses received shows that the libraries of DU, JNU and BHU regularly organise Library Orientation programmes and Training/Workshops for their staff and users (table 5.17). In a study conducted by Othman and Junurham (2014), many respondents affirmed that the lack of training and lack of practice affect their search results in online databases.
Rehman and Ramzy (2004) found that a large number of users preferred training by librarians and use of documentation as an effective mode of learning. The Demonstration of online resources through Publishers/ Commercial Vendors is conducted in BHU and JNU libraries.

Training/ workshops were organized by the libraries of DU, JNU and BHU. The libraries of DU, JNU and AMU organized different types of Information Literacy Programmes to educate their staff and users about the benefits and use of online resources. Thus, the academic Librarians have major role in sharpening students’ information seeking and critical-thinking skills by providing instruction or training students to learn how to use information resources (Head, 2008).

5.2. ANALYSIS AND INTERPRETATION OF RESPONSES RECEIVED FROM USERS

This part of analysis covers the responses received from the users of the faculties of Social Sciences and Arts of DU, JNU AMU and BHU, about the use of online databases through different parameters, such as awareness, frequency, purpose, access modes and means, facilities and preferences, etc. An effort has been taken to analyze the use of different online databases available in the libraries under study. Further it identifies the issues and satisfaction regarding the usage of online databases in the select universities of Delhi and UP.

5.2.1. AWARENESS

5.2.1.1. Awareness of Online Databases

Awareness of online databases has direct impact on its usage, as higher the awareness among the users, the higher will be the usage of online databases. In this context, the data obtained in table 5.18 reveals that 90.91% faculty members, 62.92% research scholars and 26.74% postgraduates were extremely aware of available online databases in DU. While, JNU had a higher awareness rate with 100% faculty members, 75.63% research scholars and 57.14% postgraduates aware of online databases. While, 50% faculty members, 41.24% research scholars and 15.86% of postgraduates, in AMU were extremely aware of online databases. In comparison, 44.44% faculty members, 33.33% research scholars and 11.44% postgraduates in BHU were extremely aware of online databases.
### Table 5.18: Awareness about Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Level of Awareness</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>UP</th>
<th>BHU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Extremely aware</td>
<td>30 (90.91)</td>
<td>112 (62.92)</td>
<td>146 (26.74)</td>
<td>288 (38.04)</td>
<td>24 (100)</td>
</tr>
<tr>
<td>2.</td>
<td>Neutral</td>
<td>30 (16.85)</td>
<td>198 (36.26)</td>
<td>228 (30.19)</td>
<td>78 (21.25)</td>
<td>3 (11.54)</td>
</tr>
<tr>
<td>3.</td>
<td>Slightly aware</td>
<td>3 (9.09)</td>
<td>36 (20.22)</td>
<td>202 (37)</td>
<td>241 (31.83)</td>
<td>11 (4.62)</td>
</tr>
</tbody>
</table>

FM: Faculty members, RS: Research Scholars, PG: Post Graduate Students (Figures within parenthesis are percentage)

(Multiple responses were permitted)
However, 16.85% research scholars and 36.26% postgraduates opined that they were not sure about the level to which they were aware of online databases, but none of the faculty members marked themselves as neutral showing that the faculty members were aware about status regarding of online databases in DU. In JNU, a least number of respondents; 19.75% research scholars and 29.52% postgraduates reported their level of awareness as neutral, whereas, in AMU 11.54% faculty members, 15.46% research scholars and 27.59% postgraduates were not able to express their awareness level regarding the online databases, therefore they had rated that their awareness level was neutral. In BHU, 16.67% faculty members, 36.11% research scholars and 27.45% postgraduates rated their awareness as neutral regarding online databases.

The above table depicts that most of the users in DU, i.e. 37% postgraduates, 20.22% research scholars and 9.09% faculty members were slightly aware of available online databases. On the other hand, only a few users in JNU were found to be less aware of online databases, as 4.62% research scholars and 13.33% postgraduates, indicated that the majority of respondents in JNU were having good knowledge of online databases and utilized it more than the other select universities. In AMU, 56.55% postgraduates, 38.46% faculty members and 43.29% research scholars are slightly aware of online databases, while 61.11% postgraduates, 38.89% faculty members and 30.55% research scholars in BHU said that they are slightly aware of online databases.

The obtained data reveal that in DU, 38.04% of users were found to be extremely aware with online databases, 31.83% were slightly aware and 30.19% were neutral about their awareness of online databases, whereas in JNU, the situation was totally different where most of the users i.e. 71.93% were extremely aware, 21.25% neutral and only 6.81% were slightly aware about the online databases. As expectedly most of the users in AMU (50%) were slightly aware about online databases followed by extremely aware (28.35%) and neutral (21.64%), while in BHU mostly the users were slightly aware(50.41%), neutral(29.22%) and extremely aware (20.37%).
Although, the collection of online databases is rich in DU but users of JNU were highly aware of online databases in comparison to other universities, as the promotional services provided by its respective library is far better than rest of the surveyed libraries. As seen in figure 5.3 that the users of JNU (71.93%) were more aware, followed by DU (38.04%), AMU (28.35%) and BHU (20.37%). The situation is totally reverse in case of less awareness, where BHU’s users were rated higher at 50.41% as most of the respondents were less aware of online databases followed by AMU (50%), DU (31.83%) and JNU (6.81%). The comparative analysis of the users in the four universities brings the fact that although online databases are being subscribed by all the libraries, the level of awareness is found to be less in the universities of UP (AMU and BHU). So, the need for organizing orientation programmes by the libraries to make the users more aware of online databases is required. In a study, Soyizwapi (2005) also recommended the need for organizing awareness and different educational programmes to enhance users’ awareness and knowledge about databases.

5.2.1.2. Ways to Locate Information about Online Databases

There are various sources through which the users get acquainted with online databases, such as library website, teachers, friends and internet. Data collected regarding the above issue as shown in table 5.19, reveals that in DU and JNU, a higher percentage of postgraduates i.e. 59.71% and 60.95% respectively followed by 58.99% research scholars in DU and 33.19% research scholars in JNU got information on online databases from their teachers.
### Table 5.19: Ways to Locate Information about Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Source of information</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>UP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Teachers</td>
<td>105 (58.99)</td>
<td>326 (59.71)</td>
<td>431 (56.94)</td>
<td>- (33.19)</td>
</tr>
<tr>
<td>2.</td>
<td>Friends/colleagues</td>
<td>12 (36.36)</td>
<td>98 (55.06)</td>
<td>280 (51.29)</td>
<td>390 (51.52)</td>
</tr>
<tr>
<td>3.</td>
<td>Trial &amp; error</td>
<td>10 (30.30)</td>
<td>47 (26.40)</td>
<td>167 (30.59)</td>
<td>224 (29.59)</td>
</tr>
<tr>
<td>4.</td>
<td>Library orientation Programme</td>
<td>14 (42.42)</td>
<td>50 (28.09)</td>
<td>102 (18.68)</td>
<td>166 (21.93)</td>
</tr>
<tr>
<td>5.</td>
<td>Library website</td>
<td>26 (78.79)</td>
<td>92 (51.69)</td>
<td>211 (38.64)</td>
<td>329 (43.46)</td>
</tr>
<tr>
<td>6.</td>
<td>Internet search</td>
<td>16 (48.48)</td>
<td>130 (73.03)</td>
<td>306 (56.04)</td>
<td>452 (59.71)</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted) (Figures within parenthesis are percentage)
While, a significant percentage of postgraduates (69.66%) followed by research scholars (53.61%) in AMU, got information about online databases from teachers. In BHU, most of the research scholars (33.33%), whereas 23.86% postgraduates stated to have been acquainted with online databases through teachers.

While asking about ‘Friends/ colleagues’ as a source of getting information on online databases, majority including 55.06% research scholars, 51.29% postgraduates and 36.36% faculty members in DU, whereas in JNU 69.33% research scholars, 64.76% postgraduates and 41.67% faculty members mentioned that they consulted friends or colleagues for getting information about online databases. On the other hand, in AMU, a moderate percentage of research scholars (46.39%) responded to it, 42.76% postgraduates and 19.23% faculty member respectively preferred this option as a source of information. In BHU, 61.81% research scholars, 49.10% postgraduates and 44.44% faculty members reportedly got information from Friends or colleagues.

In DU, 42.42% of faculty the members, 28.09% research scholars and 18.68% postgraduates, whereas, in JNU 33.33% faculty members, 24.76% postgraduates and 21.85% research scholars have learnt about online information sources through the library orientation programmes organized by their respective libraries. However, it is disappointing to note that there is no library orientation programme organized by the library of AMU. The situation was somewhat better in BHU, where most of the faculty members (33.33%) followed by 25% research scholars and 19.61% postgraduates got information about the online databases through library orientation programmes.

The obtained data reveals that 78.79% faculty members, 51.69% research scholars and 38.64% postgraduates in DU and 79.83% research scholars, 79.17% faculty members and 71.42% postgraduates in JNU got information about online databases through library websites. In this context, 50% faculty members, 49.48 % research scholars and 28.27% postgraduates in AMU stated library website as a source to know about online databases. On the other hand, 71.53% research scholars, 55.56% faculty members and 40.2 % postgraduates in BHU used library website to obtain information about online databases.

It is noteworthy to mention here that most of the users in DU got information about online sources through the internet, about 73.03% research scholars, 56.04% postgraduates and 48.48% faculty members in DU used internet to search online databases. In JNU, where 76.19% postgraduates, 63.02% research scholars and
54.17% faculty members used internet for accessing information of online databases. Notably, 67.01% research scholars, 53.79% postgraduates and 46.15% of the faculty members are surfing internet for databases in AMU. While in BHU, a majority of 76.39% research scholars narrated that they prefer mostly to use internet for getting information about online databases, which is followed by 66.01% postgraduates and 38.89% faculty members.

Thus, it is evident from the above table that the majority of users in DU, i.e. 59.71% users choose internet as the main source of information, while 56.94% teachers, 51.52% friends and colleagues, 43.46% library websites and 21.93% library & orientation programmes were selected as other options for searching information. In JNU, majority of respondents (77.38%) find information through library website next to the internet (66.21%), friends and colleagues (66.21%), teachers (38.96%) and 23.43% respondents obtained information through library orientation programmes. However, it is quite surprising that in all the surveyed universities except JNU, internet was considered as most preferred option to get information about online databases. In AMU, the case is somewhat similar, where, 57.83% became acquainted with databases through Internet search, 57.09% from teachers, 41.79% from friends and colleagues, while 38.43% of users got information through library websites. In BHU, a significant number of users (67.08%) preferred internet to get information about online databases, however other sources are friends and colleagues (52.47%), library websites (50.62%), teachers (24.90%) and library orientation programmes (22.22%). The study conducted by the Patil and Parmeshwar (2009) supports findings of the current study. They reported that teachers, research guide, co-researchers and internet were the major sources of getting information of electronic resources. According to Nikam and Promodini (2007) users were became acquainted with e-resources through library orientation and training program, friends/colleges and by trial and error method.

It is clear from the above analysis that internet was the most popular source of getting information on online databases as mentioned by the users of three surveyed universities; majority in BHU (67.08%) followed by DU (59.71%) and AMU (57.83%) respectively, whereas in JNU, library website (77.38%) was one of the medium used to get information about availability of online databases.
5.2.2. USE OF ONLINE DATABASES

5.2.2.1. Frequency of Use

The frequency is an important aspect in assessment of the usefulness of online databases, as it is related with the extent of use of online databases by the users. Here, the frequency of use is divided into four categories such as; Daily, 2-3 times a week, 2-3 times a month and Occasionally to find out the utility of online databases. The data obtained in table 5.20 reveals that 12.12% faculty members, 11.24% research scholars and 5.49% postgraduate in DU and in JNU, mostly 20.17% research scholars, followed by 16.67% faculty members, and 13.33% postgraduate used online databases regularly. In comparison, most of the research scholars (9.28%) used online databases daily than faculty members (7.69%) in AMU, but none of the postgraduate students used online databases daily, whereas 5.55% faculty members, 7.64% research scholars in BHU used library on daily basis, here also none of the postgraduate student made use of online databases daily.

The data in table 5.20 shows that 36.36% faculty members, 23.60% research scholars and 14.65% postgraduates in DU used online databases 2-3 times a week. In JNU a good percentage of research scholars (35.71%) followed by faculty members (33.33%) and postgraduates (23.81%) utilized online databases 2-3 times a week. Conversely, 39.18% research scholars, 38.46% faculty members and 17.93% postgraduates in AMU used online databases 2-3 times a week. In case of BHU, 34.72% research scholars, 16.67% faculty members and 13.07% postgraduates used online databases 2-3 times a week. This finding supports the findings of the study carried out by Oduwole and Oyewumi (2010), that the frequency of use of web based electronic resources was mainly limited to weekly basis.

It is noted that 34.80% postgraduates, then 33.71% research scholars and 27.27% faculty members in DU, while in JNU, 41.67% faculty members, 33.33% postgraduates and 29.41% research scholars were making use of online databases 2-3 times a month. On the other hand, 34.48% postgraduates, 30.93% research scholars and 30.77% faculty members respectively utilized online databases 2-3 times a month in AMU, however, in BHU, 31.37% postgraduates, 30.56% faculty members and 27.08% research scholars were using online databases 2-3 times a month.
Table 5.20: Frequency of using online databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Frequency</th>
<th>DELHI</th>
<th></th>
<th></th>
<th>JNU</th>
<th></th>
<th></th>
<th>AMU</th>
<th></th>
<th></th>
<th>BHU</th>
<th></th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FM</td>
<td>RS</td>
<td>PG</td>
<td>Total</td>
<td>FM</td>
<td>RS</td>
<td>PG</td>
<td>Total</td>
<td>FM</td>
<td>RS</td>
<td>PG</td>
<td>Total</td>
<td>FM</td>
</tr>
<tr>
<td>1.</td>
<td>Daily</td>
<td>4</td>
<td>20</td>
<td>30</td>
<td>54</td>
<td>4</td>
<td>48</td>
<td>14</td>
<td>66</td>
<td>2</td>
<td>9</td>
<td>-</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(12.12)</td>
<td>(11.24)</td>
<td>(5.49)</td>
<td>(7.13)</td>
<td>(16.67)</td>
<td>(20.17)</td>
<td>(13.33)</td>
<td>(17.98)</td>
<td>(7.69)</td>
<td>(9.28)</td>
<td>-</td>
<td>(4.10)</td>
<td>(5.55)</td>
</tr>
<tr>
<td>2.</td>
<td>2-3 times a week</td>
<td>12</td>
<td>42</td>
<td>80</td>
<td>134</td>
<td>8</td>
<td>85</td>
<td>25</td>
<td>118</td>
<td>10</td>
<td>38</td>
<td>26</td>
<td>74</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(36.36)</td>
<td>(23.60)</td>
<td>(14.65)</td>
<td>(17.70)</td>
<td>(33.33)</td>
<td>(35.71)</td>
<td>(23.81)</td>
<td>(32.15)</td>
<td>(38.46)</td>
<td>(39.18)</td>
<td>(17.93)</td>
<td>(27.61)</td>
<td>(16.67)</td>
</tr>
<tr>
<td>3.</td>
<td>2-3 times a month</td>
<td>9</td>
<td>60</td>
<td>190</td>
<td>259</td>
<td>10</td>
<td>70</td>
<td>35</td>
<td>115</td>
<td>8</td>
<td>30</td>
<td>50</td>
<td>88</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(27.27)</td>
<td>(33.71)</td>
<td>(34.80)</td>
<td>(34.21)</td>
<td>(41.67)</td>
<td>(29.41)</td>
<td>(33.33)</td>
<td>(31.33)</td>
<td>(30.77)</td>
<td>(30.93)</td>
<td>(34.48)</td>
<td>(32.84)</td>
<td>(30.56)</td>
</tr>
<tr>
<td>4.</td>
<td>Occasionally</td>
<td>8</td>
<td>56</td>
<td>246</td>
<td>310</td>
<td>2</td>
<td>35</td>
<td>31</td>
<td>68</td>
<td>6</td>
<td>20</td>
<td>69</td>
<td>95</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(24.24)</td>
<td>(31.46)</td>
<td>(45.05)</td>
<td>(40.95)</td>
<td>(8.33)</td>
<td>(14.70)</td>
<td>(29.52)</td>
<td>(18.53)</td>
<td>(23.08)</td>
<td>(20.62)</td>
<td>(47.59)</td>
<td>(35.45)</td>
<td>(47.22)</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted) (Figures within parenthesis are percentage)
In DU, 45.05% postgraduates, 31.46% research scholars and 24.24% faculty members, whereas in JNU, a lesser percentage of users 29.52% postgraduates, 14.70% research scholars and 8.33% faculty members rarely accessed online databases for searching information. In contrast, in AMU, 47.59% of postgraduates followed by 23.08% faculty members and 20.62% research scholars accessed online databases occasionally. In this context, 55.56% postgraduates, 47.22% faculty members and 30.56% research scholars in BHU are occasionally accessing online databases.

The obtained data reveals that in DU, online databases were mostly used occasionally (40.95%) respectively followed by 2-3 times a month (34.21%), 2-3 times a week (17.70%) and daily (7.13%). While, some variations were seen in JNU in all the categories of frequency as compared to rest of the three universities, where frequency of using online databases were observed as 2-3 times a week (32.15%), 2-3 times a month (31.33%), occasionally (18.53%) and daily (17.98%). As far as AMU is concerned, where mostly users used online databases occasionally (35.45%), 2-3 times a month (32.84%), 2-3 times a week (27.61%) and daily (4.10%), while in BHU, online databases were mostly used occasionally (47.53%) followed by 2-3 times a month (30.04%), 2-3 times a week (19.75%) and daily (2.67%). These differences clarifies to the fact that online database collection and services in JNU are better than from AMU, BHU and DU libraries, also infrastructure facilities in JNU library is more advanced as compared to other surveyed libraries.

![Figure 5.4: Frequency of using online databases](image)

Above figure 5.4 reveals that the highest percentage of online database users belongs to the category of occasional users such as, in BHU (47.53%) followed by
DU (40.95%) and AMU (35.45%) were utilized online databases occasionally, i.e., whenever the requirement is realized; while the majority in JNU (32.15%) came under the category of weekly users. Inadequate collection of online databases and lack of skills or unawareness to be the reasons of less usage of online databases provided by the libraries. In this regard, there is a need to organize training and orientation programmes by the libraries, especially for postgraduates to increase the frequency and use of online databases.

5.2.2.2. Purpose of Use

The purpose of using online databases differs from one user to another. Faculty members, research scholars and postgraduates were asked to assess the purpose of using online databases. Since, all the surveyed libraries subscribed to large number of databases, it was important to find out the purpose of using online databases by the different groups of users in the faculties of Social Sciences and Arts. Although, the purpose of using online databases are many, but only the major purposes are listed in table 5.21.

Online databases are considered as an important source for research and teaching. In this context, it is seen that 84.85% faculty members, 63.48% research scholars and 19.96% postgraduates in DU were using online databases for research. About 85.29% research scholars, 66.67% faculty members and 28.57% postgraduates in JNU mentioned that they used online databases for research purposes. On the other hand most of the research scholars (91.75%), followed by faculty members (50%) and postgraduates (22.07%) in AMU, while as 88.19% research scholars, 41.67% faculty members and 16.67% postgraduates in BHU used online databases for research purposes.

With respect to the purpose of online database usage, the data obtained shows that, 61.80% research scholars, 45.42% postgraduates and 39.39% faculty members in DU and 58.40% research scholars, 50% faculty members and 51.43% postgraduates in JNU reported that they used online databases for carrying out assignments and projects. In comparison with DU and JNU, 82.76% postgraduates, 68.04% research scholars and 53.85% faculty members in AMU used online databases for preparation for assignments and projects; in BHU, 61.81% research scholars, 50.98% postgraduates and 44.44% faculty members respectively stated that they used online databases for assignments and projects.
## Table 5.21: Purpose of using Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Purpose</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>UP</th>
<th>BHU</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FM</td>
<td>RS</td>
<td>PG</td>
<td>Total</td>
<td>FM</td>
<td>RS</td>
</tr>
<tr>
<td>1.</td>
<td>Research</td>
<td>28</td>
<td>113</td>
<td>109</td>
<td>250</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>84.85</td>
<td>(63.48)</td>
<td>(19.96)</td>
<td>(33.03)</td>
<td>(66.67)</td>
<td>(85.29)</td>
</tr>
<tr>
<td>2.</td>
<td>Projects / Assignments</td>
<td>13</td>
<td>110</td>
<td>248</td>
<td>371</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>(39.39)</td>
<td>(61.80)</td>
<td>(45.42)</td>
<td>(49)</td>
<td>(50)</td>
<td>(58.40)</td>
</tr>
<tr>
<td>3.</td>
<td>Writing papers</td>
<td>24</td>
<td>125</td>
<td>181</td>
<td>330</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>(72.72)</td>
<td>(70.22)</td>
<td>(33.15)</td>
<td>(43.59)</td>
<td>(87.5)</td>
<td>(78.15)</td>
</tr>
<tr>
<td>4.</td>
<td>Teaching</td>
<td>32</td>
<td>-</td>
<td>-</td>
<td>32</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>(96.97)</td>
<td>-</td>
<td>-</td>
<td>(4.23)</td>
<td>(100)</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>To update knowledge</td>
<td>16</td>
<td>92</td>
<td>275</td>
<td>383</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>(48.48)</td>
<td>(51.69)</td>
<td>(50.37)</td>
<td>(50.59)</td>
<td>(50)</td>
<td>(48.74)</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted) (Figures within parenthesis are percentage)
Table 5.21 also reveals that 72.72% faculty members, 70.22% research scholars and 33.15% postgraduates in DU used online databases for writing papers. Similarly in JNU, 87.5% faculty members, 78.15% research scholars and 44.76% postgraduates used online databases for writing papers. On the contrary, 84.54% research scholars, 76.92% faculty members and 25.52% postgraduates in AMU from the both faculties of Social Sciences and Arts and 86.11% research scholars, 72.22% faculty members and 12.42% postgraduates in BHU preferred to use online databases for writing papers.

The table also shows that 96.97% faculty members in DU, 100% faculty members in JNU and a major percentage of users in AMU and BHU, i.e. 84.61% and 83.33% faculty members respectively are making use of online databases for teaching.

A great percentage of respondents in all the surveyed universities were using online databases to update their knowledge, which includes 51.69% research scholars, 50.37% postgraduates and 48.48% faculty members in DU, while 58.10% postgraduates, 50% faculty members and 48.74% research scholars in JNU. On the other hand, 69.23% faculty members followed by 56.70% research scholars and 46.90% postgraduates in AMU, whereas 55.88% postgraduates, 55.56% faculty members and 44.44% research scholars in BHU accessed online databases for keeping themselves up-to-date in their areas of interest.
Figure 5.5 shows that majority of respondents in AMU i.e. 74.63% used online databases for preparing assignments and project, while in both BHU and DU most of the users around 52.47% and 50.59% respectively preferred to use online databases to update their knowledge. However in JNU, majority of users from the both disciplines (69.20%) mentioned that they prefer to use online databases for writing papers. The current findings match with the findings of other studies, which reveals that the databases are largely used for teaching, research, updating knowledge, instructional purpose, class assignments, project work, presentations and tracing new informational sources of education (Khan and Zaidi, 2009; Atakan, 2008; Mangi, 2014 and De Groote & Dorsch, 2003)

5.2.2.3. Documents Searched in an Online Database

There are different types of information resources available in online databases, such as journals, books and theses. According to Piotrowski and others (2005), online databases are mostly used for searching the scholarly literature. The study attempts to depict the most popular resource among users of all the select universities and these resources are categorized in table 5.22.

The analyzed data reflects that in DU, 34.43% postgraduates, 33.71% research scholars and 30.30% faculty members preferred to search online databases for books. Although in JNU, the situation is almost the same as in rest of the universities, but most of the faculty members (41.67%), postgraduates (34.28%) and 23.11% research scholars stated that they also searched for books in online databases. As compared to, the users of AMU, a majority of postgraduates (51.03%) followed by research scholars (26.8%) and faculty members (23.08%) searched online databases for reading books, whereas a similar number of users in BHU i.e. 47.38% postgraduates including research scholars (34.72%) and faculty members (30.56%) read books from online databases.

It is revealed from the table that, almost all the user communities in select universities were extremely concerned about accessing journal articles from online databases. In DU, a good number of users; 100% faculty members followed by 96.63% research scholars and 69.97% postgraduates and in JNU, a comparatively higher percentage of users with 100% faculty members, 100% research scholars and 90.48% postgraduates searched the online databases to find out scholarly journal articles to enhance the quality of their work. In AMU, 100% research scholars followed by 92.31% faculty members and 65.55% postgraduates used online
### Table 5.22: Types of Resources Search for in an Online Database

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Types of resources</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>UP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Books</td>
<td>10 (30.30)</td>
<td>60 (33.71)</td>
<td>188 (34.43)</td>
<td>258 (34.08)</td>
</tr>
<tr>
<td>2.</td>
<td>Journal Articles</td>
<td>33 (100)</td>
<td>172 (96.63)</td>
<td>382 (69.97)</td>
<td>587 (77.54)</td>
</tr>
<tr>
<td>3.</td>
<td>Theses/Dissertations</td>
<td>7 (21.21)</td>
<td>80 (44.94)</td>
<td>180 (32.97)</td>
<td>267 (35.27)</td>
</tr>
<tr>
<td>4.</td>
<td>Reference work (Encyclopedia)</td>
<td>9 (27.27)</td>
<td>37 (20.79)</td>
<td>236 (43.22)</td>
<td>282 (37.25)</td>
</tr>
<tr>
<td>5.</td>
<td>Miscellaneous (Reviews &amp; Editorials)</td>
<td>7 (21.21)</td>
<td>42 (23.59)</td>
<td>88 (16.12)</td>
<td>137 (18.09)</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted) (Figures within parenthesis are percentage)
databases for reading articles. Most of the research scholars (95.83%), subsequently faculty members (94.44%) and postgraduates (64.37%) preferred to find online databases to get articles.

The number of this category of users is however, higher in DU and JNU, as in DU a significant percentage of research scholars (44.94%), postgraduates (32.97%) and faculty members (21.21%); in JNU, 41.9% postgraduates followed by 41.17% research scholars and 29.17% faculty members preferred to use online databases for searching theses and dissertations of related fields. In contrast to above, 24.74% research scholars, 19.23% faculty members and 18.62% postgraduates in AMU and 16.67% postgraduates followed by 13.19% research scholars and 11.11% faculty members in BHU preferred to use online databases for searching theses or dissertations of their related areas.

However, a moderate percentage of users in DU, i.e. 43.22% postgraduates, 27.27% faculty members and 20.79% research scholars responded that they also consulted reference materials through online databases. In JNU, majority of faculty members (41.67%), 51.26% research scholars and 32.38% postgraduates mentioned that they used online databases for reference work and in AMU; 23.08% faculty members, 20.62% research scholars and 13.79% postgraduates stated that they searched reference documents (encyclopedia) in online databases. Similarly in BHU, 16.67% faculty members, 16.34% postgraduates and 10.42% research scholars consulted reference materials through online databases.

The collected data furthermore shows that a relative percentage of research scholars (23.59%), 21.21% faculty members and 16.12% postgraduates in DU; however in JNU, 34.87% research scholars, 29.17% faculty members and 14.28% postgraduates made use of miscellaneous materials available through online databases. Likewise, about, 38.46% faculty members, 20.62% research scholars and 2.07% postgraduates in AMU, whereas in BHU, 22.22% faculty members and 16.67% research scholars used online databases to miscellaneous materials, i.e., reviews and editorials, but no postgraduates replied to this option.

The overall analysis revealed that in DU, about 77.54% used journal articles, 37.25% of respondents consulted online databases for reference work, 35.27% consulted theses or dissertations, while, 34.08% users read books, followed by 18.09% used for consulting miscellaneous materials respectively. In JNU, a significant percentage of users (97.27%) used journal articles, followed by 45.23%
consulted it for reference work, 40.6% of them searched for theses or dissertations, 28.61% used miscellaneous materials available in online databases and a less percentage, i.e., 27.52% of the users read books. However, in AMU, majority of respondents i.e. 80.6% read journal articles, though 39.55% of the respondents consult books, while 20.89% consulted theses or dissertations, 17.16% preferred reference work, whereas, 12.31% of the respondents searched miscellaneous materials accessible through online databases. In BHU, data shows that mostly users (75.92%) chose journal articles, while a good number of users, such as 42.39% users consulted books followed by theses or dissertations (15.23%), reference work (14.61%), whereas, 6.54% of the respondents also used miscellaneous materials.

![Figure 5.6: Types of Resources Search for in an Online Database](chart.png)

It is clear from the figure 5.6 that a large number of users in all the surveyed libraries used online databases to access journal articles. According to the analysis, 97.27% in JNU, 80.6% in AMU, 77.54% in DU and 75.92% of BHU users in both the Social Sciences and Arts opted for online databases as a source to read articles. Furthermore, the data obtained revealed that, miscellaneous materials (reviews and editorials) were least favoured by the users of BHU (6.54%), AMU (12.31%), DU (18.09%) and JNU (28.61%) respectively.

5.2.2.4. Locations for Accessing Online Databases

The libraries generally provide access to online databases through different locations and the users of select universities were inquired about their preferred places for access to online databases.
### Table 5.23: Locations for Accessing Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Place</th>
<th>DU</th>
<th>JNU</th>
<th>AMU</th>
<th>BHU</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FM (N=33)</td>
<td>RS (N=178)</td>
<td>PG (N=546)</td>
<td>Total (N=757)</td>
<td>FM (N=24)</td>
</tr>
<tr>
<td>1.</td>
<td>University library</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(12.12)</td>
<td>(8.33)</td>
<td>(59.05)</td>
<td>(69.21)</td>
</tr>
<tr>
<td>2.</td>
<td>Departmental lab</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(15.15)</td>
<td>(15.15)</td>
<td>(45.05)</td>
<td>(47.62)</td>
</tr>
<tr>
<td>3.</td>
<td>University computer Center</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(15.15)</td>
<td>(15.15)</td>
<td>(50.55)</td>
<td>(54.95)</td>
</tr>
<tr>
<td>4.</td>
<td>Teachers chamber</td>
<td>33</td>
<td>24</td>
<td>24</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(100)</td>
<td>(4.36)</td>
<td>(6.54)</td>
<td>(4.36)</td>
</tr>
<tr>
<td>5.</td>
<td>On campus (Wi-Fi)</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(36.36)</td>
<td>(62.92)</td>
<td>(38.46)</td>
<td>(44.12)</td>
</tr>
<tr>
<td>6.</td>
<td>Remote access</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)  (Figures within parenthesis are percentage)
The data collected against this background in table 5.23 reflects that the number of users who were using online databases was slightly lesser in DU and JNU. However, a significant percentage of users i.e. 48.88% research scholars, 39.56% postgraduates and 12.12% faculty members in DU; in JNU, 79.83% research scholars, 59.05% postgraduates and 8.33% faculty members, stated that they used the online databases from the university library. On the contrary, majority of users included 70.1% research scholars and 11.53% faculty members in AMU among those who used the University library to access the online databases. In comparison, the users of BHU are relatively advanced as a large percentage of research scholars (68.05%), 34.31% postgraduates and 8.33% faculty members reported that they accessed online databases from the library.

It is clear from the analysis that in DU, 47.62% postgraduates and 42.7% research scholars; and when compared with DU, around 25.71% postgraduates and 25.63% research scholars in JNU also accessed online databases from their departmental labs. An average percentage of users in AMU i.e. 54.64% research scholars and 44.14% postgraduates were accessing online databases from their respective departmental computer labs, in BHU also 30.56% research scholars and 24.84% postgraduates accessed it from departmental labs.

The table 5.23 shows that the number of users who were using online databases from university computer centre is more or less similar in DU and JNU. However, a significant percentage of research scholars (75.84%), postgraduates (50.55%) and faculty members (15.15%) in DU; 51.43% postgraduates and 42.86% research scholars from JNU stated that they used the online databases from university computer centre. On the contrary, 76.29% research scholars, 69.65% postgraduates and 23.08% faculty members in AMU are used university computer centre to access the online databases. In comparison, the users of BHU were relatively advanced as a large percentage of research scholars (70.14%) and postgraduates (48.69%) reported that they accessed online databases from the university computer centre. None of the faculty members from BHU and JNU responded on this issue.

It is observed from the analysis that the user group except faculty members from all the select universities reported that they accessed online databases from their chambers. Accordingly, 100% faculty members in DU, similarly 100% faculty members from JNU, 100% faculty members from AMU and 100% of faculty members from BHU accessed online databases from their chambers.
In contrast to the above, table 5.23 shows that a higher percentage of research scholars (62.92%), postgraduates (38.46%) and faculty members (36.36%) in DU responded that they also used Wi-Fi to access online databases in their respective universities. On the other hand, this category of users in JNU is higher, where a large percentage of research scholars (74.37%), 50% faculty members and 40.95% postgraduates used Wi-Fi for using online databases. In case of AMU, 37.11% research scholars, 26.92% faculty members and 26.21% postgraduates in AMU like to access online databases through the on campus Wi-Fi connectivity. However, almost same percentage of research scholars (44.44%), 19.61% postgraduates and 16.67% faculty members in BHU preferred to access it anywhere in the campus via Wi-Fi.

It is disappointing to mention that none of the surveyed libraries except JNU are providing access to their online databases via remote access. Although, these libraries have good infrastructure, especially in DU but they seem reluctant to provide such type of services. However in JNU, the moderate percentage of research scholars (47.06%) followed by faculty members (41.67%) and postgraduates (15.23%) are getting access to online databases through the provision of remote access. In this regard, Weingart and Anderson (2000) stated that a significant number of users were aware of accessibility of electronic resources through remote access, but a moderate percentage of users were making use of it to access e-resources remotely from their offices or homes.

The study of the locations from where most of the respondents in the select universities accessed online databases, it makes is clear that most of the users in DU, university computer centre (54.95%), followed by departmental lab (45.05%), on campus via Wi-Fi (44.12%), university library (40.55%) and teachers chambers (4.36%) were among the places mentioned by the users for accessing online databases. On the other hand, it was found that majority of users in JNU mostly preferred university library (69.21%) followed by on campus via Wi-Fi (63.21%), university computer centre (42.51%), remote access (37.6%), departmental lab (23.98%) and less frequently from teachers chambers (6.54%) were among the locations to access online database facilities. When the investigator queried regarding most used option by the users in AMU, showed that the facilities available in the university computer center constituting 67.54% of the total respondents, subsequently departmental lab (43.66%), on campus via Wi-Fi (30.22%), university library (26.49%) and teacher’s chambers (9.70%) were the places from where the majority of
respondents accessed online databases. Nevertheless, in BHU, users mostly liked to use university computer centre (51.44%), followed by departmental lab (49.38%), university library (42.39%), on campus via Wi-Fi (26.75%) and teacher’s chambers (7.41%) to get access to online databases.

The obtained data depicts that the users of AMU (67.54%) followed by DU (54.95%) and BHU (51.44%) accessed online databases mostly from computer centre. The result in table 5.23 is similar to the finding reported by Verma (2009) in which users mostly preferred to access electronic resources from the computer lab. However, in JNU, 69.21% users selected university library as the central place for using online databases.

5.2.2.5. Type of Information Searched for in the Databases

Online databases comprises of different types of sources in different forms, i.e., full text, bibliographic, multimedia based information, etc. The investigator has attempted to identify the popular type of information that is being searched in the databases by the users of select universities under study.

Data in table 5.24 displays that, a comparatively high percentage of users from DU i.e. 62.92% research scholars, 54.54% faculty members and 32.97% postgraduates; while in JNU, a majority of research scholars (51.68%), 50% faculty members and 32.38% postgraduates used online databases to get bibliographic details of journal articles. It is found that, 59.79% research scholars, 42.31% faculty members and 16.55% postgraduates from AMU and 45.83% research scholars followed by 36.11% faculty members and 16.67% postgraduates from BHU read bibliographic information to know the relevancy of the documents.

It is revealed from the analysis that the full text documents are used by a large number of users; 100% research scholars, 90.91% faculty members and 90.84% postgraduates like to access full text documents from online databases in DU. In case of JNU, relatively higher percentage amounting to 96.63% research scholars followed by 91.67% faculty members and 87.62% postgraduates stated that they mostly liked to search online databases for full-text documents. Likewise, in AMU 100% of the research scholars, subsequently 84.61% faculty members and 84.83% postgraduates, whereas in BHU, 98.61% research scholars, 86.11% faculty members and 81.7% postgraduates accessed documents in full text.
### Table 5.24: Type of Information Look at in the Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Type of Information</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>BHU</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bibliographic</td>
<td>18 (54.54)</td>
<td>112 (62.92)</td>
<td>180 (32.97)</td>
<td>310 (40.95)</td>
<td>12 (50)</td>
</tr>
<tr>
<td></td>
<td>Citations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Full-text</td>
<td>30 (90.91)</td>
<td>178 (100)</td>
<td>496 (90.84)</td>
<td>704 (93)</td>
<td>22 (91.67)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Multimedia(Images/videos/sound files)</td>
<td>12 (36.36)</td>
<td>39 (21.91)</td>
<td>113 (20.69)</td>
<td>164 (21.66)</td>
<td>4 (16.67)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Multiple responses were permitted) (Figures within parenthesis are percentage)
However, 36.36% faculty members followed by 21.91% research scholars and 20.69% postgraduates in DU viewed multimedia information; while, 18.06% research scholars, 16.67% faculty members and 10.48% postgraduates from JNU made searches in online databases for multimedia resources, i.e. images, videos, audio, etc. Further, 23.45% postgraduates followed by 17.52% research scholars and 15.38% faculty members from AMU; whereas 5.55% faculty members followed by 15.97% research scholars and 13.07% postgraduates in BHU preferred to use multimedia type of information in online databases.

As it is clear from the analysis that numeric or statistical type of information is searched by an average number of users in DU, 27.53% research scholars followed by 25.09% postgraduates and 15.15% faculty members used statistical information from the online databases. However, in JNU 25% faculty members followed by 23.53% research scholars and 17.14% postgraduates expressed their interest in using numeric or statistics based information in online databases. In contrast to both the universities, research scholars (20.62%) followed by faculty members (19.23%) and postgraduates (14.48%) in AMU used statistical information from the online databases. Similarly, 16.67% faculty members and research scholars each followed by 7.19% postgraduates in BHU used online databases for numeric or statistical information.

Therefore, the data analyzed in table 5.24 regarding the types of information searched for in the databases reveals that in DU, users mostly accessed full text information (93%), followed by bibliographic information (40.95%), numeric or statistics information (25.23%) and multimedia information (21.66%); while in JNU, full text information (93.73%) is rated as highly used then bibliographic information (46.04%), numeric or statistics information (21.8%) and multimedia information (15.8%) were chosen as additional types of information. As compared to AMU, full text information were used by 90.3% of users followed by bibliographic information (34.7%), multimedia information (20.52%) and only 17.16% users preferred to use numeric or statistics based information. In case of BHU, maximum number of users preferred to use full text information (87.03%), then bibliographic information (26.75%), multimedia information (13.37%) and numeric or statistics information (10.7%).
Chapter 5

Data Analysis

As, it is shown in figure 5.7 full text was the most preferred form of information among the users of the select universities in Delhi and UP i.e. 93.73% in JNU followed by DU (93%), AMU (90.3%) and BHU (87.03%).

In DU (21.66%) and JNU (15.8%) multimedia information carried the least responses as compared to the other universities; while numeric or statistical information was least preferred by the users of AMU (17.16%) and BHU (10.7%) respectively.

5.2.2.6. Determination of Relevance and Reliability of the Document Retrieved through the Databases

Like other factors, relevance and reliability of information also play important roles in the usage of online database. Relevance indicates the importance of documents to the users, while reliability measures the authenticity or authority of the documents. Here, the investigator made an attempt to identify the factors through which the users rate the relevance and reliability of the documents available in online databases. The major factors are discussed in table 5.25 include; Authority/Credibility, Content, Citations/References, Up-to-dateness and Hyperlinks.

With respect to the relevance and reliability of information, the data received in table 5.25 shows that in DU most of the research scholars (68.54%), 39.39% faculty members and 20.51% postgraduates selected documents from online databases on the basis of authority and in JNU, 48.74% research scholars, 45.83% faculty members and 45.71% postgraduates reported that they choose documents in online databases by verifying the authority/credibility.
Table 5.25: Determination of Relevance and Reliability of the Document Retrieved through the Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Category</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>UP</th>
<th>BHU</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Authority /Credibility (Author, publisher, etc.)</td>
<td>(39.39)</td>
<td>(68.54)</td>
<td>(20.51)</td>
<td>(32.63)</td>
<td>(45.83)</td>
</tr>
<tr>
<td>1.</td>
<td>Content</td>
<td>(84.85)</td>
<td>(88.2)</td>
<td>(60.44)</td>
<td>(68.03)</td>
<td>(62.5)</td>
</tr>
<tr>
<td>3.</td>
<td>Up-to-dateness</td>
<td>(48.48)</td>
<td>(60.67)</td>
<td>(50.91)</td>
<td>(53.10)</td>
<td>(33.33)</td>
</tr>
<tr>
<td>4.</td>
<td>Hyperlinks</td>
<td>(15.15)</td>
<td>(17.98)</td>
<td>(3.3)</td>
<td>(7.26)</td>
<td>(8.33)</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted) (Figures within parenthesis are percentage)
In contrast, in AMU, 57.73% research scholars, 46.15% faculty members and 35.86% postgraduates, whereas 49.30% research scholars, 33.33% faculty members and 27.45% postgraduates in BHU stated that they use authority as the criteria for the selection of documents.

In this context, it is seen that most of the users in DU, i.e. 88.2% research scholars, 84.85% faculty members and 60.44% postgraduates in DU, whereas 86.97% research scholars, 82.85% postgraduates and 62.5% faculty members in JNU browsed through the contents to find out its relevance and reliability. On the other hand, 80.41% research scholars, 69.23% faculty members and 65.52% postgraduates in AMU, while as 77.08% research scholars, 75% faculty members and 60.45% postgraduates in BHU detected importance of documents by their content.

The data shows that mainly 39.4% faculty members, 28.09% research scholars and 10.26% postgraduates in DU determined the relevance and reliability of documents through citations/references, whereas 33.33% faculty members, 24.76% postgraduates and 24.37% research scholars in JNU used citations/references to determine the relevancy of the documents. Further, the table also shows that, 38.46% faculty members, 22.68% research scholars and 15.86% postgraduates in AMU, while as 25% faculty members, 25% research scholars and 11.44% postgraduates in BHU assessed the relevancy of the documents through citations or references.

Significantly, 60.67% research scholars, 50.91% postgraduates and 48.48% faculty members in DU and about 63.02% research scholars, 33.33% faculty members and 28.57% postgraduates in JNU determined the relevance and reliability of documents by its currency. However, 57.7% faculty members, 50.51% research scholars and 40% postgraduates in AMU selected documents on the basis of their up-to-dateness. In BHU, 55.55% research scholars, 33.33% faculty members and 25.81% postgraduates checked the up-to-dateness while selecting documents from online database.

It is observed that 17.98% research scholars followed by 15.15% faculty members and 3.3% postgraduates in DU used hyperlinks to decide whether the retrieved documents are relevant for them or not. The case is somewhat similar in JNU, where, 10.50% research scholars, 9.52% postgraduates and 8.33% faculty members choose documents using hyperlinks. In comparison, 19.23% faculty members and 8.25% research scholars in AMU, while 16.67% research scholars and
8.33% faculty members in BHU used hyperlinks to determine the authenticity of
documents, but none of the postgraduates in these universities responded on this issue.

Furthermore, it is also revealed from the table that users of the surveyed
universities show almost the same pattern for determining the relevance and reliability
of retrieved documents. In DU, an average percentage constitute the categories as
Contents (68.03%), Up-to-dateness (53.1%), Authority/Credibility (32.63%),
Citations/Reference (15.72%) and Hyperlinks (7.26%); whereas in JNU, Contents
(84.2%), Up-to-dateness (51.23%), Authority/Credibility (47.68%), Citations/
Reference (25.07%) and Hyperlinks (10.08%) were the criterion used by the
respondents to ascertain the importance of the documents retrieved via online
databases. Moreover, in AMU mostly preferred Contents (71.27%) followed by Up-
to-dateness (45.52%), Authority/Credibility (44.78%), Citations/Reference (20.52%)
and Hyperlinks (4.85%) to determine the relevance of documents. In case of BHU,
almost same situation was seen, where Contents (66.46%) Up-to-dateness (35.18%),
Authority/Credibility (34.36%), Citations/Reference (16.46%) and Hyperlinks
(5.55%) were used by the users to verify the significance of the documents.

It is concluded that in the surveyed libraries of Delhi and UP, 84.2% in JNU,
68.03% from DU, 71.27% in AMU and 66.46% in BHU determined the relevance and
reliability of documents through its content. However, the hyperlinks in JNU
(10.08%), DU (7.26%), BHU (5.55%) and AMU (4.85%) were least preferred by the
users to determine the worthiness of the documents retrieved through the online
databases.

5.2.2.7. Most Used Online Databases

Usage analysis is helpful in justifying the amount spent on acquisition and
provision of online databases by the libraries to provide best online databases to its
users. To identify the most used online databases that is helpful in developing a
sufficient online database collection in libraries as per the needs of the users. This
may also be helpful in determining the use patterns and the changes that occurred in
use of online databases. The libraries of DU, JNU, AMU and BHU are acquiring a
number of prominent online databases from different sources for providing authentic
and more up-to-date information to their users, but all the libraries have different
number of online databases in different fields of education. The investigator presents
the data regarding the most used online databases in two levels; in the first level most
used databases were ranked by each university wise, then in second level the
databases that were the common online databases acquired through UGC-Infonet consortia in all select libraries were ranked on the basis of users’ preferences.

For the study, the investigator selected only those databases that had good coverage in the field of Social Sciences and Arts; therefore amongst 70 online databases 26 were included for analysis in DU, while in JNU out of 66 only a total of 21 online databases were analyzed to identify the most used online databases. On the same basis in AMU, amongst 24 online databases, 11 were used for the analysis, in BHU, out of 24 online databases only 13 were analyzed on the basis of the coverage of online databases. The data related to the most online databases in DU, JNU, AMU and BHU is represented in tables 5.26, 5.27, 5.28, 5.29 and 5.30 respectively.

Table 5.26: Most Used Online Databases in DU

<table>
<thead>
<tr>
<th>Online Databases</th>
<th>FM Mean</th>
<th>Rank</th>
<th>RS Mean</th>
<th>Rank</th>
<th>PG Mean</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABI/INFORM Complete</td>
<td>4.41</td>
<td>23</td>
<td>3.12</td>
<td>17</td>
<td>3.59</td>
<td>15</td>
</tr>
<tr>
<td>Academic Search Premier</td>
<td>4.23</td>
<td>22</td>
<td>2.67</td>
<td>13</td>
<td>3.53</td>
<td>14</td>
</tr>
<tr>
<td>Annual Reviews</td>
<td>2.98</td>
<td>14</td>
<td>2.39</td>
<td>7</td>
<td>3.77</td>
<td>19</td>
</tr>
<tr>
<td>Business Source Premier</td>
<td>2.73</td>
<td>10</td>
<td>2.48</td>
<td>10</td>
<td>3.61</td>
<td>16</td>
</tr>
<tr>
<td>Cambridge University Press</td>
<td>2.51</td>
<td>6</td>
<td>2.47</td>
<td>9</td>
<td>3.23</td>
<td>3</td>
</tr>
<tr>
<td>Econlit</td>
<td>3.92</td>
<td>18</td>
<td>4.74</td>
<td>25</td>
<td>3.70</td>
<td>18</td>
</tr>
<tr>
<td>Emerald</td>
<td>2.23</td>
<td>2</td>
<td>2.28</td>
<td>4</td>
<td>2.36</td>
<td>4</td>
</tr>
<tr>
<td>Encyclopedia Britannica</td>
<td>2.44</td>
<td>4</td>
<td>2.40</td>
<td>8</td>
<td>2.58</td>
<td>5</td>
</tr>
<tr>
<td>Humanities International Complete</td>
<td>2.85</td>
<td>12</td>
<td>2.84</td>
<td>14</td>
<td>3.46</td>
<td>13</td>
</tr>
<tr>
<td>ISI Emerging Markets CEIC Asia</td>
<td>4.43</td>
<td>24</td>
<td>3.57</td>
<td>19</td>
<td>4.25</td>
<td>25</td>
</tr>
<tr>
<td>ISI Emerging Markets EMEI Asia</td>
<td>4.10</td>
<td>21</td>
<td>4.77</td>
<td>26</td>
<td>4.28</td>
<td>26</td>
</tr>
<tr>
<td>ISID</td>
<td>3.97</td>
<td>19</td>
<td>4.40</td>
<td>24</td>
<td>4.13</td>
<td>24</td>
</tr>
<tr>
<td>JSTOR</td>
<td>2.25</td>
<td>3</td>
<td>1.94</td>
<td>1</td>
<td>2.08</td>
<td>1</td>
</tr>
<tr>
<td>Lexis Nexis</td>
<td>2.78</td>
<td>11</td>
<td>2.93</td>
<td>15</td>
<td>2.82</td>
<td>6</td>
</tr>
<tr>
<td>Library, Information Science &amp;Technology Abstracts (LISTA)</td>
<td>4.66</td>
<td>26</td>
<td>4.36</td>
<td>23</td>
<td>3.66</td>
<td>17</td>
</tr>
<tr>
<td>LISA: Library and Information Science Abstracts</td>
<td>4.06</td>
<td>20</td>
<td>2.98</td>
<td>16</td>
<td>3.91</td>
<td>20</td>
</tr>
<tr>
<td>Oxford dictionary of National Biography</td>
<td>4.50</td>
<td>25</td>
<td>4.05</td>
<td>22</td>
<td>4.05</td>
<td>23</td>
</tr>
<tr>
<td>Oxford University Press</td>
<td>2.71</td>
<td>9</td>
<td>2.38</td>
<td>6</td>
<td>3.07</td>
<td>9</td>
</tr>
<tr>
<td>Project MUSE</td>
<td>2.48</td>
<td>5</td>
<td>2.24</td>
<td>3</td>
<td>2.88</td>
<td>7</td>
</tr>
<tr>
<td>Science Direct</td>
<td>2.18</td>
<td>1</td>
<td>2.13</td>
<td>2</td>
<td>2.14</td>
<td>2</td>
</tr>
<tr>
<td>Scopus</td>
<td>3.85</td>
<td>17</td>
<td>3.87</td>
<td>20</td>
<td>3.98</td>
<td>22</td>
</tr>
<tr>
<td>Soc Index with Fulltext</td>
<td>2.93</td>
<td>13</td>
<td>3.23</td>
<td>18</td>
<td>3.95</td>
<td>21</td>
</tr>
<tr>
<td>Taylor and Francis</td>
<td>2.56</td>
<td>7</td>
<td>2.32</td>
<td>5</td>
<td>3.21</td>
<td>12</td>
</tr>
<tr>
<td>UMI database</td>
<td>3.52</td>
<td>15</td>
<td>2.51</td>
<td>11</td>
<td>3.06</td>
<td>10</td>
</tr>
<tr>
<td>Web of science</td>
<td>2.63</td>
<td>8</td>
<td>3.88</td>
<td>21</td>
<td>2.96</td>
<td>8</td>
</tr>
<tr>
<td>Wiley Inter Science</td>
<td>3.54</td>
<td>16</td>
<td>2.66</td>
<td>12</td>
<td>3.18</td>
<td>11</td>
</tr>
</tbody>
</table>

Rank on the basis of mean

Table 5.26 shows the rank order of the most used online databases in DU that had good coverage of Arts and Social Sciences literature. Science Direct was ranked first by the faculty members, Emerald ranked second and JSTOR marked at third, Encyclopedia Britannica and Project Muse ranked fourth and fifth respectively. While LISTA was rated as the least preferred online database by marking it at last position,
The research scholars from concerned faculties in DU, showed their interest more towards the JSTOR, then Science Direct, Project Muse, Emerald, and Taylor & Francis. The database ISI Emerging Markets EMEI Asia was listed in the category as least preferred. JSTOR, Science Direct, Cambridge University Press, Emerald and Encyclopedia Britannica at ranked first, second, third, fourth and fifth position respectively by the postgraduates. The databases, ISI Emerging Markets CEIC Asia and ISI Emerging Markets EMEI Asia were used rarely by the postgraduates in DU.

The analyzed data in table 5.26 reveal that JSTOR, Science Direct and Project Muse were the most used online databases by the faculty members, research scholars and postgraduates respectively. On the contrary, LISTA and ISI Emerging Markets CEIC Asia were less used online databases in the faculties of Social Sciences and Arts in DU.

### Table 5.27: Most used Online Databases in JNU

<table>
<thead>
<tr>
<th>Online Databases</th>
<th>FM Mean</th>
<th>Rank</th>
<th>RS Mean</th>
<th>Rank</th>
<th>PG Mean</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Reviews</td>
<td>3.50</td>
<td>13</td>
<td>3.24</td>
<td>12</td>
<td>2.92</td>
<td>11</td>
</tr>
<tr>
<td>Artstor</td>
<td>4.20</td>
<td>20</td>
<td>4.03</td>
<td>18</td>
<td>3.15</td>
<td>14</td>
</tr>
<tr>
<td>BBC Monitoring</td>
<td>4.14</td>
<td>19</td>
<td>4.15</td>
<td>19</td>
<td>3.86</td>
<td>18</td>
</tr>
<tr>
<td>Cambridge University Press</td>
<td>3.24</td>
<td>12</td>
<td>2.80</td>
<td>7</td>
<td>2.20</td>
<td>3</td>
</tr>
<tr>
<td>CEIC Macroeconomic Database (Asia)</td>
<td>3.57</td>
<td>15</td>
<td>3.68</td>
<td>13</td>
<td>4.27</td>
<td>21</td>
</tr>
<tr>
<td>CNKI (English)</td>
<td>3.75</td>
<td>18</td>
<td>4.33</td>
<td>21</td>
<td>4.24</td>
<td>20</td>
</tr>
<tr>
<td>Emerald</td>
<td>2.27</td>
<td>4</td>
<td>2.77</td>
<td>6</td>
<td>2.56</td>
<td>6</td>
</tr>
<tr>
<td>EBSCO Research Database</td>
<td>2.24</td>
<td>3</td>
<td>2.23</td>
<td>3</td>
<td>2.66</td>
<td>8</td>
</tr>
<tr>
<td>Indian Citation Index</td>
<td>3.69</td>
<td>17</td>
<td>3.72</td>
<td>14</td>
<td>3.53</td>
<td>16</td>
</tr>
<tr>
<td>ISID</td>
<td>3.54</td>
<td>14</td>
<td>3.94</td>
<td>16</td>
<td>4.06</td>
<td>19</td>
</tr>
<tr>
<td>JSTOR Project</td>
<td>1.60</td>
<td>2</td>
<td>2.20</td>
<td>2</td>
<td>2.01</td>
<td>1</td>
</tr>
<tr>
<td>Lexis Nexis</td>
<td>2.96</td>
<td>8</td>
<td>3.22</td>
<td>11</td>
<td>2.95</td>
<td>13</td>
</tr>
<tr>
<td>Literature online</td>
<td>4.49</td>
<td>21</td>
<td>3.94</td>
<td>17</td>
<td>3.82</td>
<td>17</td>
</tr>
<tr>
<td>Oxford University press</td>
<td>2.54</td>
<td>6</td>
<td>2.58</td>
<td>5</td>
<td>2.31</td>
<td>4</td>
</tr>
<tr>
<td>Project Muse</td>
<td>2.46</td>
<td>5</td>
<td>2.88</td>
<td>8</td>
<td>2.34</td>
<td>5</td>
</tr>
<tr>
<td>ProQuest -UMI Database</td>
<td>3.12</td>
<td>10</td>
<td>4.19</td>
<td>20</td>
<td>2.94</td>
<td>12</td>
</tr>
<tr>
<td>ScienceDirect (Elsevier)</td>
<td>1.26</td>
<td>1</td>
<td>1.76</td>
<td>1</td>
<td>2.08</td>
<td>2</td>
</tr>
<tr>
<td>Scopus</td>
<td>3.61</td>
<td>16</td>
<td>3.79</td>
<td>15</td>
<td>3.19</td>
<td>15</td>
</tr>
<tr>
<td>Taylor &amp; Francis</td>
<td>2.55</td>
<td>7</td>
<td>2.88</td>
<td>9</td>
<td>2.60</td>
<td>7</td>
</tr>
<tr>
<td>Web of Science</td>
<td>3.08</td>
<td>9</td>
<td>3.12</td>
<td>10</td>
<td>2.78</td>
<td>9</td>
</tr>
<tr>
<td>Wiley Inter Science</td>
<td>3.22</td>
<td>11</td>
<td>2.51</td>
<td>4</td>
<td>2.79</td>
<td>10</td>
</tr>
</tbody>
</table>

*Rank on the basis of mean*

The data regarding the most used online databases in JNU presented in table 5.27 shows that ScienceDirect was among the category of most used online databases by the faculty members, JSTOR at second position, whereas EBSCO, Emerald and Project Muse marked at third, fourth and fifth position respectively. On the contrary,
ScienceDirect, JSTOR, EBSCO, Wiley Inter Science and Oxford University Press were among the top five frequently used online databases as mentioned by the research scholars. Literature online and CINKI (English) were the least preferred online databases by both faculty members and research scholars from the faculties of Social Sciences and Arts in JNU. However, JSTOR followed by Science Direct, Cambridge University Press, Oxford University Press and Project Muse were categorized under the most frequently online databases by the postgraduates in JNU; while CEIC Macroeconomic Database (Asia) database were rated at the last position (21th) in the series of most used online databases.

The above table shows that, ScienceDirect was the most used database amongst the faculty members and research scholars, while JSTOR was preferred mostly by the postgraduates in JNU.

**Table 5.28: Most used Online Databases in AMU**

<table>
<thead>
<tr>
<th>Online Databases</th>
<th>FM Mean</th>
<th>Rank</th>
<th>RS Mean</th>
<th>Rank</th>
<th>PG Mean</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Reviews</td>
<td>3.65</td>
<td>11</td>
<td>2.89</td>
<td>9</td>
<td>2.72</td>
<td>7</td>
</tr>
<tr>
<td>Cambridge University Press</td>
<td>2.32</td>
<td>4</td>
<td>2.62</td>
<td>6</td>
<td>2.51</td>
<td>3</td>
</tr>
<tr>
<td>Emerald</td>
<td>2.24</td>
<td>3</td>
<td>2.32</td>
<td>2</td>
<td>2.18</td>
<td>1</td>
</tr>
<tr>
<td>ISID</td>
<td>3.12</td>
<td>10</td>
<td>3.73</td>
<td>11</td>
<td>3.28</td>
<td>9</td>
</tr>
<tr>
<td>JSTOR</td>
<td>2.06</td>
<td>1</td>
<td>2.15</td>
<td>1</td>
<td>2.32</td>
<td>2</td>
</tr>
<tr>
<td>Oxford University press</td>
<td>2.40</td>
<td>6</td>
<td>2.78</td>
<td>8</td>
<td>2.58</td>
<td>5</td>
</tr>
<tr>
<td>Project Muse</td>
<td>2.96</td>
<td>9</td>
<td>2.58</td>
<td>4</td>
<td>2.99</td>
<td>8</td>
</tr>
<tr>
<td>ScienceDirect (Elsevier)</td>
<td>2.14</td>
<td>2</td>
<td>2.43</td>
<td>3</td>
<td>2.56</td>
<td>4</td>
</tr>
<tr>
<td>Taylor &amp; Francis</td>
<td>2.38</td>
<td>5</td>
<td>2.67</td>
<td>5</td>
<td>2.77</td>
<td>6</td>
</tr>
<tr>
<td>Web of Science</td>
<td>2.94</td>
<td>8</td>
<td>2.64</td>
<td>7</td>
<td>3.74</td>
<td>10</td>
</tr>
<tr>
<td>Wiley Inter Science</td>
<td>2.75</td>
<td>7</td>
<td>3.12</td>
<td>10</td>
<td>3.89</td>
<td>11</td>
</tr>
</tbody>
</table>

*Rank on the basis of mean*

Table 5.28 shows the overall average mean and rank of each online databases calculated on the basis of the responses received from faculty members, such as JSTOR was ranked first, followed by Science Direct (2nd), Emerald (3rd), whereas the databases of Cambridge University Press and Taylor & Francis were ranked at 4th and 5th positions respectively. Annual Reviews was ranked at eleventh positions by the faculty members.
Amongst the research scholars, JSTOR was among the most used online database, where as Emerald, ScienceDirect, Project Muse and Taylor & Francis came at subsequent positions; whereas, the databases ISID laid on eleventh position by most of the research scholars. However, the online databases, Emerald, JSTOR, Cambridge University Press, Science Direct and Oxford University Press were marked at first to fifth position respectively by the postgraduates of the faculties of Social Sciences and Arts. The databases of Wiley Inter Science was ranked at eleventh positions, may be due to insufficient coverage in the fields of Social Sciences and Arts.

It can be concluded from the table that, JSTOR was the most popular database amongst the faculty members and research scholars, while Emerald was most used by the postgraduates. While the databases, Annual Reviews, Wiley Inter science and ISID were least used by all the user groups in AMU.

Table 5.29: Most used Online Databases in BHU

<table>
<thead>
<tr>
<th>Online Databases</th>
<th>FM</th>
<th></th>
<th>RS</th>
<th></th>
<th>PG</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Rank</td>
<td>Mean</td>
<td>Rank</td>
<td>Mean</td>
<td>Rank</td>
</tr>
<tr>
<td>Annual Reviews</td>
<td>3.44</td>
<td>9</td>
<td>3.54</td>
<td>10</td>
<td>3.69</td>
<td>10</td>
</tr>
<tr>
<td>Cambridge University Press</td>
<td>2.71</td>
<td>6</td>
<td>2.95</td>
<td>8</td>
<td>2.51</td>
<td>4</td>
</tr>
<tr>
<td>Emerald</td>
<td>2.26</td>
<td>3</td>
<td>2.15</td>
<td>1</td>
<td>2.48</td>
<td>3</td>
</tr>
<tr>
<td>Encyclopedia Britannica</td>
<td>2.30</td>
<td>4</td>
<td>2.38</td>
<td>4</td>
<td>2.92</td>
<td>8</td>
</tr>
<tr>
<td>GALE(The Making of the Modern World)</td>
<td>3.97</td>
<td>12</td>
<td>3.69</td>
<td>11</td>
<td>4.45</td>
<td>13</td>
</tr>
<tr>
<td>Indian Citation Index</td>
<td>3.55</td>
<td>11</td>
<td>4.01</td>
<td>13</td>
<td>2.54</td>
<td>6</td>
</tr>
<tr>
<td>JSTOR</td>
<td>1.65</td>
<td>1</td>
<td>2.21</td>
<td>2</td>
<td>2.03</td>
<td>1</td>
</tr>
<tr>
<td>Oxford University press</td>
<td>2.83</td>
<td>7</td>
<td>2.68</td>
<td>7</td>
<td>2.73</td>
<td>5</td>
</tr>
<tr>
<td>Project Muse</td>
<td>2.32</td>
<td>5</td>
<td>2.43</td>
<td>5</td>
<td>2.84</td>
<td>7</td>
</tr>
<tr>
<td>Science Direct</td>
<td>2.08</td>
<td>2</td>
<td>2.23</td>
<td>3</td>
<td>2.17</td>
<td>2</td>
</tr>
<tr>
<td>Taylor &amp; Francis</td>
<td>3.20</td>
<td>8</td>
<td>3.11</td>
<td>9</td>
<td>3.63</td>
<td>9</td>
</tr>
<tr>
<td>Web of Science</td>
<td>3.51</td>
<td>10</td>
<td>2.66</td>
<td>6</td>
<td>3.91</td>
<td>11</td>
</tr>
<tr>
<td>Wiley Inter Science</td>
<td>4.04</td>
<td>13</td>
<td>2.72</td>
<td>12</td>
<td>4.14</td>
<td>12</td>
</tr>
</tbody>
</table>

Rank on the basis of mean

The data in table 5.29 reveals that JSTOR, Science Direct, Emerald, Encyclopedia Britannica and Project Muse were used by the faculty members, whereas the research scholars mostly liked to use Emerald, JSTOR, ScienceDirect, Encyclopedia Britannica and Project Muse for their research work. However,
postgraduates also had the same online databases in their category of favourites, such as JSTOR, ScienceDirect, Emerald, Cambridge University Press and Oxford University Press. In BHU, Indian Citation Index, GALE (The Making of the Modern World) and Wiley Inter Science were ranked at the last positions among the category of favourite online databases by the users of faculties of Social Sciences and Arts.

According to the above table, JSTOR was the most used database amongst the faculty members and postgraduates while Emerald was preferred most used by the research scholars in BHU.

Table 5.30: Comparative Study of most used Online Databases

<table>
<thead>
<tr>
<th>Online Databases</th>
<th>DELHI Mean</th>
<th>DELHI Rank</th>
<th>JNU Mean</th>
<th>JNU Rank</th>
<th>AMU Mean</th>
<th>AMU Rank</th>
<th>BHU Mean</th>
<th>BHU Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emerald</td>
<td>2.24</td>
<td>3</td>
<td>2.55</td>
<td>3</td>
<td>2.22</td>
<td>2</td>
<td>2.30</td>
<td>3</td>
</tr>
<tr>
<td>Cambridge University Press</td>
<td>2.46</td>
<td>4</td>
<td>3.04</td>
<td>7</td>
<td>2.52</td>
<td>4</td>
<td>2.74</td>
<td>6</td>
</tr>
<tr>
<td>JSTOR</td>
<td>2.17</td>
<td>1</td>
<td>1.84</td>
<td>2</td>
<td>2.21</td>
<td>1</td>
<td>2.06</td>
<td>1</td>
</tr>
<tr>
<td>Oxford University Press</td>
<td>3.02</td>
<td>7</td>
<td>2.46</td>
<td>4</td>
<td>2.65</td>
<td>6</td>
<td>2.72</td>
<td>5</td>
</tr>
<tr>
<td>Project Muse</td>
<td>2.57</td>
<td>5</td>
<td>2.58</td>
<td>5</td>
<td>2.96</td>
<td>7</td>
<td>2.61</td>
<td>4</td>
</tr>
<tr>
<td>Science Direct</td>
<td>2.08</td>
<td>2</td>
<td>1.69</td>
<td>1</td>
<td>2.32</td>
<td>3</td>
<td>2.24</td>
<td>2</td>
</tr>
<tr>
<td>Taylor &amp; Francis</td>
<td>2.86</td>
<td>6</td>
<td>2.10</td>
<td>3</td>
<td>2.53</td>
<td>5</td>
<td>3.32</td>
<td>7</td>
</tr>
<tr>
<td>Web of Science</td>
<td>3.20</td>
<td>8</td>
<td>3.05</td>
<td>8</td>
<td>3.26</td>
<td>8</td>
<td>3.66</td>
<td>8</td>
</tr>
<tr>
<td>Wiley Inter Science</td>
<td>3.98</td>
<td>9</td>
<td>3.10</td>
<td>9</td>
<td>3.37</td>
<td>9</td>
<td>4.03</td>
<td>9</td>
</tr>
</tbody>
</table>

The libraries under study have acquired a number of prominent online databases through different sources, but only the common databases that are available in all libraries are analyzed for a comparative study. The table 5.30 and figure 5.8 show the university wise ranked order of the most used online databases that are accessed through UGC-Infonet consortia that have a large coverage of Arts and Social sciences literature in the libraries of select universities of Delhi and UP.
The data in figure 5.8 shows that JSTOR is the most frequently used online database in DU, AMU and BHU while ScienceDirect are the online databases mostly used in JNU. On the basis of analysis it is found that users mostly liked to use only those databases which they already had good knowledge of rather than other available online databases. In this context, Schaffer (2001) stated that users sometimes showed their diversion more towards their favourite databases and ignored other better resources that may possibly improve their search results. The databases, Web of Science and Wiley Inter Science were ranked eighth and ninth position respectively by majority of the users of the faculties of Social sciences and Arts in the select central universities of Delhi and UP. Therefore, it indicates from the overall analysis that all the user groups from the faculties of Social Sciences and Arts in the surveyed universities of Delhi and UP had almost the same preference of using online databases.

5.2.3. SEARCH PROCESS
5.2.3.1. Tools/Techniques Used to Access Online Databases

To identify the means/ways adopted by the users to find out the online databases, the data analyzed in table 5.31 reveals that 69.1% research scholars, 60.61% faculty members and 45.05% postgraduates in DU searched for online databases through their respective library website. A majority of 66.67% faculty members followed by 55.46% research scholars and 53.33% postgraduates in JNU
### Table 5.31: Method(s) Followed to Search and Access Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Method(s)</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>UP</th>
<th>BHU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Links through library website</td>
<td>20 (60.61)</td>
<td>123 (69.1)</td>
<td>246 (45.05)</td>
<td>389 (51.39)</td>
<td>16 (66.67)</td>
</tr>
<tr>
<td>2.</td>
<td>Links through publisher website</td>
<td>11 (33.33)</td>
<td>85 (47.75)</td>
<td>124 (22.71)</td>
<td>220 (29.06)</td>
<td>4 (16.67)</td>
</tr>
<tr>
<td>3.</td>
<td>Through online database website</td>
<td>18 (54.54)</td>
<td>110 (61.8)</td>
<td>180 (32.97)</td>
<td>308 (40.69)</td>
<td>18 (75)</td>
</tr>
<tr>
<td>4.</td>
<td>Through search engines</td>
<td>16 (48.48)</td>
<td>154 (61.9)</td>
<td>338 (67.11)</td>
<td>508 (70.11)</td>
<td>14 (58.33)</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted) (Figures within parenthesis are percentage)
choose library websites to access online databases. On the other hand, 61.54% faculty members followed by 32.99% research scholars and 28.96% postgraduates in AMU got information through the library website to find out online databases available in the library. However in BHU, 72.22% faculty members followed by 43.75% research scholars and 26.14% postgraduates accessed online databases through library website.

Comparatively, a higher percentage of users i.e. 47.75% research scholars, 33.33% faculty members and 22.71% postgraduates in DU; and somewhat lesser users in JNU, 29.41% research scholars, 19.05% postgraduates and 16.67% faculty members mentioned that they mostly preferred to access online databases through publisher websites. Whilst in case of AMU, an average percentage of users, i.e., 38.46% faculty members followed by 20.62% research scholars and 16.55% postgraduates searched online databases through publisher websites. In BHU, 50% faculty members, around 26.39% research scholars and 19.93% postgraduates linked through publisher websites to access online databases.

The collected data further shows that a substantial size of population, i.e. 61.8% research scholars, 54.54% faculty members and 32.97% postgraduates in DU searched online databases through websites directly. In case of JNU, there are variations in the percentage of users as compared to DU. 75% faculty members, 67.23% research scholars and 31.43% postgraduates were accessed online databases by linking directly to their respective websites in JNU. Likewise, 46.21% postgraduates, 46.15% faculty members and 41.24% research scholars in AMU, whereas in BHU, 59.72% research scholars followed by 58.33% faculty members and 24.18% postgraduates searched online databases directly through their websites.

On the other hand, a considerable percentage of 86.52% research scholars, 61.9% postgraduates and 48.48% faculty members in DU, whereas in JNU, 71.85% research scholars, 70.48% postgraduates and 58.33% faculty members made use of search engines to reach an appropriate online database. In contrast to, 84.83% postgraduates, 70.1% research scholars and 46.15% faculty members in AMU searched online databases via search engines. In case of BHU, almost same percentage i.e. 75% research scholars followed by 70.91% postgraduates and 55.55% faculty members used search engines to link to the online databases.

The above data related to the ways to access online databases shows that, 67.11% users accessed online databases via search engines, 51.39% of users liked to access online databases through the library website, 40.69% accessed online database
directly through its website and 29.06% accessed it through the publisher website in DU. Nevertheless, in JNU a significant percentage of users i.e. 70.57% accessed online databases through the search engines, 55.58% of users through library website, 57.49% directly through online database websites and 25.61% preferred publisher website to access it. However, both the universities of UP (AMU and BHU) do not show much variations in the use of links to access online databases i.e. in AMU 75.75% choose search engines to access online databases, 44.4% of users accessed online database directly through online database website, 33.58% of users preferred to access online databases through the library website and 20.15% preferred publisher website for access it; similarly in BHU, 70.99% used search engines to access it, 37.24% searched for online database directly through its website, 34.77% accessed online databases through library website and 24.07% preferred publisher website to access it.

It is clear from the figure 5.9 that users in all the four libraries still preferred the easiest way to access online databases that is using search engines rather than getting access through other options. The majority; 75.75% in AMU, 70.99% in BHU, 70.57% in JNU and 67.11% in DU were accessed online databases through search engines. While, publisher websites was the least preferred means to access online databases among the users of all the surveyed universities i.e. 29.06% in DU followed by JNU (25.61%), BHU (24.07%) and AMU (20.15%).

![Figure 5.9: Techniques(s) Used to Access Online Databases](image-url)
### Table 5.32: Online Database Search Methods

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Search Method</th>
<th>DU</th>
<th>JNU</th>
<th>AMU</th>
<th>BHU</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FM N= 33</td>
<td>RS N= 178</td>
<td>PG N= 546</td>
<td>Total N= 757</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>N= 24</td>
<td>N= 238</td>
<td>N= 105</td>
<td>N= 367</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Basic Search / Quick search</td>
<td>28 (84.84)</td>
<td>153 (85.95)</td>
<td>487 (89.19)</td>
<td>668 (88.24)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>20 (83.33)</td>
<td>198 (83.19)</td>
<td>90 (85.71)</td>
<td>308 (83.92)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>21 (80.77)</td>
<td>85 (87.63)</td>
<td>130 (89.65)</td>
<td>236 (88.06)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>30 (83.33)</td>
<td>120 (83.33)</td>
<td>262 (85.62)</td>
<td>412 (84.77)</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Advanced search</td>
<td>24 (72.72)</td>
<td>107 (60.11)</td>
<td>297 (54.39)</td>
<td>428 (56.54)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>20 (83.33)</td>
<td>171 (71.85)</td>
<td>65 (61.9)</td>
<td>256 (69.75)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>16 (61.54)</td>
<td>51 (52.57)</td>
<td>42 (28.96)</td>
<td>109 (40.67)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>19 (52.78)</td>
<td>45 (31.25)</td>
<td>75 (24.50)</td>
<td>134 (27.57)</td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3.</td>
<td>Expert search</td>
<td>7 (21.21)</td>
<td>22 (12.35)</td>
<td>34 (6.22)</td>
<td>63 (8.32)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 (25)</td>
<td>24 (10.08)</td>
<td>12 (11.43)</td>
<td>42 (11.44)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 (15.38)</td>
<td>10 (10.30)</td>
<td>4 (2.76)</td>
<td>17 (6.34)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 (11.11)</td>
<td>14 (9.72)</td>
<td>6 (1.96)</td>
<td>24 (4.93)</td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Citation locator/ Cited Reference</td>
<td>6 (18.18)</td>
<td>11 (6.18)</td>
<td>6 (1.1)</td>
<td>23 (3.04)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>search</td>
<td>5 (20.83)</td>
<td>17 (7.14)</td>
<td>5 (4.76)</td>
<td>27 (7.36)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 (15.38)</td>
<td>8 (8.24)</td>
<td></td>
<td>12 (4.48)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 (8.33)</td>
<td>6 (4.16)</td>
<td></td>
<td>9 (1.85)</td>
<td></td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)  (Figures within parenthesis are percentage)
5.2.3.2. Online Database Search Methods

The search options are one of the most important features of any online resource as it has direct impact on the use of online sources. Basically, there are two types of search options are available in almost all the online databases, viz., the options of basic search and the advanced search to facilitate users to access relevant items as per their needs. In basic/ simple search or keyword search users can search information by entering a single word or field. Although, advanced search provides more relevant results than basic search, but it is more technical or required more skills to get to the desired results. This search allows users to combine search terms by using Boolean operators, such as AND, OR, NOT, and by providing other options for searching; truncation, phrase search, etc. to broaden or narrow the search results. Inspite of these techniques, some other searching techniques are also provided by the online database providers, viz. Expert search and citation locator.

With respect to search techniques in online databases, the collected data in table 5.32 depicts that majority of postgraduates (89.19%), research scholars (85.95%) and faculty members (84.84%) in DU used simple search. Similarly, in JNU, 85.71% postgraduates, 83.19% research scholars and 83.33% of faculty members preferred to use simple search to access information from online databases. As seen in the table, 89.65% postgraduates followed by 87.63% research scholars and 80.77% faculty members in AMU preferred basic search for searching the online databases. The situation is almost same in BHU, where 85.62% postgraduates, 83.33% faculty members and 83.33% research scholars liked to search online databases by using simple search.

It is investigated that, a higher percentage of users in DU i.e. faculty members (72.72%), research scholars (60.11%) and postgraduates (54.39%) preferred to use this searching method. On the other hand, among the users of JNU, 83.33% faculty members, 71.85% research scholars and quite a high percentage of postgraduates (61.9%) had shown their preference towards using advanced searching. Comparatively, most of the users in AMU, i.e. around 61.54% faculty members, 52.57% research scholars and 28.96% postgraduates choose advanced search techniques to retrieve information from online databases. In BHU, 52.78%, 31.25% and 24.50% faculty members, research scholars and postgraduates respectively articulated that they made use of advanced search facilities.
Interestingly, a relatively high percentage of users chose expert search in DU and JNU, i.e., 21.21% faculty members, 12.35% research scholars and 6.22% postgraduates in DU and in JNU, 25% faculty members, 10.08% research scholars and 11.43% postgraduates preferred expert search strategy to search information in online databases. While, a less percentage of users among all select universities with AMU, 15.38% faculty members, 10.30% research scholars and 2.76% postgraduates used expert search, whereas in BHU, 11.11% faculty members, 9.72% research scholars and an almost negligible number of postgraduates around 1.96% searched the online databases using expert search technique.

The obtained data further reveals that 18.18% faculty members, 6.18% research scholars and 1.1% postgraduates in DU, while in JNU, a moderate percentage of users, i.e., 20.83% faculty members, 7.14% research scholars and 4.76% postgraduates used citation locator to find cited references in online databases. On the contrary, less numbers of users in AMU, as 15.38% faculty members and 8.24% research scholars used citation locator, whereas in BHU, 8.33% faculty members and 4.16% research scholars preferred this option for searching the online databases.

As far as search strategy is concerned, it is clear that in all the select universities; DU, JNU, AMU and BHU, highest responses received were for Basic search (88.24%, 83.92%, 88.06% and 84.77% respectively), followed by Advanced search (56.54%, 69.75%, 40.67% and 27.57% respectively), Expert search (8.32% 11.44%, 6.34% and 4.93% respectively) and a very less number of users in DU (3.04%), JNU (7.36%), AMU (4.48%) and BHU (1.85%) used Citation locator technique for searching citation related information in online databases.

![Figure 5.10: Search Strategies](image)
Thus, the overall analysis shows that a very high percentage of all the user groups in all the surveyed universities preferred to use basic search while searching information in online databases. Figure 5.10 shows that majority of users in the AMU (88.06%) followed by DU (88.24%), BHU (84.77%) and JNU (83.92%) were preferred to use basic search for searching online databases, because whatever they searched for, was found through basic search more easily and simply rather than other search options. According to Kattimani (2010), users mostly adopted simple search strategy for retrieving information, whereas advanced search was used for getting more relevant results.

5.2.3.3. Search Techniques used for Online Databases

There are different types of advanced search techniques available in different databases to make searching more precise and fruitful and to enable users to get relevant information in an area of interest. Commonly used techniques in advanced search are presented in table 5.33.

In this regard, the data obtained shows that a significant percentage of research scholars (77.52%), 69.7% faculty members and 60.80% postgraduates in DU made use of Boolean search as an advanced search facility of online databases. It is noted that comparatively a higher population in JNU; 70.83% faculty members, 63.86% research scholars and 64.76% postgraduates used Boolean operators to refine their searching. In contrast to both the universities, most of the research scholars (68.04%), faculty members (57.69%) and postgraduates (55.86%) in AMU used Boolean operators AND, OR and NOT to combine the terms in any of the fields available for advanced search in online databases. Similarly, in BHU, 63.89% research scholars, 55.55% faculty members and 53.92% postgraduates stated that they used Boolean search in online databases.

With respect to search techniques used by the users of the faculties of Social Sciences and Arts, the table 5.33 reveals that a relatively higher percentage of 87.08% research scholars followed by 78.79% faculty members and 57.14% postgraduates in DU, whereas, in JNU, 84.45% faculty members, 76.19% postgraduates and 75% research scholars liked to use different field search options to search through online databases. While, comparing with AMU, a significant percentage of users i.e. 75.26% research scholars, faculty members (69.23%) and postgraduates (58.62%) prefer to use field search technique for searching information in online databases.
Table 5.33: Search Technique(s) used for Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Search Techniques</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>UP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FM</td>
<td>RS</td>
<td>PG</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N= 33</td>
<td>N= 178</td>
<td>N= 546</td>
<td>N= 757</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N= 24</td>
<td>N= 238</td>
<td>N= 105</td>
<td>N= 367</td>
</tr>
<tr>
<td>1.</td>
<td>Boolean operators (AND, OR &amp; NOT)</td>
<td>23</td>
<td>138</td>
<td>332</td>
<td>493</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(69.7)</td>
<td>(77.52)</td>
<td>(60.80)</td>
<td>(65.12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17</td>
<td>152</td>
<td>68</td>
<td>237</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(70.83)</td>
<td>(63.86)</td>
<td>(64.76)</td>
<td>(64.58)</td>
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<td></td>
<td>15</td>
<td>66</td>
<td>81</td>
<td>162</td>
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<td></td>
<td></td>
<td>(57.69)</td>
<td>(68.04)</td>
<td>(55.86)</td>
<td>(60.45)</td>
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<td></td>
<td>20</td>
<td>92</td>
<td>165</td>
<td>277</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(55.55)</td>
<td>(63.89)</td>
<td>(53.92)</td>
<td>(56.99)</td>
</tr>
<tr>
<td>2.</td>
<td>Field search (author, title &amp; volume, etc.)</td>
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<td>155</td>
<td>312</td>
<td>493</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(78.79)</td>
<td>(87.08)</td>
<td>(57.14)</td>
<td>(65.12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>18</td>
<td>201</td>
<td>80</td>
<td>299</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(75)</td>
<td>(84.45)</td>
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<tr>
<td></td>
<td></td>
<td>(69.23)</td>
<td>(75.26)</td>
<td>(58.62)</td>
<td>(65.67)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24</td>
<td>94</td>
<td>150</td>
<td>268</td>
</tr>
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<td>(66.67)</td>
<td>(65.28)</td>
<td>(49.02)</td>
<td>(55.14)</td>
</tr>
<tr>
<td>3.</td>
<td>Limiters (subject, language &amp; year, etc.)</td>
<td>16</td>
<td>76</td>
<td>214</td>
<td>306</td>
</tr>
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<td></td>
<td>(48.48)</td>
<td>(42.7)</td>
<td>(39.19)</td>
<td>(40.42)</td>
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<td></td>
<td>15</td>
<td>137</td>
<td>45</td>
<td>197</td>
</tr>
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<td>(62.5)</td>
<td>(57.56)</td>
<td>(42.86)</td>
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<td></td>
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<td>(59.79)</td>
<td>(30.34)</td>
<td>(43.66)</td>
</tr>
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<td></td>
<td>20</td>
<td>50</td>
<td>90</td>
<td>160</td>
</tr>
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<td>(55.55)</td>
<td>(34.72)</td>
<td>(29.41)</td>
<td>(32.92)</td>
</tr>
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<td>4.</td>
<td>Phrase search (&quot; &quot;, { })</td>
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<td>66</td>
<td>102</td>
<td>186</td>
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<tr>
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<td>(54.54)</td>
<td>(37.08)</td>
<td>(18.68)</td>
<td>(24.57)</td>
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<td></td>
<td>12</td>
<td>102</td>
<td>47</td>
<td>161</td>
</tr>
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<td>(47.42)</td>
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<td>32</td>
<td>58</td>
<td>103</td>
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<td>(36.11)</td>
<td>(22.22)</td>
<td>(18.95)</td>
<td>(21.19)</td>
</tr>
<tr>
<td>5.</td>
<td>Proximity search (NEAR, ~, Within)</td>
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<td>18</td>
<td>20</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(18.18)</td>
<td>(10.11)</td>
<td>(3.66)</td>
<td>(5.81)</td>
</tr>
<tr>
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</tr>
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<td></td>
<td>2</td>
<td>10</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(7.69)</td>
<td>(10.30)</td>
<td>(3.45)</td>
<td>(6.34)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>17</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(11.80)</td>
<td>(0)</td>
<td>(4.11)</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Wildcard / Truncation (*, ?, $)</td>
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<td>60</td>
<td>77</td>
<td>149</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(36.36)</td>
<td>(33.70)</td>
<td>(14.10)</td>
<td>(19.68)</td>
</tr>
<tr>
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<td>61</td>
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<td></td>
<td></td>
<td>(41.67)</td>
<td>(25.63)</td>
<td>(28.57)</td>
<td>(27.52)</td>
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<td>6</td>
<td>22</td>
<td>15</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(23.08)</td>
<td>(22.68)</td>
<td>(10.34)</td>
<td>(16.04)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10</td>
<td>12</td>
<td>29</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(27.78)</td>
<td>(8.33)</td>
<td>(9.48)</td>
<td>(10.49)</td>
</tr>
</tbody>
</table>
In BHU, 66.67% faculty members, 65.28% research scholars and 49.02% postgraduates used the field search in advanced search mode. On the other hand, 48.48% faculty members followed by 42.7% research scholars and 39.19% postgraduates in DU and 62.5% faculty members followed by 57.56% research scholars and 42.86% postgraduates in JNU used limiters to control their search results. While, a moderate percentage of users i.e. 59.79% research scholars followed by 57.69% faculty members and 30.34% postgraduates in AMU and in BHU, 55.55% faculty members followed by 34.72% research scholars and 29.41% postgraduates preferred to refine their searches by using limiters.

The collected data furthermore shows that a large percentage of faculty members (54.54%) followed by 37.08% research scholars and 18.68% postgraduates made use of phrase searching in DU. In JNU, a relatively higher number of users as compared to rest of the universities, 50% faculty members followed by 44.76% postgraduates and 42.86% research scholars used phrase searching to make their searches more precise. In case of AMU, 53.85% faculty members followed by 47.42% research scholars and 24.14% postgraduates used phrase search technique for searching online databases. Likewise, 36.11% faculty members, 22.22% research scholars and 18.95% postgraduates in BHU made use of phrase searching in advanced search.

Table 5.33 further reveals that a high percentage of users in DU and JNU with 18.18% faculty members, 10.11% research scholars and 3.66% postgraduates and 12.6% research scholars followed by 12.5% faculty members and 9.52% postgraduates respectively preferred to search online databases by using the proximity search technique. As compared to both the universities, a small percentage of users, i.e. 10.30% research scholars followed by 7.69% faculty members and 3.45% postgraduates in AMU; while 11.8% research scholars and 8.33% faculty members in BHU used proximity search to access their literature, but none of the postgraduates liked to use this search technique.

Regarding the use of truncation, the users of DU and JNU were far better than rest of the universities as, 36.36% faculty members followed by 33.70% research scholars and 14.10% postgraduates in DU, while, 41.67% faculty members then 28.57% postgraduates and 25.63% research scholars also chose truncation for searching the advanced search facility provided in the online databases. Although less, but it is satisfactory that 23.08% faculty members, 22.68% research scholars and
10.34% postgraduates in AMU made use of truncation in online databases. Similarly, 27.78% faculty members, 8.33% research scholars and 9.48% postgraduates in BHU also used truncation search.

Although there are some other search options, such as stemming, related search or term boosting, etc. While analysis, it is observed that these search options were very rarely used by the users and their values are not accountable for the final analysis.

As a whole, Boolean operators were used as a search technique by greater number of users in DU (65.12%) and BHU (56.99%) on the contrary, the searching by field search was considered mostly in JNU (81.47%) and AMU (65.67%) by all the categories of users. It is also important to note that a very small percentage of users in all the select universities used ‘proximity search’ to search the information from online databases, i.e., DU (5.81%), JNU (11.72%), AMU (6.34%) and BHU (4.11%) respectively.

5.2.3.3. Preferred Format for Downloading Documents from Online Databases

The format of online databases is considered is to be one of the many parameters that affect the use of online databases. There are two common formats that are used mostly for downloading the online documents, i.e. PDF and HTML. To investigate the most used format by the users in all the four select universities data is organized in table 5.34.

From table 5.34, it is observed that a less percentage of users as, 20.15% postgraduates, 13.48% research scholars and 12.12% faculty members in DU, while in JNU, 14.28% postgraduates, 8.33% faculty members and 8.82% research scholars preferred HTML to read documents. In contrast to AMU, a lesser amount of users among which 19.31% postgraduates, 19.23% faculty members and 16.49% research scholars liked HTML format to download the online information, comparatively more users in BHU, around 24.18% postgraduates, 22.22% faculty member and 18.05% research scholars preferred to get documents in HTML format.

The data in the table reveals that, as expected the higher percentage of users in all the surveyed universities preferred PDF for reading or downloading online literature from online databases. As in DU and JNU, all the user groups (PG, RS and FM) marked the preference for PDF format (100%). In AMU, 100% faculty members, 100% research scholars and 95.17% postgraduates like to access information in PDF.
Table 5.34: Preferred Format for Downloading Documents from Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Preferred Format for Downloading Documents</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>UP</th>
<th>BHU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>HTML</td>
<td>4 (12.12)</td>
<td>24 (13.48)</td>
<td>110 (20.15)</td>
<td>138 (18.23)</td>
<td>2 (8.33)</td>
</tr>
<tr>
<td>2.</td>
<td>PDF</td>
<td>33 (100)</td>
<td>178 (100)</td>
<td>546 (100)</td>
<td>757 (100)</td>
<td>24 (100)</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted) (Figures within parenthesis are percentage)
Almost the same percentage of users in BHU, i.e., 100% faculty members, 100% research scholars and 94.44% postgraduates choose PDF for accessing the documents.

It is indicated from the figure 5.11 that PDF was the most preferred format used by the large number of users in all the select universities of Delhi and UP. As, 100% users in DU, 100% in JNU, while a slightly less around, 97.39% in AMU and 96.50% in BHU were chose PDF for accessing online documents from online databases. The reasons for more preference may be that the documents in PDF provides good and clearer representation of the text as compared to other formats, also the look of the original document is retained as such in this format.

5.2.3.4. Print Sources versus Online Documents

The advent of online sources has shifted the mode of searching information from manual to online methods. Considerably, online database are a remarkable source of information retrieval and access. Although, it has emerged as a boon to academic community, but on the other hand it has proved to be a source of depreciation for print sources. Online databases have inverse affect on the usage of print journals, causing reduction in the use of print journals. According to Tyagi (2012), growth of electronic resources has as inverse effect on the use of print sources, the use of print sources are decreasing with increase in the use of electronic journals. The researcher has made an attempt to analyze the users’ preference about both the sources, so as to identify the impact of online databases on print journals. Data regarding the preferred form of journals is shown in table 5.35.

![Figure 5.11: Preferred format for downloading documents from Online Databases](image)

<table>
<thead>
<tr>
<th></th>
<th>DU</th>
<th>JNU</th>
<th>AMU</th>
<th>BHU</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTML</td>
<td>18.23</td>
<td>10.35</td>
<td>18.28</td>
<td>22.22</td>
</tr>
<tr>
<td>PDF</td>
<td>100</td>
<td>100</td>
<td>97.39</td>
<td>96.5</td>
</tr>
</tbody>
</table>

It is quite surprising that in DU, a less percentage of users nearly 37.08% research scholars, 52.75% postgraduates and 39.39% faculty members, whereas in JNU, 40% postgraduates, 37.5% research scholars and 31.09% faculty members had
Table 5.35: Print verses Online Documents

| S. No. | Print verses Online Database | DELHI | | | | | UP | | | | | | | | | | | | | | | | | | | | | | | | |
|-------|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|       | FM  | RS  | PG   | Total | FM  | RS  | PG   | Total | FM  | RS  | PG   | Total | FM  | RS  | PG   | Total | FM  | RS  | PG   | Total | FM  | RS  | PG   | Total | FM  | RS  | PG   | Total | FM  | RS  | PG   | Total |
| 1.    | Print Form                   | 13   | 66   | 288  | 367  | 9    | 74   | 42   | 125  | 16   | 56   | 102  | 174  | 22   | 94   | 202  | 318  | (39.39)| (37.08)| (52.75)| (48.48)| (37.5)| (31.09)| (40)| (34.06)| (61.53)| (57.73)| (70.34)| (64.92)| (61.11)| (65.28)| (66.01)| (65.43) |
|       | (39.39)| (37.08)| (52.75)| (48.48)| (37.5)| (31.09)| (40)| (34.06)| (61.53)| (57.73)| (70.34)| (64.92)| (61.11)| (65.28)| (66.01)| (65.43) |
| 2.    | Online Form                  | 20   | 112  | 258  | 390  | 15   | 164  | 63   | 242  | 10   | 41   | 43   | 94   | 14   | 50   | 104  | 168  | (60.60)| (62.92)| (47.25)| (51.52)| (62.5)| (68.91)| (60)| (65.94)| (38.46)| (42.27)| (29.65)| (35.07)| (38.88)| (34.72)| (33.99)| (34.57) |
|       | (60.60)| (62.92)| (47.25)| (51.52)| (62.5)| (68.91)| (60)| (65.94)| (38.46)| (42.27)| (29.65)| (35.07)| (38.88)| (34.72)| (33.99)| (34.57) |

(Multiple responses were permitted)  
(Figures within parenthesis are percentage)
shown less interest towards print journals. On the contrary in AMU, a significant number of users nearly 70.34% postgraduates, 61.53% faculty members and 57.73% research scholars still preferred to read print journals more rather than in the online form. In BHU, the situation is almost the same, here also inclination is seen more towards the print source, as 66.01% postgraduates, 65.28% research scholars and 61.11% faculty members used more prints journals than the online databases.

It is encouraging to describe that a considerable percentage of users with 60.60% faculty members, 62.92% research scholars and 47.25% postgraduates in DU were using online form of journals. In JNU, a relatively higher population of users, i.e., 62.5% faculty members, 68.91% research scholars and 60% postgraduates gave more priority to online journals over the print journals. However, a less number of users in AMU around, 29.65% postgraduates, 42.27% research scholars and 38.46% faculty members liked to use journals in online form. The situation is more or less the same in BHU, where 38.88% faculty members, 34.72% research scholars and 33.99% postgraduates had shown less interest to read information in the online format.

Above figure 5.12 shows that in DU and JNU a large number of users in the faculties of the Social Sciences and Arts i.e. 51.52% and 65.94% respectively showed more interest towards the online journals rather than the print documents, because of the ease in reading and sharing, access to latest information, ease in access and delivery and incorporation of multimedia contents and hyper linking. On the contrary, in the universities of UP (AMU and BHU), print forms were more preferred by the users i.e., 64.92% and 65.43% respectively. The findings support the opinion of
Hamade and Yousef (2010). They reported that inspite of availability of electronic databases with full-text retrieval capabilities, users still like to use more print sources.

5.2.4. FEATURES OF ONLINE DATABASES

5.2.4.1. Useful Features of Online Databases

Use of an online database mainly depends on its features provided for efficient and effective information access and retrieval. These act as pillars in the successful utilization of an online database, the more interactive and intuitive the features are, the more is its usage. A good online database possesses different features for different functions with a simple and intuitive interface. The investigator attempted to find out the most favoured feature of online databases of the users of concerned faculties in the select universities of Delhi and UP.

Table 5.36: Features of Online Databases

<table>
<thead>
<tr>
<th>Online Databases</th>
<th>DELHI DU</th>
<th>DELHI JNU</th>
<th>UP AMU</th>
<th>UP BHU</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Rank</td>
<td>Mean</td>
<td>Rank</td>
</tr>
<tr>
<td>Customization</td>
<td>3.20</td>
<td>8</td>
<td>3.23</td>
<td>9</td>
</tr>
<tr>
<td>Search options</td>
<td>2.28</td>
<td>2</td>
<td>2.08</td>
<td>1</td>
</tr>
<tr>
<td>Browsing options</td>
<td>2.24</td>
<td>1</td>
<td>2.32</td>
<td>3</td>
</tr>
<tr>
<td>Refinement options</td>
<td>2.32</td>
<td>3</td>
<td>2.20</td>
<td>2</td>
</tr>
<tr>
<td>Quick access/Active Links</td>
<td>2.45</td>
<td>4</td>
<td>3.56</td>
<td>10</td>
</tr>
<tr>
<td>Formats of downloaded data</td>
<td>2.58</td>
<td>7</td>
<td>2.84</td>
<td>7</td>
</tr>
<tr>
<td>RSS/E-mail</td>
<td>2.46</td>
<td>5</td>
<td>2.38</td>
<td>4</td>
</tr>
<tr>
<td>Follow on/sharing with social networks</td>
<td>2.55</td>
<td>6</td>
<td>2.56</td>
<td>5</td>
</tr>
<tr>
<td>News/Updates</td>
<td>3.45</td>
<td>10</td>
<td>2.72</td>
<td>6</td>
</tr>
<tr>
<td>Help &amp; support</td>
<td>3.22</td>
<td>9</td>
<td>2.86</td>
<td>8</td>
</tr>
</tbody>
</table>

It depicts from the table 5.36 that in DU, majority of users marked browsing options, searching option, refinement options, quick links and RSS/Email as the top five features of online databases, whereas news/updates were among the least useful feature. However, somewhat similar pattern of choices was seen in JNU, such as
search options (1st), refinement option (2nd), browsing options (3rd), E-mail or RSS feed (4th) and Follow on/sharing with social networks (5th) were ranked in a similar manner, whereas the option of quick or active links to other documents rated at tenth level.

The obtained data shows that in AMU, the feature search options was ranked first, while on browsing options as second, alerting users through E-mail or RSS feed ranked third, whereas the feature of help and support provided by almost all the online databases was ranked tenth by the majority of users. In BHU, users found options of searching and browsing as very helpful in using online databases, so ranked them at first and second positions; while, the features formats for downloading, RSS/Email and Follow on/sharing with social networks was ranked at subsequent positions, i.e. third, fourth and fifth.Surprisingly, the feature of customization was ranked at tenth position, although it is one among the important features of online databases.

The overall analysis and figure 5.13 shows that, amongst the different features of online databases, search option was the most preferred option among the users of AMU, BHU and JNU whereas browsing got highest rank in DU. The features of help & support, customization, news/updates and quick access or active links were rated at tenth positions in AMU, BHU, DU and JNU respectively.

5.2.4.2. Customization

Customization is one of the most important features of the online databases, which comprises of many other features for personalized use by a user. It includes
features, such as alerts, favourite journals or areas, marked list, profile/preferences, create quick links, save search/search history, access through remote or mobile, which have allowed users to customize the use of online databases according to their needs and preferences. However, it is an important feature of online databases, but only a very few users are having knowledge of it. To explain the importance of saving search history, Hamilton (2003) stated that saving search history enables users to reuse the previous searches without retyping the same query again and again. It saves users time and enables them to use saved searches in future.

The investigator tried to collect the data in this regard, but unfortunately only two users from DU amongst the users in all the select universities of Delhi and UP responded on this issue. Thus, due to insufficient data, the investigator dropped this question from analysis. It is really disappointing that being an important feature of online databases, it is not considered by the users may be due to the lack of knowledge. So, here it is suggested that the libraries should conduct different awareness and education programmes, especially related to the searching and technical issues of online databases.

5.2.5. IMPACT OF ONLINE DATABASES

5.2.5.1. Impact of Online Databases

Online databases are excellent means of accessing scholarly information and enable users to trace various authentic items on their area of interest to their study. The data collected to identify whether the online databases have an impact on users’ works or study or not in the select universities is shown in table 5.37. Interestingly, a higher percentage of faculty members (100%) followed by 80.95% postgraduates and 79.77% research scholars in DU, while in JNU, 100% faculty members, 91.60% research scholars and 80.95% postgraduates reported that use of online library affect their academic routines. Comparatively, a somewhat same percentage of users; 79.38% research scholars, 77.24% postgraduates and 69.23% faculty members in AMU; whereas 87.58% postgraduates, 82.64% research scholars and 75% faculty members in BHU agreed that the online databases have impact on their work.

In DU, a less percentage of users with 20.22% research scholars and 19.05% postgraduates, while, 8.40% research scholars and 19.05% postgraduates in JNU denied that the use of online databases enhanced the level of education or job. In contrast to above, a less percentage of users i.e. 30.77% faculty members, 22.76% postgraduates and 20.62% research scholars in AMU and 25% faculty members,
### Table 5.37: Impact of Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Category</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>UP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yes</td>
<td>33 (100)</td>
<td>142 (79.77)</td>
<td>442 (80.95)</td>
<td>617 (81.50)</td>
</tr>
<tr>
<td>2.</td>
<td>No</td>
<td>36 (20.22)</td>
<td>104 (19.05)</td>
<td>140 (18.49)</td>
<td>- (8.40)</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)  
(Figures within parenthesis are percentage)
17.36% research scholars and 12.42% postgraduates in BHU disagreed that the online databases had any impact on their study or work.

The data in figure 5.14 shows that, a large majority of the users in the faculties of the Social Sciences and Arts in all the surveyed universities, i.e., 89.10% in JNU, 81.50% in DU, 85.18% in BHU and 77.24% from AMU, opined that the use of online databases has tremendously benefitted them and positively affected their teaching and learning system. Now they are able to locate their information within a very short of time with greater ease.

5.2.5.2. Impact of Online Databases on Study/Work

The availability of online resources has brought information to the fore in a way that was not seen earlier. The Internet has become a major source for information and has significantly impacted the study and work of users. The views of respondents regarding various possible ways by which online databases influenced the study and work is shown in table 5.38.

The obtained data shows that in DU, 84.51% research scholars, 48.48% faculty members and 28.51% postgraduates and in JNU, 77.98% research scholars, 62.5% faculty members and 48.23% postgraduate agreed that it has expedited the research process. In AMU most of the research scholars (87.01%) followed by 66.67% faculty members and 30.36% postgraduates, while 80.67% research scholars followed by 66.67% faculty members and 33.58% postgraduates in BHU opined that the use of online databases have expedited the research process.
Table 5.38: Impact of Online Databases on Study/Work

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Impact of using databases on study/work</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>UP</th>
<th>BHU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Expedite the research Process</td>
<td>16 (48.48)</td>
<td>120 (84.51)</td>
<td>126 (28.51)</td>
<td>262 (42.46)</td>
<td>15 (62.5)</td>
</tr>
<tr>
<td>2.</td>
<td>Improve professional/academic productivity</td>
<td>21 (63.63)</td>
<td>86 (60.56)</td>
<td>205 (46.38)</td>
<td>312 (50.57)</td>
<td>21 (87.5)</td>
</tr>
<tr>
<td>3.</td>
<td>Acquire more authentic and reliable information</td>
<td>20 (60.60)</td>
<td>98 (69.01)</td>
<td>310 (70.13)</td>
<td>428 (69.37)</td>
<td>15 (62.5)</td>
</tr>
<tr>
<td>4.</td>
<td>Access to a current and up-to-date information</td>
<td>25 (75.75)</td>
<td>110 (77.46)</td>
<td>297 (67.19)</td>
<td>432 (70.02)</td>
<td>13 (54.17)</td>
</tr>
<tr>
<td>5.</td>
<td>Access to a wider range of information</td>
<td>18 (54.54)</td>
<td>122 (85.91)</td>
<td>356 (80.54)</td>
<td>496 (80.39)</td>
<td>18 (75)</td>
</tr>
<tr>
<td>6.</td>
<td>Easier and faster access to information of interest</td>
<td>27 (81.81)</td>
<td>86 (60.56)</td>
<td>243 (54.98)</td>
<td>356 (57.70)</td>
<td>18 (75)</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted) (Figures within parenthesis are percentage)
In DU, 63.63% faculty members, 60.56% research scholars and 46.38% postgraduate respectively have mentioned that databases influences the professional or academic productivity. On the other hand in JNU, a higher percentage of users i.e. 87.5% faculty members, 66.97% research scholars and 49.41% postgraduates pointed out that professional or academic productivity was improved with the use of online databases. In AMU, 77.78% faculty members, 64.93% research scholars and 49.10% of postgraduates mentioned that the use of online databases has improved their professional or academic productivity. However, the same situation is seen in BHU, whereas majority of faculty members (74.07%) followed by research scholars (63.02%) and (57.09%) postgraduates responded on the same.

Above average percentage of users in DU; 70.13% postgraduate, 69.01% research scholars and 60.60% faculty members stated that it becomes easy to access more authentic and reliable information through online databases. On the contrary in JNU, a large number of users; 62.5% faculty members, 81.65% research scholars and 54.12% postgraduates acquired more authentic and reliable information through online databases. In contrast to, 84.82 % postgraduates, 72.22% faculty members and 70.13% research scholars in AMU; whereas in BHU, 88.89% faculty members 60.50% research scholars and 47.39% postgraduates stated that online databases facilitate them to acquire more authentic and reliable information.

It is revealed from the data shown in table 5.38, that, 77.46% research scholars, 75.75% faculty members and 67.19% of postgraduates viewed online databases as a source to acquire authentic and reliable information in DU. However, in JNU, almost same percentage of users, i.e. 58.82% postgraduates, 54.17% faculty members and 51.83% research scholars responded that online databases enabled them to acquire more authentic and reliable information as compared to any other sources. In AMU, 67.86%, of postgraduates, followed by 59.74% research scholars and 55.55% faculty members accessed current and up-to-date information through online databases. While, 67.23% research scholars followed by postgraduates (61.57%) and faculty members (44.44%) in BHU mentioned access to current and up-to-date information is seen one of the impacts of online databases.

The option, access to wider range of information as an impact of online databases has been attained by a number of respondents such as, 85.91% research scholars, 80.54%, of postgraduates and 54.54% faculty members in DU, whereas 75% faculty members, 70.59% postgraduates and 68.8% research scholars in JNU.
Interestingly, 71.43% of postgraduates, 66.67% faculty members and 64.93% research scholars in the faculties of Social Sciences and Arts in AMU, and 81.48% faculty members, 57.14% research scholars and 42.91% postgraduates in BHU have stated that online databases provided access to a wide range of information.

It is observed that, a majority of users, i.e. in DU, 81.81% faculty members, 60.56% research scholars and 54.98% postgraduates as compared to AMU, BHU and JNU and a higher percentage of users, nearly 76.60% of research scholars, 75% of faculty members and 72.94% of postgraduates found easier and faster access to information of interest through online databases. Notably, in AMU, 74.11% postgraduates, 71.43% research scholars and 55.55% faculty members responded that online databases enabled easier and faster access to information of interest. About, 74.07% faculty members, 68.91% research scholars and 47.76% postgraduates experienced that it provides easier and faster access to the information of interest.

It is interesting to note that, the variations are seen in the responses regarding the impact of online databases in all the select universities, as the majority of users in DU (80.39%) mentioned access to wider range of information as a major impact, however, in JNU, easier and faster access to information of interest is stated as a major impact factor for online databases on education and research by 75.53% of the users. The major respondents as 78.26% in AMU mentioned that they acquired more authentic and reliable information through online databases and access to a current and up-to-date information was pointed out by 62.08% of the users in BHU as a prominent impact of online databases.

5.2.6. PROBLEMS AND SATISFACTION

5.2.6.1. Factor(s) that Discourage Access to Online Database Services

An effort was made to find out the factors that discourage the users to make use of online databases available in the libraries. These may included both personal and technical issues, such as lack of awareness about online resources, more interest in print sources, lack of IT skills/ expertise, inadequate collection of databases, limited terminals, lack of training/orientation, etc. The responses are shown in table 5.39.

A comparatively less number of users in DU and JNU mentioned that inadequate collection of online databases as a barrier, such as 48.48% faculty members, 34.83% research scholars and 30.59% postgraduates in DU; whereas
Table 5.39: Factor(s) that Discourages Access to Online Database Services

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Factor(s) that discourages access to online database services</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>UP</th>
<th>BHU</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FM (N= 33)</td>
<td>RS (N= 178)</td>
<td>PG (N= 546)</td>
<td>Total (N= 757)</td>
<td>FM (N= 24)</td>
</tr>
<tr>
<td>1.</td>
<td>Inadequate Collection of databases</td>
<td>16 (48.48)</td>
<td>62 (34.83)</td>
<td>167 (30.59)</td>
<td>245 (32.36)</td>
<td>8 (33.33)</td>
</tr>
<tr>
<td>2.</td>
<td>Limited Terminals</td>
<td>2 (9.09)</td>
<td>82 (46.07)</td>
<td>207 (37.91)</td>
<td>292 (38.57)</td>
<td>- (12.61)</td>
</tr>
<tr>
<td>3.</td>
<td>Lack of awareness about e-resources</td>
<td>13 (39.39)</td>
<td>32 (17.98)</td>
<td>180 (32.97)</td>
<td>225 (37.91)</td>
<td>6 (25.0)</td>
</tr>
<tr>
<td>4.</td>
<td>More interest in print sources</td>
<td>18 (54.54)</td>
<td>28 (15.73)</td>
<td>378 (69.23)</td>
<td>424 (60.01)</td>
<td>8 (33.33)</td>
</tr>
<tr>
<td>5.</td>
<td>Insufficient time/library timings</td>
<td>4 (12.12)</td>
<td>24 (13.48)</td>
<td>145 (26.56)</td>
<td>173 (22.85)</td>
<td>- (13.86)</td>
</tr>
<tr>
<td>6.</td>
<td>Lack of Training/Orientation</td>
<td>15 (45.45)</td>
<td>86 (48.31)</td>
<td>210 (38.46)</td>
<td>311 (41.08)</td>
<td>10 (41.67)</td>
</tr>
<tr>
<td>7.</td>
<td>Lack of IT skills/Expertise</td>
<td>10 (30.30)</td>
<td>22 (12.36)</td>
<td>79 (14.47)</td>
<td>111 (14.66)</td>
<td>3 (12.5)</td>
</tr>
<tr>
<td>8.</td>
<td>No off campus access allowed</td>
<td>25 (75.75)</td>
<td>150 (84.27)</td>
<td>398 (72.89)</td>
<td>573 (75.69)</td>
<td>- (5.88)</td>
</tr>
<tr>
<td>9.</td>
<td>Lack of online help/Tutorials</td>
<td>4 (12.12)</td>
<td>40 (22.47)</td>
<td>109 (19.96)</td>
<td>153 (20.21)</td>
<td>6 (25.0)</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted) (Figures within parenthesis are percentage)
43.81% postgraduates, 35.71% research scholars and 33.33% faculty members in JNU. It is clear from the data organized in table 5.39 that 79.31% postgraduates, 76.92% faculty members and 67.01% research scholars from AMU, whereas, 55.56% faculty members, 45.14% research scholars and 37.25% postgraduates from BHU complained about inadequate collection of online databases.

It is found from the above analysis that limited terminals was another barrier in the use of online databases reported by the respondents nearly 46.07% research scholars, 37.91% postgraduates and 9.09% faculty members as compared to 16.19% postgraduates and 12.61% research scholars in JNU. Nevertheless, none of the faculty members except in DU reported in this matter. In contrast to, 66.90% postgraduates and 30.93% research scholars in AMU mentioned that the limited number of terminals deter the use of online databases. In BHU, about 34.72% research scholars and 24.84% postgraduates gave their responses in this regard.

About, 39.39% faculty members, 32.97% postgraduates and 17.98% research scholars in DU; and around 25% faculty members, 20.95% postgraduates and 13.02% research scholars in JNU stated that they also encountered the issue of lack of awareness. In comparison to DU and JNU, a higher percentage of users; 80.69% postgraduates, 61.54% faculty members and 53.61% research scholars in AMU; whereas 50% faculty members, 53.92% postgraduates and 43.06% research scholars in BHU pointed out lack of awareness as an issue related to the use of online databases. The study conducted by Punchihewa and Jayasuriya (2008) supports that due to lack of awareness users made use of limited number of databases.

However, 54.54% faculty members, 69.23% postgraduates and 15.73% research scholars in DU preferred print sources than e-resources. In JNU, a relatively low percentage of users i.e. 33.33% faculty members, 21.90% postgraduates and 16.81% research scholars stated their interest towards print sources irrespective of online databases. It is evident from the analysis that among the total respondents, a significant amount of users, i.e. 86.21% postgraduates, 84.62% faculty members and 59.79% research scholars in AMU; and 69.44% faculty members, 59.80% postgraduates and 50.69% research scholars in BHU showed more interest in print sources than online resources.

Library timings was also mentioned as a constrain by 26.56% postgraduates, 13.48% research scholars and 12.12% faculty members in DU, and by 34.28% postgraduates and 13.86% research scholars in JNU. In contrast with DU and JNU,
44.83% postgraduates, 25.77% research scholars and 19.23% faculty members in AMU replied that they also had problems with library timings. Likewise, 34.72% research scholars, 33.33% postgraduates and 19.44% faculty members in BHU reported on the same issue.

However, an average percentage of research scholars (48.31%), 45.45% faculty members and 38.46% postgraduates in DU; while more or less similar amount of users, 41.67% faculty members, 36.19% postgraduates and 17.23% research scholars in JNU reported on the same issue. While in AMU, a considerably higher percentage of users i.e. 84.62% faculty members, 74.23% research scholars and 59.31% postgraduates; on the contrary, 39.22% postgraduates, 30.56% research scholars and 27.78% faculty members in BHU mentioned lack of training or orientation programmes as one of barriers that deterred them from using online databases.

It is revealed from the analysis that out of the total population, 30.30% faculty members, 14.47% postgraduates and 12.36% research scholars in DU; whereas a comparatively lesser number of users in JNU, i.e. 22.86% postgraduates, 12.61% research scholars and 12.5% faculty members mentioned that they had problems regarding lack of skills or expertise in IT. About, 57.69% faculty members, 46.90% postgraduates and 37.11% research scholars in AMU deterred due to lack of IT skills and expertise in making use of online databases. In case of BHU, 46.41% postgraduates, 44.44% faculty members and 27.78% research scholars were lacking IT skills/expertise.

The data analyzed shows that majority of users in DU; 84.27% research scholars, 75.75% faculty members and 72.89% postgraduates; noticeably a less percentage of postgraduates (51.43%) and 5.88% research scholars in JNU stated that the non-availability of off campus access to online databases was problem. In AMU, 76.92% faculty members, 68.04% research scholars and 44.14% postgraduates; while 41.67% research scholars, 27.78% faculty members and 12.42% postgraduates were stated the problems relating to the lack of remote access to online databases.

Although, a normal ratio in DU, as 22.47% research scholars, 19.96% postgraduates and 12.12% faculty members; whilst 25% faculty members, 20.95% postgraduates and 12.61% research scholars in JNU realized lack of online help or tutorials as factors in low usage of online databases. It is observed that 72.16% research scholars, 53.85% faculty members and 24.83% postgraduates in AMU;
around 42.16% postgraduates, 38.89% faculty members and 25.69% research scholars in BHU mentioned about the lack of online help or online tutorials. The findings of present study have some similarities with the findings of earlier researches conducted by Dadzie (2005), Koovakkai and Noor (2006) and Rehman and Ramzy (2004). According to them, lack of training orientation, lack of awareness, lack of time, lack of system, slow speed, low skill levels and poor skills were the most common obstacles to the use of electronic resources.

Figure 5.15 shows that no off campus access of online databases is mentioned as a major problem by the users (75.69%) in DU. As it is seen from the analysis that the ratio of problems is less in JNU as compared to other universities, therefore a lesser proportion of users, i.e. 37.87% listed inadequate collection of online databases as a main problem. However, more interest in print sources is also a major problem faced by the respondents of both AMU (76.49%) and BHU (57.82%) respectively. This is due to the very fact that the print sources are still considered as principal sources of information in the field of arts and social sciences.

### 5.2.6.2 Problems Faced While Using Online Databases

It is evident from the analyzed data in table 5.40 that among the total respondents, a moderate percentage of postgraduates (68.68%), 42.42% faculty members and 37.64% research scholars in DU; similarly in JNU, 58.33% faculty members, 57.56% research scholars and 47.62% postgraduates stated their opinion...
Table 5.40: Problems Faced While Using Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Problems faced while using online Databases</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>UP</th>
<th>BHU</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Retrieval problems (Irrelevant retrieval)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14 (42.42)</td>
<td>67 (37.64)</td>
<td>375 (60.24)</td>
<td>456 (58.33)</td>
<td>14 (53.85)</td>
<td>137 (57.56)</td>
</tr>
<tr>
<td>2.</td>
<td>Language barriers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Limited downloading</td>
<td>18 (54.54)</td>
<td>28 (15.73)</td>
<td>21 (3.85)</td>
<td>67 (8.85)</td>
<td>14 (58.33)</td>
<td>45 (18.91)</td>
</tr>
<tr>
<td>4.</td>
<td>Technical problems</td>
<td>18 (54.54)</td>
<td>56 (31.46)</td>
<td>218 (39.93)</td>
<td>292 (38.57)</td>
<td>10 (41.67)</td>
<td>67 (28.15)</td>
</tr>
<tr>
<td>5.</td>
<td>Networking Problems (Connectivity)</td>
<td>27 (81.82)</td>
<td>134 (75.28)</td>
<td>417 (76.37)</td>
<td>578 (76.35)</td>
<td>12 (50.0)</td>
<td>45 (18.91)</td>
</tr>
<tr>
<td>6.</td>
<td>Non supportive library staff</td>
<td>10 (30.30)</td>
<td>51 (28.65)</td>
<td>289 (52.93)</td>
<td>350 (46.23)</td>
<td>4 (16.67)</td>
<td>34 (14.28)</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)  (Figures within parenthesis are percentage)
towards the problem of irrelevant retrieval. However, 84.83% postgraduates, 53.85% faculty members and 56.70% research scholars in AMU; and 50% research scholars, 2.78% faculty members and 29.08% postgraduates in BHU complained about retrieval of irrelevant information. In a study, Junni (2007) discussed about the problem of information overload. According to him, among the hundreds of retrieved result, only one percent of the information is relevant and this may cause distraction to the users.

It is revealed from the table 5.40 that, in DU and JNU, only 4.76% postgraduates in DU; while almost the same number of users in JNU; 19.05% postgraduates, 8.40% research scholars and 8.33% faculty members mentioned the problem relating to language. This was because of that in DU and JNU language problem is not only related to the understanding of English, but the respondents questioned about the availability of documents in more languages other than English. On the contrary, a very less percentage of users as; 2.06% research scholars and 13.79% postgraduates in AMU; whereas in BHU, 20.91% postgraduates, 16.67% faculty members and 11.11% research scholars are facing problems in understanding the language of online databases, especially the users from the arts fields. The current findings go with the results of the study carried out by Bates (1996) in which he mentioned language problem as a barrier in the use of online databases.

The data shows that in DU, 54.54% faculty members, 15.73% research scholars and 3.85% postgraduates; while 58.33% faculty members, 19.05% postgraduates and 18.91% research scholars in JNU stated that the limited downloading of journal articles affected the usage of online databases. While a relative percentage of users in AMU i.e. 46.15% faculty members, 18.56% research scholars and 16.55% postgraduates; while 34.72% research scholars, 24.84% postgraduates and 16.67% faculty members faced the problem regarding limited downloading while using online databases.

As per the data organized in table 5.40, shows that a significant percentage of users in DU, such as 54.54% faculty members, 39.93% postgraduates and 31.46% research scholars; 41.67% faculty members, 28.15% research scholars and 26.67% postgraduates in JNU reported on this issue. On the other hand, postgraduates (46.90%), faculty members (50%) and research scholars (36.08%) from AMU and 63.89% faculty members, 57.64% research scholars and 33.01% postgraduates in
BHU, mentioned that they faced some technical problems while using online databases.

A considerable percentage of users in all the surveyed universities stated that they mostly faced the problem of networking or connectivity while using online databases. Around 81.82% of faculty members, 76.37% postgraduates and 75.28% research scholars in DU; also 50% faculty members, 18.91% research scholars and 16.19% postgraduates in JNU complained about the poor internet connectivity or networking. However, a more or less similar percentage of research scholars (81.44%), 78.62% postgraduates and 76.92% faculty members in AMU; on the contrary, 77.78% faculty members, 65.28% research scholars and 45.75% postgraduates in BHU opined that they faced problem of slow downloading or connectivity due to improper networking in their respective universities.

According to 52.93% postgraduates, 30.3% faculty members and 28.65% research scholars in DU; and 25.71% of the postgraduates, 16.67% faculty members and 14.28% research scholars in JNU, the problem of non-supporting library staff obstructed them from making use of online databases. In contrast to DU and JNU, 55.67% of the research scholars, 53.85% faculty members and 42.76% postgraduates from AMU mentioned that the non-supportive library staff also prevented them from making proper usage of online databases available in their libraries. Likewise, 30.55% faculty members, 30.55% research scholars and 20.59% postgraduates in BHU reported on the same issue.

As far as problems are concerned, it can be depicted that networking problems (76.35%) followed by retrieval problems (60.24%), non-supportive staff (46.23%), technical problems (38.57%), limited downloading (8.85%) and language barrier (3.43%) are faced by the user community in DU while using online databases. However, retrieval problems (54.77%), technical problems (28.61%), limited downloading (21.52%), networking problem (20.16%), non-supportive staff (17.71%) and language barrier (11.44%) are among the major problems that were cited by the users of JNU.

In contrast to, in AMU, highest complaints were received concerning networking problem (79.48%) followed by retrieval problems (71.64%), non-supportive staff (48.51%), technical problems (43.28%), limited downloading (20.15%) and then language barrier (8.21%). Similarly in BHU, networking problem (53.91%), technical problems (42.59%), retrieval problems (35.18%), limited
downloading (27.16%), non-supportive staff (24.28%) and language barrier (17.69%) are the problems that were faced by the users.

As it is clear from the figure 5.16 that the majority of users in all the surveyed universities except JNU were faced problems of networking while using online databases, i.e., 76.35% from DU, 79.48% in AMU, 53.91% in BHU and however, the majority of respondents in JNU, 54.77% mentioned retrieval of irrelevant information while searching online databases as a major problem faced by them.

5.2.6.3. Available Online Databases are sufficient enough in Catering to the Information Needs

The coverage of online databases is also an important aspect for selecting or searching the online databases. In this background, it is revealed from table 5.41 that the percentage of users in DU and JNU who strongly agreed that the online databases were sufficient enough in fulfilling their need is slightly higher than AMU and BHU. Notably in DU, 18.18% faculty members, 12.36% research scholars and 10.99% postgraduates, as well as 12.5% faculty members, 8.40% research scholars and 4.76% postgraduates in JNU reported that they strongly agreed with the available online databases. In comparison to universities of Delhi (DU and JNU), a very less number of users in AMU; 10.31% research scholars strongly agreed, while no faculty member or postgraduate students strongly agreed to the statement that available online databases are sufficient for catering to their information needs.
Table 5.41: Available Online Databases are Sufficient enough in Catering to the Information Needs

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Category</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>UP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Strongly agree</td>
<td>6 (18.18)</td>
<td>22 (12.36)</td>
<td>60 (10.99)</td>
<td>88 (11.62)</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>18 (54.54)</td>
<td>100 (56.18)</td>
<td>308 (56.41)</td>
<td>426 (56.27)</td>
</tr>
<tr>
<td>2.</td>
<td>Neutral</td>
<td>1 (3.03)</td>
<td>10 (5.62)</td>
<td>102 (18.68)</td>
<td>113 (14.93)</td>
</tr>
<tr>
<td>3.</td>
<td>Disagree</td>
<td>8 (24.24)</td>
<td>41 (23.03)</td>
<td>60 (10.99)</td>
<td>109 (14.4)</td>
</tr>
<tr>
<td>4.</td>
<td>Strongly disagree</td>
<td>-</td>
<td>5 (2.81)</td>
<td>16 (2.93)</td>
<td>21 (2.77)</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)  
(Figures within parenthesis are percentage)
There is no difference found in BHU, where only 8.33% faculty members revealed that they strongly agreed that online database were sufficient, the same case is with BHU, here also no research scholar nor postgraduate strongly agreed with this statement.

The collected data further shows that, 56.41% postgraduates, subsequently 56.18% research scholars and 54.54% faculty members in DU agreed that the online databases were enough to cater to their needs. In JNU, 76.19% postgraduates, 75% faculty members and 73.52% research scholars agreed with the scope and coverage of online databases. However, a considerable percentage of users with most of the research scholars (54.64%), faculty members (50%) and postgraduates (37.24%) agreed with the adequacy of online databases in AMU. The situation is better in BHU, where 61.11% postgraduates, subsequently 62.5% research scholars and 50.65% faculty members agreed with the coverage of online databases.

It is interesting to state that a considerable percentage i.e. 18.68% postgraduates, subsequently 5.62% research scholars and 3.03% faculty members in DU while, 9.52% postgraduates in JNU reported that they neither agreed nor disagreed with the statements. However, no response is received in this context from faculty members and research scholars of JNU. In comparison, 27.59% postgraduates, 11.54% faculty members and 11.34% research scholars in AMU, and in BHU, 31.37% postgraduates and 9.72% research scholars neither agreed nor disagreed with the available online databases.

In DU, a negligible percentage of users i.e. 2.93% of postgraduates and 2.81% research scholars in replied that they strongly disagreed with the online databases. Undoubtedly, no one in JNU strongly disagreed with the existing adequacy of available online databases. In contrast to the above, 3.45% postgraduates strongly disagreed to the statement in AMU; whereas none of the user groups in BHU except 13.89% research scholars are strongly disagreed about the sufficiency of online databases with regard to their information needs.

A significant number of users; 24.24% faculty members, 23.03% research scholars and 10.99% postgraduates in DU replied that they disagreed with the adequacy of online databases. Comparatively, a slightly less number of users in JNU; 19.05% postgraduates, 18.07% research scholars and 12.5% faculty members disagreed with the adequacy of available online databases. On the other hand, a moderate percentage of users; 38.46% faculty members, 31.72% postgraduates and
23.71% research scholars disagreed in AMU; whereas 30.55% faculty members, 17.97% postgraduates and 13.89% research scholars in BHU disagreed to the sufficiency of online databases with regard to their information needs.

Moreover, the data also reflects that in DU, 56.27% agreed, 14.93% neutral, 14.4% disagreed, 11.62% strongly agreed and 2.77% strongly disagreed with the above statement. In this context, in JNU nearly 74.39% agreed, 17.98% disagreed, 7.63% strongly agreed and 2.72% were neutral with the statement that the available online databases are sufficient enough in catering to their information needs. Whereas, the situation was somewhat similar in AMU, where a very less percentage of users, i.e. 44.78% agreed, 29.48% disagreed, 20.15% were neutral, 3.73% strongly agreed and only 1.86% strongly disagreed; while in BHU, 54.94% agreed, 22.63% were neutral, 17.69% disagreed, 4.11% strongly disagreed and only 0.62% were strongly agreed with the sufficiency of available online databases.

A high majority of the users in all the surveyed libraries opined that the availability of online databases tremendously benefitted them as they are interested to use more online databases. According to figure 5.17, 74.39% users in JNU, 56.27% in DU, 54.94% in BHU and 44.78% in AMU were agreed with the sufficiency of available online databases. On the contrary, a very less percentage of users as; 4.11% in BHU, 2.77% from DU and 1.86% in AMU strongly disagreed with this statement.

**5.2.6.4. Satisfaction with the Available Online Databases in the Library**

The efficiency of an online database is determined by the satisfaction of users with the coverage and scope of the online databases. Appreciably, the satisfaction regarding online databases in DU is comparatively better, as 24.24% faculty members
### Table 5.42: Satisfaction with the Available Databases in the Library

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Level of Satisfaction</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>UP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Highly satisfied</td>
<td>8 (24.24)</td>
<td>31 (4.09)</td>
<td>12 (3.27)</td>
<td>7 (2.61)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>23 (12.92)</td>
<td>6 (25)</td>
<td>- (7.22)</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Satisfied</td>
<td>20 (60.61)</td>
<td>192 (6.67)</td>
<td>70 (75.48)</td>
<td>108 (40.3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>112 (62.92)</td>
<td>296 (56.54)</td>
<td>428 (7.5.48)</td>
<td>20 (55.55)</td>
</tr>
<tr>
<td>3.</td>
<td>Neither satisfied / nor dissatisfied</td>
<td>3 (9.09)</td>
<td>110 (14.53)</td>
<td>15 (14.28)</td>
<td>27 (15.67)</td>
</tr>
<tr>
<td>4.</td>
<td>Dissatisfied</td>
<td>2 (6.06)</td>
<td>168 (22.19)</td>
<td>43 (11.72)</td>
<td>101 (37.69)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24 (13.48)</td>
<td>142 (26.01)</td>
<td>8 (30.77)</td>
<td>16 (44.44)</td>
</tr>
<tr>
<td>5.</td>
<td>Highly dissatisfied</td>
<td>-</td>
<td>20 (3.66)</td>
<td>20 (2.64)</td>
<td>10 (6.90)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4 (2.78)</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted) (Figures within parenthesis are percentage)
and 12.92% research scholars were highly satisfied with the existing collection of online databases. In JNU, 25% faculty members amongst the user groups were highly satisfied with the online databases. With respect to the satisfaction with the online databases, the data collected in table 5.42 reveals that, 7.22% research scholars were highly satisfied with the available online databases in AMU, but none of the postgraduates and faculty members replied to this statement. However, no response is received in this context from BHU.

The situation is comparatively better in DU and JNU regarding the satisfaction of online databases, where majority of the users with 62.92% research scholars, 60.61% faculty members and 54.21% postgraduates in DU; while as 80.67% research scholars, 66.67% postgraduates and 62.5% faculty members in JNU replied that they were satisfied with the online database collection provided via the library. The collected data however reflects that majority of users in AMU with, 50% faculty members, followed by 46.39% research scholars and 34.48% postgraduates were satisfied with the online databases provided by their respective library. In BHU, 55.55% faculty members, 52.08% research scholars and 47.38% postgraduates stated that they were satisfied with the available online databases.

Interestingly in DU, relatively a less percentage of users with 16.12% postgraduates, subsequently 10.67% research scholars and 9.09% faculty members were neutral to this statement. On the other hand, not many responses were received in this regard from JNU; as 14.28% postgraduates and 8.40% research scholars, while no faculty members answered on this issue. Similarly, a less percentage of users as 19.23% faculty members, 18.62% postgraduates and 10.31% research scholars in AMU were neither satisfied nor dissatisfied with the available online databases. However, 13.89% research scholars and 18.95% postgraduates in BHU had the same opinion, but faculty members do not give any response in this context.

In case of DU, 26.01% postgraduates, 13.48% research scholars and 6.06% faculty members, while in JNU a small percentage of postgraduates (19.05%), faculty members (12.5%) and research scholars (8.40%) reported that they were dissatisfied with the online databases provided by their respective libraries. In contrast to the above, it is observed that 40% postgraduates, subsequently 36.08% research scholars and 30.77% faculty members in AMU; while 44.44% faculty members followed by 33.66% postgraduates and 31.25% research scholars in BHU have shown their dissatisfaction with the existing collection of online databases in the library.
Moreover, the data shows that a very low percentage of users as, 2.78% research scholars in BHU, 3.66% postgraduates in DU and 6.90% postgraduates in AMU were highly dissatisfied with the overall collection of online databases available in the surveyed libraries. However, none among the faculty members in DU, AMU and BHU were highly dissatisfied with the online databases provided by the libraries. All the same, none of the faculty members, research scholars and postgraduates in JNU was highly dissatisfied with the existing online databases in their respective libraries.

Furthermore, the data reflects that a considerable percentage of users in DU, i.e., 56.54% were satisfied, 22.19% dissatisfied, 14.53% were neither satisfied nor dissatisfied, 4.09% seem to be highly satisfied and 2.64% were highly dissatisfied, while in JNU, 75.48% satisfied, 11.72% dissatisfied, 9.54% neither satisfied nor dissatisfied and 3.27% were highly satisfied with the online databases which are sufficient enough to fulfill their needs. The condition in this regard is somewhat similar in AMU, where 40.3% users satisfied, 37.69% dissatisfied, 15.67% neither satisfied nor dissatisfied, 3.73% highly dissatisfied and 2.61% were highly satisfied in AMU; similarly in BHU 49.38% satisfied, 33.74% were dissatisfied, 16.05% were neither satisfied nor dissatisfied and 0.82% highly dissatisfied with the existing collection of online databases in their libraries.

Figure 5.18: Satisfaction with the available Online Databases in the Library
The figure 5.18 shows that a majority of users in all the four surveyed universities have shown their satisfaction with the online database services provided by libraries. Notably, the number was more in JNU (75.48%) than DU (56.54%), BHU (49.38%) and AMU (40.3%) related to the satisfaction with available online database collections in central university libraries.

5.2.6.5. Efficiency of Library Staff in Providing Help Regarding the Use of Online Databases

The competence of staff members also plays an important role to enhance use of online databases. A competent library staff is always beneficial for users to satisfy their demands within less time. The investigator had asked a question to rate the efficiency of library staff by the users of online databases. The data obtained from table 5.43, reflects that 11.43% postgraduates and 8.82% research scholars in JNU replied that the library staff is very efficient in providing online database services. Whereas in DU, 6.06% faculty members and 5.49% postgraduates reported that the library staff is very efficient. However, none of the user group in AMU rated that the library staff was very efficient in providing online services. In case of BHU, 1.63% postgraduates reported that library staff is very efficient.

The data further shows, that the majority of users with 63.64% faculty members, 57.30% research scholars and 54.21% postgraduates in DU; however, 62.5% faculty members, 73.53% research scholars and 51.43% postgraduates in JNU claimed that the library staff is quite efficient. On the contrary, 61.54% faculty members, followed by 56.7% research scholars and 54.48% postgraduates in AMU rate the behavior of library staff as efficient. However, there is a small difference between the efficiency of library staff of both the universities (AMU and BHU) in this regard. Notably, 58.33% faculty members, 63.89% research scholars and 54.9% postgraduates in BHU reported that the library staff is providing help regarding online databases efficiently.

A very less percentage of users in DU stated that they were not sure about efficiency of library staff, including 3.93% research scholars and 3.66% postgraduates; whereas in JNU, only 9.52% postgraduates were of the same opinion. However, no response was received from the faculty members of all the surveyed libraries in this regard. Interestingly, 15.86% postgraduates and 10.31% research scholars in AMU; similarly 8.33% postgraduates and 25.49% research scholars in BHU were not sure about the behaviour of library staff.
Table 5.43: Efficiency of Library Staff in providing help regarding the use of Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Efficiency of library staff</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>UP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Very efficient</td>
<td>2 (6.06)</td>
<td>-</td>
<td>30 (5.49)</td>
<td>32 (42.27)</td>
</tr>
<tr>
<td>2.</td>
<td>Efficient</td>
<td>21 (63.64)</td>
<td>102 (57.30)</td>
<td>296 (55.35)</td>
<td>419 (54.21)</td>
</tr>
<tr>
<td>3.</td>
<td>Not sure</td>
<td>-</td>
<td>7 (3.93)</td>
<td>20 (3.66)</td>
<td>27 (3.57)</td>
</tr>
<tr>
<td>4.</td>
<td>Inefficient</td>
<td>10 (30.30)</td>
<td>51 (28.65)</td>
<td>185 (33.88)</td>
<td>246 (32.5)</td>
</tr>
<tr>
<td>5.</td>
<td>Very inefficient</td>
<td>-</td>
<td>18 (10.11)</td>
<td>15 (2.75)</td>
<td>33 (4.36)</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted) (Figures within parenthesis are percentage)
In case of DU, 30.30% faculty members, 33.88% postgraduates and 28.65% research scholars; though in JNU also 37.5% faculty members, 27.62% postgraduates and 17.65% research scholars rated the library staff to be inefficient. The collected data further shows that a considerable percentage of faculty members (38.46%), research scholars (38.14%) and postgraduates (20.69%) in AMU; and 41.67% faculty members, 27.78% research scholars and 11.44% postgraduates in BHU stated that the library staff is inefficient in providing the required help.

Moreover, a low percentage of users in DU, where 10.11% research scholars and 2.75% postgraduates also rated the library staff as being very inefficient in providing the required help. However, none of the faculty members in all the surveyed universities responded to this question, while in JNU, not even a single user responded on this issue. The situation in this respect is somewhat similar in AMU, where 8.96% postgraduates and 5.15% research scholars in AMU; whereas 6.53% postgraduates only in BHU claimed that the library staff was very inefficient in providing the online database services.

As far as efficiency of library staff of the surveyed libraries is concerned, the figure 5.19 shows that a large number of users in all the select universities had agreed with the fact that the library staff in providing help to them regarding the use of online database services. This is observed as, 66.48% in JNU followed by 57.82% in BHU, 55.97% from AMU while 55.35% in DU found that the library staff is efficient in providing the online services.

Figure 5.19: Efficiency of Library Staff
<table>
<thead>
<tr>
<th>S. No.</th>
<th>Facilities provided by the Library</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>UP</th>
<th>BHU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>24x7 accessibility (Wi-Fi)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15 (45.45)</td>
<td>120 (67.41)</td>
<td>284 (55.35)</td>
<td>419</td>
<td>11 (45.83)</td>
<td>171 (71.85)</td>
</tr>
<tr>
<td></td>
<td>13 (45.83)</td>
<td>171 (71.07)</td>
<td>66 (62.86)</td>
<td>248 (67.57)</td>
<td>10 (38.46)</td>
<td>45 (46.39)</td>
</tr>
<tr>
<td>2.</td>
<td>Computer Lab</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16 (48.48)</td>
<td>123 (69.10)</td>
<td>310 (56.78)</td>
<td>449</td>
<td>10 (41.67)</td>
<td>167 (70.17)</td>
</tr>
<tr>
<td></td>
<td>13 (41.94)</td>
<td>229 (59.31)</td>
<td>52 (49.52)</td>
<td>229 (62.4)</td>
<td>15 (57.69)</td>
<td>60 (61.85)</td>
</tr>
<tr>
<td>3.</td>
<td>Adequate number of terminals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6 (18.18)</td>
<td>65 (36.52)</td>
<td>229 (41.94)</td>
<td>300 (39.63)</td>
<td>5 (20.83)</td>
<td>80 (33.61)</td>
</tr>
<tr>
<td></td>
<td>3 (12.5)</td>
<td>40 (16.81)</td>
<td>19 (18.09)</td>
<td>62 (16.89)</td>
<td>-</td>
<td>13 (13.4)</td>
</tr>
<tr>
<td>4.</td>
<td>Supporting devices(A/V)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9 (27.27)</td>
<td>110 (61.8)</td>
<td>217 (39.74)</td>
<td>336 (44.38)</td>
<td>11 (45.83)</td>
<td>128 (53.78)</td>
</tr>
<tr>
<td></td>
<td>3 (12.5)</td>
<td>40 (16.81)</td>
<td>19 (18.09)</td>
<td>62 (16.89)</td>
<td>-</td>
<td>13 (13.4)</td>
</tr>
<tr>
<td>5.</td>
<td>Help &amp; Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9 (27.27)</td>
<td>110 (61.8)</td>
<td>217 (39.74)</td>
<td>336 (44.38)</td>
<td>11 (45.83)</td>
<td>128 (53.78)</td>
</tr>
<tr>
<td></td>
<td>3 (12.5)</td>
<td>40 (16.81)</td>
<td>19 (18.09)</td>
<td>62 (16.89)</td>
<td>-</td>
<td>13 (13.4)</td>
</tr>
</tbody>
</table>

(Figures within parenthesis are percentage)
5.2.7. LIBRARY FACILITIES AND SUPPORT

5.2.7.1. Facilities Provided by the Library for Proper Utilization of Online Databases

Infrastructure and services is the spirit of any library. The investigator requested the users to state about the various facilities provided by the library for proper utilization of online database. The data is shown in table 5.44.

In DU, around 67.41% research scholars, 52.01% postgraduates and 45.45% of the faculty members; whereas in JNU, 71.85% research scholars, 62.86% postgraduates and 45.83% faculty members, stated that their libraries are providing the facility of 24x7 access to online databases through Wi-Fi. In AMU, an adequate percentage of research scholars (46.39%), faculty members (38.46%) and postgraduates (21.38%) and 36.11% faculty members, 51.39% research scholars and 33.66% postgraduates in BHU mentioned that they have provided 24x7 accessibility to online databases through Wi-Fi.

In DU, a significant percentage of users as, 69.10% research scholars, 56.78% postgraduates and 48.48% faculty members mentioned that they accessed online databases from computer lab; whereas in JNU, about 70.17% research scholars, 49.52% postgraduates and 41.67% faculty members were using online databases from the computer lab. However, an adequate percentage of research scholars (61.85%) and faculty members (57.69%) in AMU; while as, 88.19% research scholars, 68.30% postgraduates and 36.11% faculty members in BHU mentioned that they were allowed to use computer lab to access online databases, but in AMU, PGs were not permitted to use library’s computer lab for accessing online databases.

Adequacy of terminals is also an important factor in proper utilization of online databases. However, 41.94% postgraduates, 36.52% research scholars and 18.18% faculty members in DU and majority of the users as, 48.57% postgraduates, 33.61% research scholars and 20.83% faculty members in JNU stated that their libraries have adequate number of terminals to access online databases. On the contrary, in AMU, 47.42% research scholars and 46.15% faculty members; and in BHU, 34.72% research scholars and 54.9% postgraduates reported that their libraries have adequate numbers of terminals, but none of the postgraduates in AMU gave any response regarding the adequacy of terminals, as they don’t allow to access online databases from library.
For proper utilization of online resources, some aided devices are also required. Amongst the four surveyed libraries only two libraries (JNU and AMU) provided this facility to its users. In JNU, less percentage of users such as, postgraduates (18.09%), research scholars (16.81%) and faculty members (12.5%) mentioned that they were also provided with some supporting devices (Headphones) for better utilization of online databases. On the other hand, only the research scholars (13.4%) mentioned about supporting devices in AMU.

Like other factors, help and support also has a major role in the usage of any library source, here the investigator attempts to know whether these services are also provided by the libraries regarding the online databases usage. In DU, 61.8% research scholars, 39.74% postgraduates and 27.27% faculty members; 53.78% research scholars, 49.52% postgraduates and 45.83% faculty members in JNU were getting support from the library staff in using online databases. In AMU, a moderate percentage of research scholars (50.51%), postgraduates (43.45%) and faculty members (30.77%); whereas in BHU, postgraduates (58.50%), research scholars (54.17%) and faculty members (33.33%) stated that they get personal help or support from library staff.

As shown in the figure 5.20, in DU, a considerable proportion of users as 59.31% mentioned about computer lab, 55.35% said about the 24x7 accessibility to online databases via Wi-Fi, 44.38% pointed towards help and support, while 39.63%
reported adequate number of terminals as the major facilities that were provided by the library for making use of online databases efficiently. Nevertheless in JNU, 67.57% respondents pointed out that they get 24x7 accessibility to online databases, followed by computer lab (62.4%), 52.04% of the users get support from library staff, 37.06% adequate number of terminals, and 16.89% of the respondents said that they got supporting devices for online databases. In case of AMU, majority of the respondents said that the help & support (44.78%) provided by library followed by 24x7 accessibility (32.09%) to online databases, facility of computer lab (27.98%), adequate number of terminals (21.64%) and only 4.85% of the respondents said that they were provided the supporting devices for using online databases. In BHU, greater part of users reported about facilities of computer lab (71.81%) help and support (55.35%) followed by adequate number of terminals (44.85%) and 24x7 accessibility (39.09%) as the facilities provided by the library to access online database.

The above analysis shows that computer lab is the facility mentioned by DU (59.31%) and BHU (71.81%), while the majority in JNU (67.57%) mentioned about 24x7 accessibility to online databases. However, majority of users in AMU (44.78%) mentioned about the help & support provided by library staff. The provision of supporting devices was stated by least number of users in JNU (16.89%) and AMU (4.85%), whereas in BHU the provision of online databases to 24x7 accessibility was mentioned by less number of users (39.09%). In DU, a less percentage of users (39.63%) were satisfied with the number of terminals provided by the library for making use of online databases.

5.2.7.2. Help/Instructions Provided by Library Staff in using the Online Databases

With online databases, information is now available in a variety of forms and formats, which require some skills or techniques to access it properly. The investigator asked questions to online database users to know, about any kind of support or instruction programmes offered by their respective libraries.

It is clear from the table 5.45 that a very higher percentage of users, i.e., 83.7% postgraduates, 83.15% research scholars and 78.79% faculty members in DU and in JNU, 80.67% research scholars, 77.14% postgraduates and 66.67% faculty members mentioned that they got assistance from the library staff in different ways for better usage of online database services. However, in AMU, majority of research scholars (77.32%), 61.54% faculty members and 41.38% postgraduates;
Table 5.45: Help/Instructions Provided by Library Staff in using the Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Category</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>UP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FM</td>
<td>RS</td>
<td>PG</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N=33</td>
<td>N=178</td>
<td>N=546</td>
<td>N=757</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FM</td>
<td>RS</td>
<td>PG</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N=24</td>
<td>N=238</td>
<td>N=105</td>
<td>N=367</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FM</td>
<td>RS</td>
<td>PG</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N=26</td>
<td>N=97</td>
<td>N=145</td>
<td>N=268</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FM</td>
<td>RS</td>
<td>PG</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N=36</td>
<td>N=144</td>
<td>N=306</td>
<td>N=486</td>
</tr>
<tr>
<td>1.</td>
<td>Yes</td>
<td>26</td>
<td>148</td>
<td>457</td>
<td>631</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(78.79)</td>
<td>(83.15)</td>
<td>(83.7)</td>
<td>(83.35)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16</td>
<td>192</td>
<td>81</td>
<td>289</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(66.67)</td>
<td>(80.67)</td>
<td>(77.14)</td>
<td>(78.75)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16</td>
<td>75</td>
<td>60</td>
<td>151</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(61.54)</td>
<td>(77.32)</td>
<td>(41.38)</td>
<td>(56.34)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10</td>
<td>94</td>
<td>202</td>
<td>306</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(27.78)</td>
<td>(65.28)</td>
<td>(66.01)</td>
<td>(62.96)</td>
</tr>
<tr>
<td>2.</td>
<td>No</td>
<td>7</td>
<td>30</td>
<td>89</td>
<td>126</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(21.21)</td>
<td>(16.85)</td>
<td>(16.3)</td>
<td>(16.64)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td>46</td>
<td>24</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(33.33)</td>
<td>(19.33)</td>
<td>(22.86)</td>
<td>(21.25)</td>
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<tr>
<td></td>
<td></td>
<td>10</td>
<td>22</td>
<td>85</td>
<td>117</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(38.46)</td>
<td>(22.68)</td>
<td>(58.62)</td>
<td>(43.66)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26</td>
<td>50</td>
<td>104</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(72.22)</td>
<td>(34.72)</td>
<td>(33.99)</td>
<td>(37.04)</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted) (Figures within parenthesis are percentage)
whereas a good percentage of users in BHU as 65.28% research scholars, 66.01% postgraduates and 27.78% faculty members clarified that their libraries were providing help or instructional programmes for using the online databases.

Notably, a considerable amount of users in all the surveyed universities also revealed that the libraries were not providing any type of support services for making use of available online databases. As seen in DU, a slightly less percentage of 21.21% faculty members, 16.85% research scholars and 16.3% postgraduates and in JNU, around 33.33% faculty members, 22.86% postgraduates and 19.33% research scholars have the same opinion as others that their libraries are reluctant to provide any support with regard to the online database services. As compared to AMU, 58.62% postgraduates, 38.46% faculty members and 22.68% research scholars; 72.22% faculty members, 34.72% research scholars and 33.99% postgraduates in BHU denied the fact that libraries were providing any type of support or help to them.

It is revealed from figure 5.21 that, the majority of respondents in DU (83.35%), followed by JNU (78.75%), BHU (62.96%) and AMU (56.34%) stated that their respective libraries were providing assistance through different ways in using online databases. On contrary, in AMU around 43.66% of users followed by 37.04% in BHU, 21.25% from JNU and least in DU as 16.85% users reported that they were not getting any help from library staff. Hence, it is suggested that library staff should provide support to the users with respect to the use of online databases.
### Table 5.46: Support Services provided by the Library for the use of Online Databases

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Type of Support</th>
<th>DELHI</th>
<th>JNU</th>
<th>AMU</th>
<th>UP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Information literacy programmes</td>
<td>10 (38.46)</td>
<td>40 (27.03)</td>
<td>79 (17.29)</td>
<td>129 (20.44)</td>
</tr>
<tr>
<td>3.</td>
<td>Personal help by library staff</td>
<td>8 (30.77)</td>
<td>56 (35.67)</td>
<td>163 (35.97)</td>
<td>227 (35.97)</td>
</tr>
</tbody>
</table>

(Multiple responses were permitted)
5.2.7.3. Support Services provided by the Library for the use of Online Databases

The development of users’ skills or expertise is essential for the effective use of online databases, as a skilled person makes more use of online databases in a better way than an unskilled or novice user. In order to know about the types of support services provided by the libraries to improve the use of online databases, the investigator has asked the users of all the four surveyed libraries in this context and the responses are presented in table 5.46.

Due to information explosion, students are not able to learn each and everything that they need to know in the field of their interest. Information literacy enables them to learn those skills necessary to make them independent learners. Its concept evolved from several basic library concepts such as library instructions, bibliographic education, user education, and information literacy programmes (Ranaweera, 2008). It involves the various modes of imparting education and skills to learners, i.e., user education, library orientation, user training, skill development programmes and other related concepts.

In DU, a relatively high percentage of faculty members (38.46%), 27.02% research scholars and 17.29% postgraduates, while as same amount of users in JNU i.e. 43.75% faculty members, 47.8% research scholars and 49.38% postgraduates stated that training and orientation programmes are organized by their respective libraries. In AMU, 48% research scholars followed by 38.33% postgraduates and 37.5% faculty members stated that their library conducted information literacy programmes. While in BHU, the situation is somewhat better, where 40% faculty members, 46.81% research scholars and 26.73% postgraduates mentioned that their library organize different types of training and orientation programmes.

However, online tutorials are an excellent means of providing self-assistance to users by describing features and search capabilities of online databases, but unfortunately none of the surveyed libraries excluding DU is providing this service. In DU, a majority of 53.85% faculty members, 68.92% research scholars and 48.14% postgraduates affirmed that their libraries is provided online tutorials as one of the best methods to exploit the benefits of online databases. It is quite surprising that, no user in JNU, AMU and BHU mentioned that the library never provided any type of online tutorials for enhancing the use of online databases.
It is clear from the above table that, 30.77% faculty members, 37.84% research scholars and 35.67% postgraduates in DU and 56.25% faculty members, 65.93% research scholars and 65.43% postgraduates in JNU revealed that they got personal assistance from library staff while using online databases. While, about 62.5% faculty members, 57.33% research scholars and 75% postgraduates in AMU got proper help from library staff. In BHU, 70% faculty members, 65.96% research scholars and 75.74% postgraduates mentioned that the library staff was providing assistance while using online databases.

It is revealed from overall analysis that majority of respondents in BHU (72.55%) followed by AMU (64.9%), JNU (62.97%) and DU (35.97%) stated that library staff personally helped them in accessing online databases. According to Kumar, Roy & Satija (2011), user orientation programmes are the most important for gaining knowledge of use of databases. Therefore, library staff should make their users aware of online databases through conducting different types of orientation programmes.
REFERENCES


Janaki S. & Pauziaah Mohamed. (2007). The Use of Subscribed Online Databases among the Postgraduates at the University of Malaya Library (pp.257-263). In A. Abdullah, et al. (Eds.), *ICOLIS 2007*, Kuala Lumpur: LISU, FCSIT.


CHAPTER 6

FINDINGS, SUGGESTIONS AND CONCLUSION

This chapter deals with the summary of the findings and suggestions based on the analysis of collected data with respect to use of online databases in the faculties of Social Sciences and Arts in the central universities of Delhi and UP, some of the major findings to enhance the use of online databases are summed up as follows:

6.1. FINDINGS

Part- A

Major Findings derived from the Responses of Librarians

The major findings of the study, in summarized form, conducted among the librarians/librarian-in-charges of the libraries under study are following:

1. Amongst the surveyed libraries, only the library of BHU has separate budget for the subscription of online databases, whereas the other surveyed libraries did not have any budget for the purchase of online databases (Table 5.1).

2. Amongst the four libraries under study, DU has the highest number of online databases, 79 followed by JNU (66), BHU (24) and AMU (24) (Table 5.2).

3. In the libraries of DU, JNU, AMU and BHU, Faculty recommendations are the prominent source for selection of online databases, followed by user recommendations in DU, JNU and AMU, while the recommendations of library committee are considered by for selecting online databases in the libraries of JNU, AMU and BHU. News groups, reviews and vendor’s recommendations are the less preferred sources for selection (Table 5.3).

4. Selection of online database in the surveyed libraries is mostly done according to the coverage, authority/publisher, cost, licensing policy, user’s need, and functionality and reliability of the sources. The other options of selection include; authentication, technical feasibility, vendor support and user interface as the least preferred for selecting online databases (Table 5.4).

5. Online databases are procured in all the select university, viz., DU, JNU, AMU and BHU libraries through both consortium and direct subscription from vendors (Table 5.5).

6. Libraries of DU, JNU, AMU and BHU are mostly preferred publishers to be an important and reliable mode of acquisition, followed by online database
aggregators (Proquest, EBSCOhost etc.) in JNU, AMU and BHU and professional organizations are the other modes used in JNU and BHU for acquisition of online databases (Table 5.6).

7. The libraries of DU, AMU and BHU provide on campus access to online databases through recognized IP address; while on campus ID & password protected access to subscribed databases is provided in the libraries of JNU, AMU and BHU. Only the JNU’s library offers remote access to online database which enables its registered users to access it anywhere from the world (Table 5.7).

8. The libraries under study are using proxy servers to provide access of its subscribed online databases to registered users only.

9. Library staff of the libraries under study of Delhi and UP, agreed that the usage of print sources has decreased as use of online databases has increased (Table 5.8).

10. In DU, JNU, AMU and BHU libraries, usage statistics is used to find out the use of online databases. However, log analysis is also used to determine the overall use of online databases, but it is not applicable for the discipline wise usage study. In the library of DU, usage of online databases is also determined by the Usage Register used to record the particulars of online databases (Table 5.9).

11. According to the usage statistics usage provided by the library of JNU, JSTOR has the highest usage in 2013 and 2014 respectively. In both the years, Annual Reviews was recorded as the least used online database (Table 5.9 a).

12. In AMU, in the consecutive years 2013 and 2014, Science Direct recorded the highest usage whereas Annual Reviews with least usage marked in 2013 and Project Muse in 2014(Table 5.9 b).

13. Science Direct was found to be among the highly used online databases in BHU in the years of 2013 and 2014, while as Project Muse recorded minimum usage in both the years, i.e., 2013 and 2014 respectively(Table 5.9 c).

14. Comparative usage analysis of online databases among JNU, AMU and BHU reveals that, in the years 2013 and 2014, JSTOR was the most used online database in the faculties of Social Sciences and Arts in JNU. However, Science Direct was highly used by the users in AMU in 2013 and 2014. The same pattern of usage was seen in BHU, where Science Direct had maximum
usage among the online databases. Annual Reviews was found to be among
the less used online databases in JNU, while, Annual Reviews in 2013 and
Project Muse had comparatively less usage in AMU for the 2014. In the years
of 2013 and 2014, Project Muse was ranked as least used online databases in
BHU (Table 5.9.d).

15. Price of online databases and limited access to number of users and sites are
the main problems faced by the library staff of JNU, AMU and BHU, whereas
back issues & archiving in DU and AMU and lack of value added services in
AMU only while procuring online databases. In JNU library staff does not
face any problems while subscribing to online databases (Table 5.10).

16. Difficulties related to networking, insufficient collection, lack of
skilled/trained IT personnel and inadequate library resources (equipments),
lack of skilled or trained staff and technical problems are identified as the
major problems by library staff of all the surveyed libraries except JNU (Table
5.11).

17. The facility of computer lab, adequate number of terminals, 24x7 accessibility
through Wi-Fi and support services are provided by all libraries, while audio
visual devices are provided by the AMU and JNU libraries. The facility of Ask
a librarian in DU, AMU and BHU and the facility of trial access in DU, JNU
and AMU, whereas online tutorials is only provided by the DU library (Table
5.12).

18. Library website is the most popular medium used by the libraries to alert and
inform about its collection and services. The libraries of DU, JNU AMU and,
BHU update their users by providing information through their library
websites. University web pages and Emails are used by the libraries of JNU
and AMU, while notification by AMU’s library used to update their users
(Table 5.13).

19. The service of Tutorials or Manuals is also provided in libraries of DU, JNU
AMU and BHU, to help the customers in using their product. The database
providers offer Trial evaluation/ Promotional materials and Technical
/Customer support to complement their services for the DU, JNU and AMU
libraries. While the provision of product customization and feedback is
provided in BHU and AMU library respectively (Table 5.14).
20. According to the librarians, lack of awareness in JNU, AMU and BHU; while as lack of IT skills / expertise in DU, AMU and BHU are the major factors responsible for the less usage of online databases. However, lack of interest in online sources is observed in DU and BHU, lack of orientation programmes in AMU and JNU and more dependence on print sources and improper provision of library services in AMU are mentioned as reason for less usage of online databases in AMU (Table 5.15).

21. The libraries of DU, JNU and BHU are regularly organizing different types of training and orientation programmes for their staff and users to help them in using online databases. However, the library of AMU does not organize any training programme or orientation programmes either for staff or users for better use of online databases (Table 5.16).

22. The libraries of all the three universities except AMU are regularly organizing library orientation and training programmes. The Demonstration of online resources through Publishers/Commercial Vendors is conducted in BHU and JNU libraries. Training/workshops were organized by the libraries of DU, JNU and BHU, while as the libraries of DU, JNU and AMU organized different types of Information Literacy Programmes to educate their staff and users about the benefits and use of online resources (Table 5.17).

Part- B

Major Findings of the Responses Derived from the Library Users

This part discusses major findings of the survey conducted among the users of the select libraries under study as given below:

1. Awareness of online databases among the users in the universities of Delhi is higher as compared to the users in the universities of UP, i.e., 38.04% in DU and highest 71.93% in JNU 28.35%, whereas in AMU, and 20.27% in BHU. Amongst the user groups, faculty members (90.91% DU, 100% JNU, 50% AMU, 44.44% in BHU) have more awareness about online databases as compared to research scholars (62.92% DU, 75.63% JNU, 41.24% AMU, 33.33% in BHU) and postgraduates (26.74% DU, 57.14% JNU, 15.86% AMU, 11.44% in BHU) in all the select universities. This is finding is supported by the study of Mannan, Zaidi and Bharah (2009), which showed that faculty members and research scholars are well aware of the availability of online databases and largely used them Realizing the fact the online
databases today is recognized as an essential component for study and teaching, it is heartening to note that only a very small percentage (15.86%) of the PG students in AMU were confident about their level of awareness with online databases, the condition is still poorer when it comes to as only 11.44% of the PG students are confident about their awareness (Table-5.18).

2. Internet is regarded as the main source of information through which majority of the users in BHU (67.08%) followed by DU (59.71%) and AMU (57.83%) get acquainted with online databases, while a significant number of users (77.83%) in JNU got informed about online databases from the library website. Friends and colleagues are considered as second most preferred source of information in JNU (66.21%) and BHU (52.47%), although ‘teachers’ in DU (56.94%) and AMU (57.09%) are considered as an important means to be informed with online databases. This is supported by the study of Panda (2010) that the majority of users seek information from library staff or experts and from friend. Internet users’ majority belongs mostly to Research Scholars, as 73.03% in DU, 67.01% in AMU and 76.39% Research Scholars in BHU, on the contrary, most of the Research Scholars (79.83%) in JNU used library website as source of information about online databases (Table 5.19).

3. A high percentage of users in all the select universities except JNU use online databases occasionally, though in JNU, users mostly used online databases in 2-3 times a week. Amongst the occasional users, PG has the higher percentage as compared to others groups in DU, AMU and BHU. In JNU, majority of the faculty members used the online databases 2-3 times a week. (Table 5.20).

4. Majority of the respondents in DU most of the users like to use online databases for updating knowledge, conversely in JNU, online databases are mostly consulted for writing papers, while in AMU and BHU use online databases for preparing assignments and project. This corresponded to the results given by Atakan (2008) that revealed the databases were largely used for research, educational purposes and for getting information. However, research scholars in the all universities of Delhi and UP had higher use of online databases for writing papers in DU and JNU and for preparing assignments and project in AMU and BHU (Table 5.21).
5. Journal articles are the most preferred online database resources in the universities of Delhi and UP, i.e. faculty members in DU (100%) and all the faculty members and research scholars in JNU as 100% use online databases for accessing journal articles, while in AMU and BHU, research scholars (100% and 95.83%) are the prominent users of Journals articles. Among the respondents of DU, BHU and AMU, miscellaneous materials (reviews and editorials) are the least preferred sources, while books are kept under the category of least used resources in JNU (Table 5.22).

6. More than fifty percent of users in DU, AMU and BHU; i.e. mainly research scholars (75.84%, 76.29% and 70.14 % respectively) access online databases from the university computer centre. However, university library is considered as a central place for accessing online database by the majority of users (79.83% research scholars) in JNU. This finding is supported by the study of Thanuskodi (2013) that the central library is the most preferable place of using online resources (Table 5.23).

7. Full text documents in online databases are usually preferred by a larger percentage of users, such as in DU (90.91% FM, 100% RS, 90.84% PG %), in JNU (91.67% FM, 96.63% RS, 87.62% PG), AMU (84.64% FM, 100% RS, 84.83% PG) and BHU (86.11% FM, 98.61% RS, 81.7%PG). On the other hand, multimedia based information is least preferred by the users of DU (36.36% FM, 21.91% RS, 20.69%PG) and JNU (16.67% FM, 18.06% RS, 10.48%PG). Respectively, whereas numeric or statistical type of information got least responses in AMU (93.23% FM, 20.62% RS, 14.48%PG) and BHU (16.67% FM, 16.67% RS, 7.19%PG) (Table 5.24).

8. In all the surveyed libraries of Delhi and UP, the majority of 68.03% from DU 84.2% in JNU, 71.27% in AMU and 66.46% in BHU determined the relevance and reliability of documents through its content. However, the hyperlinks preferred least by the users in DU (7.26%), JNU (10.08%), AMU (4.85%) and BHU (5.55%) to determine the worthiness of the documents retrieved through the online databases (Table 5.25).

9. In DU, JSTOR, Science Direct and Project Muse were the most used online databases by the faculty members, research scholars and postgraduates respectively. On the contrary, LISTA and ISI Emerging Markets CEIC Asia
were less used online databases in the faculties of Social Sciences and Arts in DU (Table 5.26).

10. Science Direct was the most used database amongst the faculty members and research scholars, while JSTOR was preferred mostly by the postgraduates in JNU (Table 5.27).

11. JSTOR was the most popular database amongst the faculty members and research scholars, while Emerald was most used by the postgraduates. While the databases, Annual Reviews, Wiley Inter science and ISID were least used by all the user groups in AMU (Table 5.28).

12. The online database JSTOR was ranked first by the faculty members and postgraduates, while Emerald rated at first position by most of research scholars, in BHU (Table 5.29).

13. Comparative study shows that, JSTOR is the most used online database among DU, AMU and BHU, while Science Direct is the online databases that most commonly used by the users of JNU (Table 5.30).

14. Search engine is the most preferred and easiest means to access online databases. Majority of users as in AMU (75.75%) with (46.15%FM, 70.1%RS, 84.83%) PG 70.99% in BHU (55.55%FM, 75%RS, 70.91% PG), 70.57% in JNU (58.33% FM, 71.85% RS, 70.48% PG), and 67.11% in DU (48.48%FM, 86.52%, RS 61.9%PG), was accessed online databases through search engines. Although, access to online databases through publisher website was the least preferred means to access online databases among the users of all the surveyed universities i.e. total 29.06% in DU comprising 33.33%FM, 47.75%RS, 22.71% PG followed by 25.61% in JNU comprising 16.67%FM, 29.41%RS, 19.05% PG, total 20.15% in AMU including 38.46%FM, 20.62%RS, 16.55% PG and 24.07% in BHU including 50%FM, 26.39%RS, 19.93% PG, were least Preferred access library website to access online databases (Table 5.31).

15. In the universities of Delhi and UP, highest responses received were for Basic search (88.24% in DU, 83.92% in JNU, 88.06% in AMU and 84.77% in BHU, respectively), followed by Advanced search (69.75% in DU, 56.54%, in JNU, 40.67% in AMU and 27.57% in BHU respectively), Expert search (8.32% DU, 11.44%JNU, 6.34% AMU and 4.93% BHU respectively) and a very less number of users as 3.04% in DU, 7.36% in JNU, 4.48% in AMU and
1.85% in BHU used Citation locator technique for searching citation related information in online databases (Table 5.32).

16. With regard to the advanced search technique, Boolean operators is the most preferred search strategy used by majority of users in DU (69.7% faculty members, 77.52% research scholars, and 60.80% postgraduates) and BHU (55.55% faculty members, 63.89% research scholars, and 53.92% postgraduates), on the contrary, the option of searching by field search is used most by the respondents of JNU (75% faculty members, 84.45% research scholars and 76.19% postgraduates) and AMU (69.23% faculty members, 75.26% research scholars and postgraduates 58.62%). However, the proximity search is used very rarely in all the select universities of Delhi and UP, i.e., in DU (5.81%), JNU (11.72%), AMU (6.34%) and BHU (4.11%) respectively (Table 5.33).

17. PDF is the most preferred format used to read or download documents from online databases, as 100% users in JNU and DU respectively; while a little less in AMU (97.39 percent) and BHU (96.50 percent) used it to access information from online databases. Kattimani (2010) elaborated that majority of the users preferred PDF to download the online information rather than using other formats of downloading (Table 5.34).

18. Print journals are more favoured by the users of AMU and BHU respectively. On the contrary in DU and JNU a large number of users showed more interest towards online journals rather than print documents. In DU and JNU a large number of users in the faculties of the Social sciences and Arts 51.52% and 65.94% respectively showed more interest towards the online journals rather than the print documents, On the contrary, in the universities of UP (AMU and BHU), print forms were more preferred by the users i.e., 64.92% and 65.43% respectively. The reason of using more print resources may be that, the required information is mostly available in print form; also the lack of awareness about online resources prevents users from making use of online resources. This finding supported by Tyagi (2012), who asserted that users depended more on print sources, because of having less awareness of electronic resources (Table 5.35).

19. Amongst the different features of online databases, ‘search option’ was the most preferred option among the users of JNU, AMU and BHU whereas
‘browsing’ got highest rank in DU. The features, ‘help & support’, ‘customization’, ‘news/updates’ and ‘quick links’ or ‘active links’ were used for searching the online databases by the users in AMU, BHU, DU and JNU respectively (Table 5.36).

20. A large number of users in all the surveyed universities opined that the use of online databases has tremendously benefitted them and enabling them to locate their information within a fraction of time with greater ease. Majority of users in the faculties of Social sciences and Arts in the surveyed universities was around, 89.10% users in JNU followed by 81.50% in DU, 85.18% in BHU and 77.24% from AMU (Table 5.37).

21. Variations are seen regarding the impact of online databases on education and research in the select universities of Delhi and UP. In DU, 80.39% users mentioned, access to wider range of information and 75.53% of the users in JNU, stated easier and faster access to information of interest as a major impact factor of online databases. In AMU (78.26%) mentioned that they accessed authentic and reliable information through online databases, while access to more up-to-date information is stated as one of the impacts of online databases by 62.08% of the users in BHU (Table 5.38).

22. The non availability of off campus access to online database is the main obstacle in the optimal use of online databases according to 75.69 percent of the users in DU. As it is seen that the ratio of problems in JNU is lesser than as compared to other surveyed universities, as only 40.95 percent of total respondents mentioned that the inadequate collection of online databases impeded the use of online databases. However, having more interest in print sources is recognized as a main factor responsible for less usage of online databases in AMU (76.49%) and BHU (57.82%) respectively. It is justified that more interest in print sources is the foremost problem in the usage of electronic resources (Rogers. 2001) (Table 5.39).

23. Majority of users reported networking problems (connectivity or slow speed) as the main problem that prevented them from making optimum use of online databases in all the surveyed universities except JNU, such as 76.35% (81.82% of FM, 75.28% RS and 76.37% PG) from DU, 79.48% (76.92% FM, 81.44% RS and 78.62% PG) in AMU, in BHU around 53.91% (77.78% FM, 65.28% RS and 45.75% PG) stated about this problem. However, the majority of
respondents in JNU as 58.33% faculty members, 57.56% research scholars and 47.62% postgraduates reported retrieval of irrelevant information as a problem faced while searching through online databases (Table 5.40).

24. Some of respondents in the surveyed universities strongly agreed that online databases are sufficient enough in catering to their information needs. However, a moderate percentage of users in all the surveyed universities of Delhi and UP, such as 74.39% in JNU, 56.41% in DU as compared to 44.78% and 54.94% from AMU and BHU were agreed that sufficient number of online database available in their libraries (Table 5.41).

25. A majority of users in the universities under study were quite satisfied with the online database collection and services provided by their respective libraries; which is higher in JNU as 75.48 percentage followed by DU (56.54 percentage), BHU (49.38 percentage) and AMU (40.3 percentage). Only a few users in DU, AMU and BHU showed high level of dissatisfaction regarding the online database collection in the central university libraries of Delhi and UP (Table 5.42).

26. As far as efficiency of library staff of the surveyed libraries of Delhi and UP is concerned, a considerable percentage of users, i.e., 66.48% in JNU followed by 57.82% in BHU, 55.97% from AMU while 55.35% in DU pointed out that the library staff of their libraries is quite efficient in providing help regarding the use of online databases (Table 5.43).

27. Accessibility of online databases through the computer lab is the most appreciated facility among the users of DU (59.31%), and BHU (71.81%), whereas in JNU around 67.57% mentioned about the facility of 24x7 accessibility through Wi-Fi to online databases. However, majority of users in AMU i.e., 44.78% mentioned help & support as an important facility provided by library staff of their respective library (Table 5.44).

28. Majority of online database users from the faculties of Social Sciences and Arts of central universities of Delhi and UP, as in DU (83.35%), followed by JNU (78.75%), BHU (62.96%) and AMU (56.34%) revealed that their libraries are providing assistance by different means to enhance the use of online databases (Table 5.45).

29. With respect to the types of support provided by the libraries, the majority of users in all the three libraries; JNU (56.25% FM, 65.93% RS and 65.43% PG),
AMU (62.5% FM, 57.33% RS and 75% PG) and BHU (70% FM, 65.96% RS and 75.74% PG) responded that they are greatly benefitted by the personal help provided by the library staff for proper utilization of online databases. However in the University of Delhi (DU) higher appreciation of the users goes to online tutorials such as, 53.85% of FM, 68.92% by RS and 48.14% from PG (Table 5.46).

6.2. TENABILITY OF HYPOTHESES

In the light of the findings of the study, the tenability of hypothesis is checked and presented below:

**Hypothesis 1**

*There is significant difference in the level of awareness of online databases among users (Faculty Members, Research Scholars and Postgraduates) from faculties of Social Sciences and Arts in the Central universities of Delhi and U.P.*

The table 5.18 depicts that the users of all the select universities have shown variations in all the three categories of awareness level, as JNU (71.93%) are extremely aware of online databases then DU (38.04%), AMU (28.35%) and BHU (20.37%), while, the majority of respondents from DU (30.19%) followed by BHU (29.22%), AMU (21.64%), JNU (21.25%) have rated themselves to be neutral to the statement. However, majority in BHU (51.41%) are less aware of online databases followed by AMU (50%), DU (31.83%) and JNU (6.81%). It is noted that there is a significant difference, which shows that awareness of online databases is higher among the users of JNU and DU as compared to AMU and BHU.

On applying Chi- Square test on table 5.18, the calculated Chi-Square value is 303.398; while Chi-Square tabulated value with 6 degree of freedom at 5% level of significance is 12.592. It is observed that the calculated Chi-Square value is greater than the Chi-Square tabulated value. Therefore, it is confirmed that there is significant difference in the perception (awareness) of online database services among the users in the Central universities of Delhi and U.P. Therefore, in this case the drafted hypothesis is accepted.

**Hypothesis 2**

*There exists significant difference in the collection of online databases among the libraries of select universities in Delhi and U.P.*
It is clear from the table 5.2 that amongst the four libraries, DU has the highest number of online databases (79) followed by JNU (66), BHU (24) and AMU (24). Although, all the four universities are having same status of being central universities, but DU has the vast collection of online databases as compared to others. The collection of online databases is found to be more in libraries of Delhi as compared to UP.

Table 5.5, clearly shows that DU and JNU are acquiring 23 and 22 databases through UGC INFONET consortium, while both AMU and BHU have 23 and 19 online databases acquired through UGC INFONET. While, DU has 56 subscribed online databases followed by JNU (44), BHU (4) and AMU (1). It is clear from the above discussion that among the four libraries, the select universities in Delhi have more collection of online databases than U.P. Thus, the hypothesis is accepted.

**Hypothesis 3**

*Impact of online databases is higher among the users of the faculties of Social Sciences and Arts in the central universities of Delhi as compared to users of the faculties of Social Sciences and Arts in the central universities of U.P.*

Results in Table 5.37 shows that online databases have significant impact on the users work or study. The obtained data shows that, a good majority of the users in all the surveyed universities, i.e., 81.50% in DU, 89.10% in JNU, 77.24% from AMU and 85.18% in BHU, opined that the use of online databases has tremendously benefitted them and positively affected their teaching and learning abilities.

Table 5.38 reveals that variations are seen in the responses regarding the impact of online databases in all the select universities, as the majority of users (80.39%), in DU mentioned that access to wider range of information, whereas in JNU, easier and faster access to information of interest was stated as a major element that had an impact on the use of online databases for education and research as stated by 75.53% of the users. The majority of the respondents (78.26%) in AMU mentioned that acquiring more authentic and reliable information is viewed as a factor for greater impact of online databases whereas access to current and up-to-date information was identified as another factor that affected the users (62.08%) in BHU.
Based on t-test used in table 5.37, the above table shows that shows that the t-statistic, $t = -1.341$ and $p = 0.408$, since $p > 0.05$, thus there exists ample impact of online databases, but not higher among the users of Delhi as compared to U.P.

According to the above analysis and discussions, it can be concluded that there is ample impact of online but not higher among the users of Delhi as compared to U.P. Hence, the hypothesis is rejected.

**Hypothesis 4**

*There exists a significant difference in the purposes of using online databases among the users of central university libraries in Delhi and U.P.*

The responses regarding the purposes of using online databases among the respondents as shown in Table 5.21 states that majority of respondents in DU (50.37%) respectively preferred to use online databases to update their knowledge. However, 69.20% in JNU mentioned that they mostly preferred to use online databases for writing papers, on the contrary, in AMU (74.63%) and BHU (53.70%) preferred to use online databases for preparing assignments and projects

On using the Chi square test on the table 5.21, shows that the calculated chi-square value (63.645) is more than the tabulated value (21.026) with 12 degree of freedom at 5% level of significance $p < 0.05$. Thus, above discussion and test results reveal that there exist significant differences in the purposes of using online databases among the users of the central university libraries. The hypothesis is hence proved.

**Hypothesis 5**

*There exists significant difference in the satisfaction level with respect to the use of online databases among the users of the faculties of Social Sciences and Arts in the central universities in Delhi and U.P.*

Table 5.42 reveals that users of DU are highly satisfied with 4.09%, 3.27% in JNU, and only 2.61% in AMU stated to be highly satisfied with online databases. Likewise, majority 75.48% in JNU followed by 56.54% in DU, 49.38% of BHU and
40.3% in AMU were satisfied with the available online databases. According to this finding, it is revealed that the user satisfaction with the available online databases is higher among the users of central universities in Delhi than that of U.P.

Table 6.2: T- Test for level of Satisfaction

<table>
<thead>
<tr>
<th>Pair</th>
<th>Paired Differences</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>95% Confidence Interval of the Difference</th>
<th>T</th>
<th>Df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TOTAL_DLTOTAL_UP</td>
<td>-74.000</td>
<td>161.974</td>
<td>72.437</td>
<td>-275.117 127.117</td>
<td>-1.022</td>
<td>4</td>
<td>.365</td>
</tr>
</tbody>
</table>

On applying the t-test to table 5.42, the resulting table 6.2 shows that the t statistic, \( t = 1.022 \) and \( p =0.365 \), since \( p>0.05 \), thus there is no significant difference between the satisfaction level of the users of online databases in the faculties of Social Sciences and Arts of the central universities in Delhi and U.P. Thus, the hypothesis is partially accepted.

6.3. RECOMMENDATIONS AND SUGGESTIONS

The following are the recommendations made by the investigator on the basis of analysis of the data and suggestions from the users as given below:

6.3.1. Budget

- Due to inadequate budget as well as non-availability of separate budget for purchasing of online databases, libraries of AMU and BHU have insufficient collection of online databases. On the other side, the libraries of AMU and JNU neither have separate budget for online databases nor for e-resources, they subscribed to online databases under other heads. Hence, the library authorities should make an attempt to acquire separate budget for acquiring online databases as they constitute a major source of information for consultation by all sections of the Academia. Moreover, university administration should provide adequate funds or resources to the libraries for purchasing the online resources.

- With a limited budget, the library has difficulty to purchase adequate databases. Therefore to optimize the use of the budget, the library should regularly analyse the data from the user reports and frequently conduct quick surveys to identify the amount of usage of each subscribed databases. These
results help in taking decisions on whether to continue an existing subscription or replace it with a new database.

6.3.2. Awareness

- Awareness and user education programmes should be arranged to promote the use of online databases amongst the users of all the surveyed libraries. Mainly, the library of AMU should organize user education program, information literacy programmes for creating awareness and educating them to make maximum use of online databases for academic work.

- E-mail and SMS services are the best communication means to create alerts for new or change of online sources. In all the four universities (DU, JNU, AMU and BHU), library staff can use emails and SMS to keep the users updated with new information, guidelines and announcements from the library and to answer promptly to the user’s requests.

- Information of title deletion, addition, change in provider or drop of online databases should be managed by library staff.

- To alleviate the confusion among users about the duplication of titles, provided by two or more providers, libraries should use an article linking software program to list multiple resource providers for the same title in order of the most preferred.

6.3.3. Use of Online Databases

- It is revealed from the study that a less percentage of the users, especially postgraduates in AMU and BHU use the online databases. Hence, to increase the frequency of use of online databases subscribed by the libraries of AMU and BHU, they should be informed about the importance and availability of online databases and the techniques used for finding the required information from the databases. The teachers should motivate their students to use online databases more for obtaining the required information for their study and research work.

- Less usage is also caused due to lack of awareness and lack of skills to access and use online databases. Hence, the library authorities, particularly in AMU and BHU should create awareness among users and provide sufficient skills for accessing online databases. The staff may be trained to provide education to the PG students so that the database available in the libraries may sufficiently used.
6.3.4. Acquire more Online Database

- The study reveals that libraries in universities of UP have a comparatively less collection of online databases as compared to Delhi’s university libraries. So, libraries of AMU and BHU should subscribe to more databases and facilitate more full-text access either through UGC-INFONET consortium or from other sources to fulfill the diverse needs of users. This is also implies that the research output is directly related to the use of online databases.
- However, an average percentage of users in all the select university were using those online databases that they already knew, although the other databases also possessed good literature on Social Sciences and Arts and are an excellent source for research and teaching. This may be due to the lack of awareness about the available online sources. The libraries should take serious step to enhance the use of all the subscribed online databases and fulfill the first law of library and information science that information is for use.
- The libraries of AMU and BHU should subscribe to different types of online databases in different disciplines.

6.3.5. Source of Information

- As the library website is an important means of getting information about accessibility of online databases, but the users of AMU, BHU and DU prefer it less as compared to JNU. Library websites of concerned libraries should be redesigned to provide adequate information or links of online databases available in the libraries.

6.3.6. More importance to print documents rather than online documents

- It is clear from the study that majority of the users in AMU and BHU, particularly faculty members and postgraduates mostly preferred to use print documents, inspite of using online documents. They considered print documents as a chief source of getting the required information. Therefore, concerned libraries should subscribe to online databases after assessing the requirements of the users; also teach them about its worthiness so as to increase the use of subscribed online databases. The librarians must find out the reasons for the less usage of the online databases. Feedback can also be taken from users to find out the reasons.
6.3.7. Search methods

The users use different types of search methods for getting the required information. The study shows maximum number of users in all the universities under study prefers to use mostly ‘Basic/Keyword search’ for searching their required information. The other search methods are less used by the users, like Advanced search, Expert search and less frequently Citation Locator. Thus, there is need to provide practical training to help users to acquire better search skills for using different search methods.

The librarian must teach the users about the potential of searching, specifically advanced searching for accessing online information in a better way.

6.3.8. Problems faced in using Online Databases

The problematic areas as mentioned by the users faced while accessing the online databases include more interest in print form, non availability of off campus access and inadequate collection. The libraries, mainly AMU and BHU should organize awareness programmes to develop user’s interest in online databases.

The limitation to access online databases either through IP address or login ID & password in DU, AMU and BHU to be overcome by providing remote access to enable users to use online databases from anywhere at any time.

The main problem in using online databases is Networking (poor connectivity) in the universities of DU, AMU and BHU. The university administration should provide proper and high speed Internet connectivity to overcome the problem of networking. Another problem is the irrelevant retrieval of information in JNU. Therefore, the library staff should impart knowledge to users for refining their search for searching and proper utilization of online databases.

A moderate percentage of users in all the libraries complained about the problem of limited downloading of articles. The libraries should pay for the requisite articles or journals.

The librarians of DU, JNU, AMU and BHU should conduct user survey and get feedback from time to time to identify the gap in their services and to rectify them.
6.3.9. Facilities for accessing online databases

- The study shows that no postgraduates are allowed to access online databases from the university library in AMU. This may be due to inadequate computer facilities or limited space in library’s computer lab. More number of networked computers with access to online databases should be installed, and repair of the non-working computers in the library should be carried out. PG students should be allowed to use the online databases, so that they are not kept away from this important source.

- Additionally, there is need to provide better computer infrastructure in the libraries for the better usage of online databases. Libraries should provide adequate infrastructural facilities such as adequate power supply, effective internet connectivity and adequate number of terminals and other facilities to encourage users for using the available online databases.

- The results suggest that 24-hour accessibility to online databases either through Wi-Fi or through remote access should be provided by the libraries of DU, AMU and BHU to increase acceptance and use of online databases.

6.3.10. Satisfaction with online database

- More than thirty percent of the users of AMU and BHU were dissatisfied with the online databases subscribed by their libraries. The users of DU and JNU were more satisfied with online database collection available in their respective libraries as compared to the users in Universities in UP. The library authorities should necessary steps to improve the subscription of the online databases after assessing the needs of the users, especially postgraduates. Furthermore, the publishers/aggregators of online databases should come forward to publish more number of online databases in the field of Social Sciences and Arts as there are no separate databases available for these disciplines.

6.3.11. Assistance by library staff

- To provide adequate assistance to the users in using online databases, library staff must possess skills to assist the users in accessing online databases. The staff should be given enough training in using or accessing online databases.

- The availability of online databases in different forms and formats of online databases necessitates the need of help, support, and explanation at an appropriate time for the users. Therefore, the library staff of all the libraries
should provide assistance through online and in-person assistance by compiling manuals and handbooks on the use of online databases.

- A demo-presentation of the databases subscribed in the libraries should be arranged for the students and faculty members to ensure maximum usage.
- The library staff should cooperate with the users and help them in overcoming the technical difficulties faced while using online databases.

6.3.12. User Training Programmes

- The study shows that the research scholars in all the universities under study have more knowledge and are using more online databases than other user groups. Libraries should conduct special training programmes to the postgraduates and faculty members of the faculties of Social Sciences and Arts in making them aware of online databases, how to use and how to access online databases efficiently and effectively. There is a need for extensive training programme on regular basis at the beginning of each semester for the students and faculty members of both the faculties under study in both Delhi and U.P.
- The study shows the library of AMU does not provide any kind of training either for staff or for users with regard to the use of online databases. However, users also mentioned it as one of the factors that was responsible for less usage of online databases. Hence, the libraries must organize different types of user training programmes, library orientation programmes and workshops for the proper utilization of online databases.
- For maximum utilization of online databases, libraries should provide orientation/assistance by organizing orientation workshops and seminars for students to guide them on how to use and how to access online databases efficiently and effectively.

6.4. AREAS FOR FURTHER RESEARCH

Based on the findings of this study, the following suggestions have been made for further research:

- The present study was conducted among limited number of central universities; the study can be extended to understand the use of online databases in other central universities of India.
- A study can be conducted to find out overall growth and development of online databases by using usage statistics.
A comparative study can be undertaken to evaluate the accessibility and usage of subscribed online databases in other fields of education.

A citation analysis can also be conducted to know the citation trend of use of online databases in the thesis/dissertations and research publications in the central universities in the country.

6.5. CONCLUSION

The developments in ICT have brought about major changes in the way users’ access and retrieve information. With the effect of these technologies, the concept of information retrieval has been transformed from automated to online information retrieval system. Further, due to information explosion, the use of online retrieval sources has increased in Indian academia and now, these are considered as excellent tools for information retrieval and are largely used for searching of information. These have become indispensable sources for academics and research and its use has facilitated the process of teaching and learning in educational institutions. The availability of online databases as an information retrieval source provides many opportunities and potentials for the academic community including for the libraries. These assist libraries in providing current information services more efficiently and effectively. Thus, it is the task of library professions to create awareness about the availability of online sources among the users and provide them a genial and responsive environment to make better use of the online facilities. Moreover, libraries need to identify and balance the factors that help possible exploitation of online databases and services successfully.

The objective of this study was to provide a comprehensive view of research addressing differences in usage of online databases among users of the faculties of Social Science and Arts in the central universities of Delhi and UP. Efforts were made to ensure the comprehensiveness of the study by using different parameters to gauge the use of online databases, such as budget, collection development policy of online databases, modes and methods of acquisition, level of awareness, most used online databases and their features, problems from both users and librarians perspectives, impacts, satisfaction regarding library services and collection through survey as a primary source of information and usage statistics as a secondary source of information.

The results of the study offer significant information on the status of the use of online databases, the preferences of the users and their evaluation of the online
databases among the users of Social Sciences and Arts in Delhi and U.P. Interestingly, the users have knowledge of the availability of online databases, but are not able to express their satisfactory level. The most surprising finding of the study was that there was no separate budget for purchase of online databases in the surveyed libraries except BHU. DU had substantial collection of online databases with 79 online databases, followed by JNU (66), BHU (24) and 24 databases were available in AMU.

Libraries used different means or modes to acquire it, but the prominent source was UGC INFONET consortium. In the libraries, recommendations of faculty members were mostly preferred for selection of online databases, also by keeping in mind the functionality and reliability, cost, coverage, user’s need and licensing policies of the online databases. Access to online databases was provided through IP address and ID & password, while the provision of remote access was available in JNU only.

Libraries faced problems related to price, limited access, unskilled personnel, networking and some technical problems while acquiring and providing access to online databases. Training and library orientation programmes as part of information literacy programmes were regularly organized in all the libraries except in AMU.

This study reveals that most of the users were aware of the availability of online databases through internet search and the library website. The purpose of using online databases mainly was for preparing projects and assignments, followed by updating knowledge and writing paper. More than seventy percent of the users used online databases to locate journal articles literature followed by books, theses/dissertations, reference work and miscellaneous materials and these resources were mostly accessed from the university computer centre. Search engines were very popular means for accessing online databases among the respondents, due to ease in use to access such resources remotely anywhere limited restrictions.

On ranking the most popular online databases in the Social Sciences and Arts in terms of usage, JSTOR found to be the most popularly used online database in DU, AMU, BHU, whereas ScienceDirect was used in JNU. While on the basis of UGC-INFONET usage statistics of online databases, JSTOR was the most used online database among the users of faculties of Social Sciences and Arts in JNU in the years 2013 and 2014, whereas, ScienceDirect was highly used online database by the users in AMU and BHU in 2013 and 2014.
However, the preference for the online information is related to the academic status of the respondents and is higher among the research scholars, though all the user groups were convinced with the potential of the online databases. Many respondents from universities of UP also mentioned that they used the print format more as compared to universities of Delhi. This study shows that PDF is the most preferred format for online journals, only a few users preferred HTML format in the universities under study. More interest is observed for print sources among faculty members, research scholars and postgraduates students non availability of off campus accessibility and inadequate collection of online databases in the library were the major de-motivating factors in the use of online databases. Users of all the select universities except AMU had attended training that was organized by their respective libraries. This also stimulated greater access to the online databases in DU and JNU.

The findings of this study indicate that inadequate collection, more interest in print and no off-campus access were some major problems students experienced. Students had problems related to slow connectivity and retrieval of irrelevant information. These problems raise the need for training for both users and library staff. The level of satisfaction among the respondents regarding the collection of online databases provided by the library was found to be satisfactory. On the basis of all these parameters, it is observed from the study that research scholars are the most frequent users of online databases as compared to faculty members and postgraduates, the reason may be that research work increases the scope for more use of online databases. Thus, databases are considered as one of the most important sources for research activities.

Unfortunately, not enough researches have been conducted on the use of online databases in the fields of the arts and social sciences in India, only a few studies have addressed the use of online databases in academics. This is probably because of the lack of online databases separately for the Social Sciences and the Arts. This is probably because of the lack of online databases separately for the Social Sciences and Arts. The outcomes of the study explores various aspects regarding the use of online databases in the faculties of Social Sciences and Arts in central universities in Delhi and UP, and answers some questions relating to the use of online databases and its impacts on teaching and research in the areas of the Social Sciences and Arts. The study observes that online databases have become an essential part of information access and retrieval in academia. The findings of this study will help the
librarian to know the importance of online databases and to improve the services related to online databases. It will provide useful insights for the library administration to evolve strategies in a more balanced and systematic way to impart awareness and skill to the users and help in them optimum utilization of the online databases.
REFERENCES


BIBLIOGRAPHY


279


of the 6th International CALIBER, University of Allahabad, Allahabad, 648-655.


APPENDIX I

DEPARTMENT OF LIBRARY & INFORMATION SCIENCE
ALIGARH MUSLIM UNIVERSITY, ALIGARH

Questionnaire for Librarian

Dear Sir,

I am conducting a survey on “Use of Online databases in Social Sciences and Arts in Central Universities in Delhi and Uttar Pradesh: a Comparative Study” for my research work leading to Ph.D. In this regard I would like to get the benefit your professional experience, expertise and also your valuable time for filling up this questionnaire. I shall be grateful to you, if you could kindly fill the questionnaire and return back the same as soon as possible. Please answer all the questions and make any additional suggestion in the space provided. Information provided by you will be kept highly confidential and used for research purpose only.
Your cooperation will be highly appreciated.

Sincerely Yours
Saima Khan

Personal Information
Name…………………………………………
Library…………………………………………
University……………………………………

Budget
1. Please indicate the annual budget for library resources along with the budget allocated for the online databases.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total budget for library Resources</th>
<th>Budget for online database subscription</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009-2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010-2011</td>
<td></td>
<td></td>
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<tr>
<td>2011-2012</td>
<td></td>
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<tr>
<td>2012-2013</td>
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<td></td>
</tr>
<tr>
<td>2012-2014</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Collection Development
2. Please indicate the total collection of online databases available in your library.

<table>
<thead>
<tr>
<th>Databases through UGC INFONET</th>
<th>Subscribed Databases</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. How do you know about the databases useful for your library?(select all that apply)
(a) Faculty recommendations  [ ]
(b) Users recommendations    [ ]
(c) Staff/Library committee recommendations [ ]
(d) Books/Newsletter reviews [ ]
(e) Consulting News group(listserve)   [ ]
(f) Through vendors          [ ]
4. Which of the following criteria are adopted while selecting the online databases for your library? (Tick all that apply)

(a) Coverage of the database [ ]
(b) Authority/Publisher [ ]
(c) User’s need [ ]
(d) Quality [ ]
(e) Cost [ ]
(f) User interface [ ]
(g) Authentication (access options) [ ]
(h) Technical feasibility [ ]
(i) Licensing policy [ ]
(j) Support services [ ]

5. How do you acquire the online databases?

(a) Through Consortium [ ]
(b) Through Subscription [ ]

6. What are the different modes of acquisition of subscribed online databases? (select all that apply)

(a) Through publishers [ ]
(b) Through Aggregators [ ]
(c) Professional organizations/ Association [ ]

7. How do you provide access of online databases to users?

(a) On campus IP Authenticated Access [ ]
(b) On campus ID & password Access [ ]
(c) Remote Access [ ]

8. If you are provided remote access, which of following means of provision you are using?

(a) Proxy server [ ]
(b) Athens login [ ]
(c) Shibboleth login [ ]
(d) Shared activation links [ ]

9. How do you determine the usage of online databases in your library? (multiple answers are permitted)

(a) Through Log analysis [ ]
(b) By Usage register [ ]

(Note: Kindly provide the statistics pertaining to usage of online databases in library for the year 2012-2014)

10. Did you find any impact of online databases on printed sources?

(a) Usage increased [ ]
(b) Usage decreased [ ]
(c) No effect [ ]

11. Problem(s) faced while subscribing to online databases.

(a) Back issues & Archiving [ ]
(b) Pricing [ ]
(c) Journal title deletion/ modification [ ]
(d) Renewals [ ]
(e) Lack of Value added services [ ]
(f) No Problems [ ]

12. What difficulties you encounter while providing the access to online database services in libraries? (select all that apply)

(a) Networking problem [ ]
(b) Insufficient collection [ ]
(c) Inadequate library resources (equipments) [ ]
(d) Lack of skilled/trained IT personnel [ ]
(e) Technical (System errors) [ ]
(f) Financial constraint [ ]
(g) Licensing [ ]
(h) No problem
Facilities
13. What facilities do you provide for proper exploitation of online databases? (Select all that apply)
   (a) Computer lab/Cyber library [ ]
   (b) Adequate number of computers/ Kiosks [ ]
   (c) Audio visual devices [ ]
   (d) 24x7 access [ ]
   (e) Support services [ ]
   (f) Online tutorial [ ]
   (g) Trial Access [ ]

14. Method(s) to Alert/Update the users about online databases services.
   (a) Through library website [ ]
   (b) Through University web page news/updates [ ]
   (c) Through E-mails [ ]
   (d) Through Notifications/ Circulations [ ]
   (e) University Magazine/Newsletter [ ]

Support Services
15. What type of support do you get from online database service providers? (select all that apply)
   (a) Manual/Tutorials [ ]  (b) Product customization [ ]
   (c) Feedback [ ]  (d) Trial/Product demonstration [ ]
   (e) Technical/customer support [ ]

Satisfaction and Training
16. Factor(s) you find responsible for less or unsatisfactory use of databases in the field of Arts and social sciences? (select all that apply)
   (a) More dependence on print sources [ ]
   (b) Lack of awareness among users [ ]
   (c) Lack of proper planning in providing services [ ]
   (d) Lack of IT skills/expertise among users [ ]
   (e) Lack of interest in online sources [ ]
   (f) Lack of orientation programme [ ]

17. Do you organize any Training or orientation programs for better utilization of online database services
   (a) For staff Yes [ ] No [ ]
   (b) For user Yes [ ] No [ ]

18. What type of training/orientation have you provided in the last five years?
   (a) Library orientation programme [ ]
   (b) Publishers/commercial vendors demo [ ]
   (c) Training/workshop [ ]
   (d) Information Literacy Programmes Training/workshop [ ]

19. Please give your valuable suggestion based on your experience on how to improve databases services further in libraries.

..............................................................................................................................................................................................................................................................................................................................................................................................................................................

Thank you
Dear Respondent,

I am pursuing my Ph.D on “Use of Online databases in Faculties of Social Sciences and Arts in Central Universities in Delhi and Uttar Pradesh: A comparative Study” from Aligarh Muslim University. I shall be grateful to you, if you could kindly fill the questionnaire and return back the same as soon as possible. Please answer all the questions and make any additional suggestions in the space provided. The data collected through the questionnaire will be kept highly confidential and used for research purpose only. Your Cooperation will be highly solicited.

Sincerely Yours

Saima Khan

APPENDIX II

DEPARTMENT OF LIBRARY & INFORMATION SCIENCE
ALIGARH MUSLIM UNIVERSITY, ALIGARH

Questionnaire for Users

Part I

PERSONAL DETAILS
Name: ………………………………………………….
Status: (PG/ Research Scholar/ Faculty)
Department: …………………………………………….
University: …………………………………………….

Part II

AWARENESS
1. State your awareness about online databases (i.e. Annual review, Emerald, JSTOR and ScienceDirect etc.)?
   (a) Extremely aware [ ] (b) Neutral [ ]
   (c) Slightly aware [ ]

2. How did you get acquainted with the online databases available in your library? (select all that apply)
   (a) From Teachers [ ] (b) Friends/colleagues [ ]
   (c) Trial & error [ ] (d) Library orientation programme [ ]
   (e) Library website [ ] (f) Internet search [ ]

USE OF DATABASES
3. How frequently do you use the online databases?
   (a) Daily [ ] (b) 2-3 times a week [ ]
   (c) 2-3 times a month [ ] (d) Occasionally [ ]

4. What is the purpose of using online databases? (select all that apply)
   (a) Research [ ] (b) Project/Assignments [ ]
   (c) Writing papers [ ] (d) Teaching [ ]
   (e) To update knowledge [ ]

5. Which of the following sources do you search for in a database? (select all that apply)
   (a) Books [ ] (b) Journal articles [ ]
   (d) Theses/Dissertations [ ] (e) Reference Work (Encyclopedia) [ ]
   (f) Miscellaneous (Editorials, etc.) [ ]

6. Location from where you access the online databases? (select all that apply)
   (a) University library [ ] (b) Departmental lab [ ]
   (c) University computer center [ ] (d) Teachers chamber [ ]
   (e) On campus (Wi-Fi) [ ] (f) Remote access [ ]
7. What type of Information do you usually look at in the databases? (select all that apply)
   (a) Bibliographic / citations [ ] (b) Full-text [ ]
   (c) Multimedia (Images/videos/sound files) [ ] (d) Numeric/Statistics [ ]

8. How do you determine the relevance and reliability of the document retrieved through the databases? (Tick all that apply)
   (a) Authority (Author, publisher, etc.) [ ] (b) Content [ ]
   (c) Citation/Reference [ ] (d) Up-to-Dateness [ ]
   (e) Hyperlinks (Active/Inactive) [ ] (f) Currency [ ]

9. How important are the following databases that you access through your library network. Rate them on the basis of their importance for your study/work. (Use 1= very important; 2=moderately important; 3= Somewhat Important; 4= Not Important; 5= No Opinion)

<table>
<thead>
<tr>
<th>Online Databases</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABI/INFORM Complete</td>
<td></td>
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<tr>
<td>Academic Search Premier</td>
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<tr>
<td>Annual Review</td>
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<tr>
<td>Business Source Premier</td>
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<tr>
<td>Cambridge University Press</td>
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<tr>
<td>Econlit</td>
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<tr>
<td>Encyclopedia Britannica</td>
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<td>Emerald Management Xtra</td>
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<td>H W Wilson Omni File Full Text</td>
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<tr>
<td>Humanities International Complete</td>
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<tr>
<td>ISI Emerging Markets CEIC Asia</td>
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<tr>
<td>ISI Emerging Markets EMEI Asia</td>
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<tr>
<td>ISID</td>
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<tr>
<td>JSTOR</td>
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<tr>
<td>Early English Book Online</td>
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<tr>
<td>Lexis Nexis</td>
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<tr>
<td>Library, Information Science &amp; Technology Abstracts, (LISTA)</td>
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<tr>
<td>LISA: Library and Information Science Abstracts</td>
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<tr>
<td>Oxford University Press</td>
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<tr>
<td>Project MUSE</td>
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<tr>
<td>Science Direct</td>
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<tr>
<td>Scopus</td>
<td></td>
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<tr>
<td>Soc Index with Fulltext</td>
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<tr>
<td>Taylor and Francis</td>
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<tr>
<td>Web of science</td>
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<tr>
<td>Wiley Inter science</td>
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<tr>
<td>ProQuest -UMI database</td>
<td></td>
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</tbody>
</table>

SEARCH PROCESS

10. Describe the method(s) you follow to search and access online databases.
    (a) Links through library website [ ] (b) Links through publisher website [ ]
    (c) Through online database website [ ] (d) Through search engines [ ]

11. Which of the following search method do you use mostly?
    (a) Basic Search /Quick search [ ] (b) Advanced search [ ]
    (c) Expert search [ ] (d) Citation locator/Cited Reference search [ ]

12. While searching, which of the following technique(s) do you use mainly?
    (a) Boolean operators (AND, OR & NOT) [ ]
    (b) Field search (author, title& volume, etc.) [ ]
    (c) Limiters (subject, language &year, etc.) [ ]
    (d) Phrase search (“ “, { }) [ ]
    (e) Proximity search (NEAR, ~, Within) [ ]
APPENDIX II

(f) Wildcard /Truncation (*, ?, $) [ ]

13. Which text format do you prefer most for downloading documents from online databases?
(a) HTML [ ] (b) PDF [ ]

14. If, documents are available in both print and online form. Which one would you prefer?
(a) Print form [ ] (b) Online form [ ]

FEATURES
15. Features of the online database you find effective and useful in getting the information.

<table>
<thead>
<tr>
<th>Features</th>
<th>Very useful</th>
<th>Useful</th>
<th>Not sure</th>
<th>Somewhat Useful</th>
<th>Not useful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Search options</td>
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<tr>
<td>Browsing options</td>
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<tr>
<td>Refinement options</td>
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<tr>
<td>Quick access/Links</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Formats of downloaded data</td>
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<tr>
<td>RSS/E-mail</td>
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<tr>
<td>Follow on/sharing with social networks</td>
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<tr>
<td>News/Updates</td>
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<tr>
<td>Help &amp; support</td>
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</tr>
</tbody>
</table>

16. Your opinion about customization provided by most of the databases accessible through your library.

<table>
<thead>
<tr>
<th>Customization</th>
<th>Very Good</th>
<th>Good</th>
<th>Neutral</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alerts/Search, TOC, citations alerts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Favourite Journals/Books</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Marked list</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profile/Preferences</td>
<td></td>
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</tr>
<tr>
<td>ResearcherID</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Create Quick links</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Save search/search History</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote Acess/Mobile Access</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

IMPACT
17. Are the accessible online databases having any impact on your study/work?
(a) Yes [ ] (b) No [ ]

18. What is the impact of using databases on your study/work? (Select all that apply)
(b) Expedite the research process [ ]
(c) Improve professional/academic productivity [ ]
(d) Acquire more authentic and reliable information [ ]
(e) Access to a current and up-to-date information [ ]
(f) Access to wider range of information [ ]
(g) Easier and faster access to information of interest. [ ]

PROBLEMS AND SATISFACTION
19. Factor(s) that discourages access to online database services?
(a) Inadequate Collection of databases [ ]
(b) Limited Terminals [ ]
(c) Lack of awareness about e-resources [ ]
(d) More interest in print sources [ ]
(e) Insufficient time/ library timings [ ]
(f) Lack of Training/Orientation [ ]
(g) Lack of IT skills/ expertise [ ]
(h) No off campus access allowed [ ]
(i) Lack of online help/Tutorial [ ]
20. What problems do you face in using online databases accessible through the library? (Select all that apply)
   (a) Retrieval problems (Irrelevant retrieval) [ ]
   (b) Language barriers [ ]
   (c) Limited downloading [ ]
   (c) Technical problems [ ]
   (d) Networking Problems (Connectivity) [ ]
   (e) Non supportive library staff [ ]

21. Do you find available online databases are sufficient enough in catering to the information needs?
   (a) Strongly agree [ ]
   (b) Agree [ ]
   (c) Neutral [ ]
   (d) Disagree [ ]
   (e) Very dissatisfied [ ]

22. How satisfied are you with the databases available in your library?
   (a) Highly satisfied [ ]
   (b) Satisfied [ ]
   (c) Neither satisfied/nor dissatisfied [ ]
   (d) Dissatisfied [ ]
   (e) Very dissatisfied [ ]

23. How efficient is the library staff in providing help regarding the use of online databases?
   (a) Very efficient [ ]
   (b) Efficient [ ]
   (c) Not sure [ ]
   (d) Inefficient [ ]
   (e) Very inefficient [ ]

LIBRARY FACILITIES & SUPPORT

24. What facilities are provided by the library for proper utilization of online databases?
   (a) 24x7 accessibility (through Wi-Fi) [ ]
   (b) Computer [ ]
   (c) Adequate number of terminals [ ]
   (d) Supporting devices (A/V devices, scanner, etc.) [ ]
   (e) Help & Support [ ]

25. Do you get any help/instructions from library staff in using the databases?
   (a) Yes [ ]
   (b) No [ ]

26. What kind of support in the use of online databases is provided by the library?
   (a) Information Literacy Programmes [ ]
   (b) Online tutorial [ ]
   (c) Personal help by library staff [ ]

27. Please give your valuable suggestions to improve the online database services in your Library.

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Thank you
APPENDIX III

PROFILE OF THE LIBRARIES UNDER STUDY

The present study has been conducted on the use of Online Databases in the faculties of Social sciences and Arts in Central Universities of Delhi and UP. This chapter provides an overview of the central university libraries under study, i.e., Central Library, University of Delhi (DU), Delhi; Central Library, Jawaharlal Nehru University (JNU), Delhi; Maulana Azad Library, Aligarh Muslim University (AMU), Aligarh; Central Library, Banaras Hindu University, BHU, Varanasi. It provides brief overview of history of these libraries, total collection, total number of Online Databases and various services of the libraries under study.

1. UNIVERSITY OF DELHI (DU)

1.1. About the University

The University of Delhi (DU) is amongst the top and oldest Central Universities of India and is known for its high standards in teaching and research and attracts eminent scholars to its faculty. It was founded in 1922 as a unitary, teaching and residential university by an Act of the Central Legislative Assembly. Ever since its inception, a strong commitment to excellence in teaching and research has made the University of Delhi a role-model and path-setter for other universities in the country. Its rich academic tradition has always attracted the most talented students who later on go on to make important contributions to their society. The President of India is the Visitor, the Vice President is the Chancellor and the Chief Justice of the Supreme Court of India is the Pro-Chancellor of the University. Now, the University has grown into one of the largest universities in India. At present, there are 16 faculties, 86 academic departments, 77 colleges and 5 other recognised institutes spread all over the city, with 132435 regular students and 261169 students in non-formal education programme (University of Delhi, 2015).

1.2. Delhi University Library System

The Delhi University Library system began 1922, at the time of beginning it had only 1380 gift books in its collection. During the first decade of its existence it functioned from shifting locales. In 1933 it managed to get a relatively stable space, viz. the ‘Dance Hall’ of the Old Vice regal Lodge (the present office of the Vice-
Chancellor). In December 01, 1958, it was moved to its present locale in the heart of the Campus (University of Delhi, 2015).

With its regular expansion and outgrowth in the number of libraries, the concept of the Delhi University Library System (DULS) had emerged to cater to the needs of its users. Now it holds the functioning of more than 37 libraries under its system and continuously working towards accomplish the task of reaching to wider academic community (Delhi University Library System, 2012).

According to Shrimali (n.d.), The DULS is largely funded by the University Grants Commission. Occasionally, a few libraries have also received some endowment funds through the Government of India, donations from individuals or private trusts. In addition to taking care of the requirements of nearly 30,000 postgraduate students, the System is also catering to the research needs of nearly 7000 teachers and over 5000 research scholars (working for their M.Phil/ Ph.D. Degrees) belonging to over 40 departments.

Further, many libraries of the DULS have also been serving hundreds of bonafide research scholars from different parts of India and abroad. Presently, the Delhi University Library System (DULS) comprises of 37 libraries in its system and it includes the following major libraries:

- Central Library
- Arts Library
- Central Science Library
- East Asian Studies Library
- FMS Library
- Law Library
- Ratan Tata Library
- South Campus Library
- Braille Library (On DU Intranet)

1.2.1. Library Staff

At present, Central Library of DU has of:

- Librarian, 01
- Deputy Librarians, 05
- Assistant Librarians, 04

1.2.2. Library Collections

Central Library subscribes to a large number of print and electronic resources, which is as follows:

(i) Print Collection

The print collection of Delhi University Library System comprises of the following (as on June 30th 2015)
Books 14,50,000 volumes
Current Journals 1480 Journals
Bound Journals 3,66,000 bound volumes
Ph.D. Thesis 14,500 volumes
M.Phil Dissertations 5,600 volumes
Manuscripts 700 manuscripts
CD ROM 2,000 CDs

The Library System added 21,195 volumes of books/periodicals to its collection and 05 books were written off. The total collection as on 31-03-2015 is 16,13,465 volumes. It had 1,353 periodicals on its current list of subscriptions (University of Delhi, 2015a).

(ii) Electronic Resources

Delhi University Library System subscribes to a large number of e-resources including e-books, e-journal and online databases and these can be accessed through its website. It is being made available through campus network in the university campus and can also be accessed in the colleges. DU is a member of UGC-INFONET Digital Library Consortium. Through UGC-INFONET Digital Library Consortium, DU provides publisher wise full text e-journals as well as bibliographic databases to their users' community. Importantly, open access e-resources are regularly listed on the DULS website for access. Detail list of full text e-journals and database along with their URL address is available at library's website. (University of Delhi, 2015b).

❖ Online Databases

The DULS continued to strengthen the accessibility of electronic resources to the users. There are a number of online databases in different subjects and disciplines that are available to the user community of the University electronic databases in different subjects and disciplines that are available to the user community of the University

(a) Online Databases subscribed by DU

It subscribes 56 high quality electronic databases being made available through campus network to teachers, students and research scholars (University of Delhi, 2015b)

1) ABI/INFORM Complete
2) Business Source Premier
3) Academic Search Premier
4) Capitalism, Nature, Socialism
5) ACM
6) Capitalline Plus
7) American Geophysical Union Journal
8) Chicago Manual of Style
9) American Phytopathological Society
10) China Core Newspaper
11) American Society for Microbiologist
12) CLA Plus
13) Anthrosource
14) Credo (Formerly Xreferplus)
15) Benthan Science E Collection (Organic + Biotechnology)
16) Early English Books Online
17) Ecolit (Abstract Database)
18) British Parliamentary Papers
19) eJurix
20) Emerlad Management Extra
21) New York Review of Book
22) Encyclopedia Britannica
23) Omnifile Full Text
24) Encyclopedia of Cyber
25) Oxford Dictionary of National
26) Encyclopedia of Islam Biography online & Grove Art Online
27) Encyclopedia of Law Enforcement
28) Palgrave Dictionary of Economics
29) Environment and History
30) Sage Online
31) Geoscience World
32) SCC Online
33) Humanities International Complete
34) Science Direct
35) IEL Online
36) Science Magazine
37) Indianjournals.com
38) Scifinder Scholars
39) Indiastat
40) Scopus
41) ISI Emerging Markets (CEIC-ASIA)
42) Soc Index with Fulltext
43) Statesmen's Yearbook
44) JGR (American Geophysical Union)
45) UMI Database
46) Kissing's World News
47) Westlaw India
48) Legalpundits
49) World Development Indicators
50) Lexis Nexis
51) World Intellectual Property Search
52) LISA
53) WTO e-library
54) LNCS
55) Manupatra
56) Nature Publishing
(b) Online Databases available through INFLIBNET

In addition to this 23 more databases are also accessible through UGC-INFONET Digital Library Consortium (UGC-INFONET Consortium usage statistics)

1) American Chemical Society 12) Nature
2) American Institute of Physics 13) Oxford University Press
3) American Physical Society 14) Portland Press
4) Annual Reviews 15) Project Euclid
5) Cambridge University Press 16) Project Muse
6) Elsevier 17) Royal Society of Chemistry
7) Emerald 18) SciFinder
8) Institute of Physics 19) SIAM
9) JCCC 20) SPRINGER Link
10) J-STOR 21) Taylor & Francis
23) Web of Science

(iii) Audio Book Resources and Braille Library

The Braille Library is actively engaged in supporting teaching, learning and research for the visually impaired students and faculty members. It has 3 audio book production studios, 2 high capacity Braille embossers, network of 16 latest computers. There are 1,607 audio books, 1,707 Braille books, 1,566 e-text, etc. The entire collection of audio books and e-text has been made available online on DUCC IP range in last academic year and is accessible via ID and password at http/bl.du.ac.in. The library is regularly used by visually impaired students enrolled in the University. Presently 176 members are enrolled in the library. Besides 4,114 hits on its website for downloading accessible materials, it has circulated 3,713 books on CDs (University of Delhi, 2015b).

1.2.3. Online User Services

The central library of Delhi is providing the following services (Annual Report, 2015).

(i) DULS—Website

DULS-Website which includes the catalogue of selected libraries(OPAC); a provision of e referencing, A-Z list of E-journals, Online Information Literacy Tutorial, Subject Portal, Ask your Librarian, access to electronic resources including open access resources and several other user friendly features, is in operation.
(ii) Digital Library

The Library has digitized 14386 books out of copyright zone available in DULS and have been placed on the web for global internet accessibility using the Open Source Content Management System, namely, ‘Dspace’. Available at: http://library.du.ac.in/dspace.

(iii) Information Literacy Programme

DULS has initiated and regularly conducting Information Literacy Program since 2006. And organized a total of 120 Information Literacy programs in various departments and colleges of University of Delhi including 92 E-Resource Orientation programs, 15 Hands on Training Sessions, 13 One Day Workshops for Research Scholars in Social Sciences. To promote Information Literacy, DULS is regularly conducting the various programs.

(v) Knimbus

DULS with technical collaboration with Global Information Systems Technologies Pvt. Ltd. had come out with an Open Source Federated Search solution called GISTFIND. It has been replaced by more improvised Open Source Federated Search solution called Knimbus. It is available at http://crl.du.ac.in/Knimbus.htm.

(vi) Searchable A-Z List of E-Journals

The work of compiling A-Z list of 43,209 e-journals has been completed and a ‘Beta version of searchable list on the SQL’ platform has been made available on DULS Website. It can be accessed at http://crl.du.ac.in/atozn. It is being updated on regular basis

1.2.4. Other Services and Facilities

In general, Delhi University Library System offers following facilities and services:

(i) Lending Services

Central Library makes facilitate to the user to get issue, books, CDs and back issues of the Magazines.

(ii) Inter Library Loan

The library has provision for inter library loan with other libraries both within the cities and outside.

(iii) Bibliographic Services:

Central Library provides the different type of Bibliographic Services. Central Library makes available the online bibliography of doctoral theses with abstract and M. Phil dissertations awarded by the University of Delhi.
(iv) **Photocopying Services**

Central Library provides the photocopying services but copyright regulations must be observed at all times.

(v) **Online Services**

Central Library provides various online services to cater the information needs of different user categories. The online services are OPAC, Digital Collection, Subscribed E-resources, Public Domain E-Resources, Chicago Manual of Citation Online, DELNET E-referencing, Information Literacy online tutorial, subject portal and Open access e-resources, etc.

(vi) **Article Alert Service**

The Central Library continued to produce Article Alert services in major subjects of Social Sciences and Humanities. Photocopying Service by adhering to the Copyright Provisions is available through the commercial vendors in the vicinity of Library.

(vii) **Manpower Development and Training**

Central organizes provide training to the existing library staff of the Delhi University Library System and Colleges and to acquaint them with the modern approach to library services.

2. **JAWAHARLAL NEHRU UNIVERSITY**

2.1. **About the University**

Jawaharlal Nehru University (JNU), Delhi was established in 1969. It is one of the most prestigious universities across the country. JNU is basically a research oriented university. Instead of colleges, JNU offers undergraduate, postgraduate, MPhil and research courses through various schools and centres of the university, which makes JNU different from other universities in the country. It is identified and is concentrating upon some major academic programs, which are of relevance to national progress and development.

The JNU campus is a microcosm of the Indian nation, drawing students from every nook and corner of the country and from every group and stratum of society. Overseas students form some 10 percent of the annual intake. Students’ hostels and blocks of faculty residences are interspersed with one another, underlining the vision of a large Indian family. The objective of the university has been to promote research and teaching leading to the increasing engagement of its students and teachers in
higher level academic work and national and international policy making.

2.2. Central Library of JNU

The Central Library, JNU is one of the most modern and well equipped university libraries holding the place of pride in the country. It is a nine-storey tower building and has a carpet area of about one lakh sq.ft. It is situated in the midst of the academic complex of the University and is the hub of all the academic activities. All the Reading Halls are air-conditioned. Entire library is connected through LAN & WI-FI. All the Schools, Centres and Offices of the University are connected to Library through INTRANET.

It was established in 1969 and now it is situated in the center of the academic compound of the University. It comprises the library of the prestigious Indian School of International Studies, which was later merged with Jawaharlal Nehru University. The JNU Library is a depository for all Government publications and publications of some chief International organisations, like European Union, United Nations, WHO and its related agencies, etc.

2.2.1. Library Staff (Annual Report, 2013-2014)

- Librarian 1
- Deputy Librarian 3
- Assistant Librarians 12
- Professional Assistants 24
- Semi Professional Assistant 20
- Library Attendant 26

2.2.2. Membership (Annual Report, 2013-2014)

- PhD 864
- Postgraduates 860
- undergraduates 386

2.2.3. Library Collections (Annual Report, 2013-2014)

The collection of JNU Library comprises of the following (as on Annual report, 2014):

- Books 3.5 lakh (approx)
- e-books 1 lakh
- Print Journals 314
- Print plus online Journals 94
Online Journals 597
Online Databases 40
Newspaper 20

2.2.4. Electronic Collection

Subscription to Periodicals and Electronic Databases

Library subscribed to 850+ print journals and 38 online databases. Besides, Library also got access to 22 databases under UGC INFONET consortium (Annual Report, 2013-2014)

(a) Online Databases subscribed by JNU

It subscribes 38 high quality electronic databases being made available through campus network (Jawaharlal Nehru University, 2014)

1) ACM Digital Library (Association for Computing Machinery)
2) American Society for Microbiology (ASM)
3) ARTSTOR Digital Library
4) CEIC Macroeconomic Database
5) China National Knowledge Infrastructure (CNKI)
6) EBSCO Research Database
7) Ebsco international Bibliography of Theatre & Dance with Full Text
8) Ebsco International Security & Counter Terrorism Reference Center
9) Ebsco ScoINDEX with Full Text
10) Economic Outlook
11) Hein Online Database
12) Henry Stewart Talks
13) IEEE Xplore Digital Library
14) Inderscience Online Journals
15) Indian Citation Index
16) Indiastat.com
17) INTEGRUM
18) Journal Citation Reports
19) Lexis Nexis
20) Manupatra; Nature Research Journals
21) Newspaper Direct – Library Press Display
22) Proceedings of the National Academy of Science USA
23) ProQuest – Digital National Security Archive (DNSA)
24) ProQuest – Dissertation and Theses Global
25) ProQuest Academic Research Library
26) PROQUEST- Literature Online with MLA
27) Prowess
28) SAGE Humanities and Social Science (HSS) Package
29) Science Direct- Subject Collection
30) Science Magazines: American Association for the Advancement of Science – Science Express
31) Science Online
32) Science Signaling
33) SciFinder Substructure Module (SSM)
34) World Bank E-Library
35) Yearbook of International Organizations
36) BBC Monitoring Online Database was started on IP instead of password based
37) Cambridge Crystallographic Data Centre (CCDC)
38) Emerald Insight online 171 Journals package was subscribed instead of print journals from Emerald
39) English Historical Documents Online
40) Foreign Broadcast information services Daily report (FBIS)
41) ProQuest Historical Newspapers Times of India Archive (1838-2004)
43) ProQuest Historical Newspapers: The Wall Street Journal (1889-1996); South Asia Archive
44) TAIR- The Arabidopsis Information Resource

(B) Online Databases available through INFLIBNET

In addition to this 22 more databases are also accessible through UGC-INFONET Digital Library Consortium (Annual Report, 2014).

1) American Chemical Society 12) Nature
2) American Institute of Physics 13) Oxford University Press
3) American Physical Society 14) Portland Press
4) Annual Reviews 15) Project Euclid
5) Cambridge University Press 16) Project Muse
6) Elsevier 17) Royal Society of Chemistry
7) Economic and Political Weekly 18) SIAM
   (EPW) 19) SPRINGER Link
8) Institute of Physics 20) Taylor & Francis
9) JCCC 21) Wiley
10) J-STOR 22) Web of Science
11) MathSciNet

2.2.5. Retrospective Cataloguing Central Library Collections

Cataloguing of Central Library collection mainly language collections started in 2012. The work is to be completed by 2014. The cataloguing of about 67,877 books
as per details given below have been done during the year (Jawaharlal Nehru University, 2015).

Government Document Collection 12652
Russian Language Collection 23850
Thesis and dissertation 4850
Afro Asian Language (Japanese, Chinese, etc.) 11540
European Language collection 4943
Science Collection 6142
Social Science Collection (Text Books) 4500

2.2.6. Institutional Repository

The following work was undertaken for the creation of Institution Repository during the year (Jawaharlal Nehru University, 2015):

Total No. of Theses Digitized 6000
Total No. of Dissertation Digitized 12000
Digital Format Received from Company in PDF A 17,000
Digital Copies Received in CD format 800
Total Theses and Dissertation Uploaded 18,000
Cataloguing and Classification of Theses and Dissertation 800
Converted into PDF A Format 800
Accessioning of Theses & Dissertation 2000
Linking of e-Theses and Dissertation 18,000
Bibliographic records created under
Retro conversation of Theses & Dissertation 4,000

2.2.7. Library Services

a) General

(i) Reference service is provided for each collection at the respective floor,
(ii) Membership and Issue-Return services are centralized at the Ground floor,
(iii) Textbooks on all disciplines are centralized and kept at the Textbook Section.
    Book Bank facility for MA students is also being provided from the Textbook Section.
(iv) Document Delivery Services and Inter-Library Loan facilities are available at the Cyber Library Counter.
(v) Articles from Social Science Periodicals are indexed at Documentation Unit and online search is available through OPAC.

(vi) Card Catalogues of different collections are available on respective floors.

b) Special Services

(i) Cyber Library

The Cyber library is located at the ground floor with 200 computers for the students and research scholars to access online resources. This is a recognized facility for the JNU bona fide students of the university to access the subscribed online journals, e-books and other digitized resources of the Library.

(ii) Central Library, JNU opens 24X7

Central Library, JNU meets a long time demand of the students for round the clock services by extending its hours of operation. The Vice-chancellor, Prof. Sudhir K. Sopory, while inaugurating the newly renovated reading hall on the ground floor of the Central Library, announced that the reading hall facility will henceforth be available for 24 hours, commencing from 3 February, 2014.

(iii) Digital Library System and Services

The Library is using Virtua, Integrated Library Management Software (VTLS) for housekeeping jobs in different sections. The integrated Library Management Software was upgraded to its higher version and the (OPAC) Online Public Access Catalogue is now on Chamo.

(iv) Remote Access

All e-resources of the Central Library, JNU including library catalogue can be accessed anytime from anywhere by using remote access server http://ezproxy.jnu.ac.in/login. The link is available at JNU Home Page as well as Central Library, JNU Home Page. To log on to this remote access server, user needs JNU email ID.

(v) Single Window Search

At present Central Library, JNU has provided single window access system to all e-resources available at Central Library, JNU such as all subscribed databases, Library catalogue, institutional repository etc. as a trial access through the following discovery services

- EDS (EBSCO Discovery Service)
- SUMMON (PROQUEST)
(vi) **Open Access to JNU ETDs**

Central Library JNU provided 5050 electronic theses and dissertations to INFLIBNET Centre for uploading on Shodhganga. JNU has provided largest number of e-thesis for uploading on Shodhganga.

(vii) **Helen Keller Unit**

In order to meet the needs of the visually impaired students of the university, a special unit named after Helen Keller has been established. Twenty four computers have been installed exclusively for visually challenged students to access OPAC and online resources. Laptops have been provided to all visually challenged M.Phil./Ph.D. students.

(viii) **Newspaper Clippings:**

JNU library provides the database of about 8 lacs news clippings which can be accessed through JNU Library OPAC. These news clippings are from 21 newspapers in 72 subjects from 1974 onwards.

(ix) **DELNET**

The Central library of JNU is a member of DELNET.

**Other Services**

(i) **Tracing File:** Information about untraced books must be recorded in the tracing files kept on different floors of the Library,

(ii) **Dissertations and Theses:** Metadata of theses and dissertation is available through OPAC.

(iii) **Xerox Facility:** Managed by a private operator, this facility is available in the library on payment basis,

(iv) **Tape Recorders and Audio Cassettes Library** provides these facilities to Blind students,

(v) **Lockers:** Library provides lockers facility to the Research Scholars & Faculty Members, on request,

(vi) **General Reading Hall:** This Hall is being kept open round the clock throughout the year. Students can read their personal books in the Reading Hall located at the back side of the Library.

2.2.8. **Participation in Consortia**

JNU library is a member of UGC-INFONET Digital Library Consortium which provides three bibliographic databases and about 20 full text databases to their registered users. JNU library facilities their academic community by providing 200
terminals (which is seven to ten time more in comparison to other select libraries) for retrieving and accessing their desired peer reviewed scholarly articles for their research purposes. Major publisher wise full text databases and bibliographic databases are given in Appendix-III. Publisher wise usage statistics is also listed in appendix-IV which reveals that e-journals from J-STOR is most used by JNU clienteles.

2.2.9. Library Staff
At present Central Library of JNU has 135 professional staffs, i.e., 01 Librarian, 03 Deputy Librarians, 13 Assistant Librarians, 26 Professional Assistant, 29 Semi-Professional Assistants, 20 Library Attendants, etc. (http://www.jnu.ac.in/Library/default.htm).

3. ALIGARH MUSLIM UNIVERSITY, ALIGARH
3.1. About the University
Aligarh Muslim University (A.M.U) is a premier central university in India. In the 19th century, Sir Syed Ahmad Khan created a modern educational institution that first as M. A.O. College and then since 1920 as Aligarh Muslim University, which has been the path breaker in bringing Muslim to modern scientific fields and education. Sir Syed deemed it necessary to make some special arrangement for their education. Aligarh's "culture of decency" has a compelling appeal. Now, it ranked second amongst the top ten universities of India.

3.2. Maulana Azad Library
Maulana Azad Library is one of the largest University Library of Asia. The foundation of the Library was laid in 1875 when Sir Syed Ahmad Khan, a great social reformer of his time. Lord Lytton laid the foundation stone of the Library. The Library was originally named as Lytton Library. In 1960 was inaugurated by Late Pandit Jawaharlal Nehru, Prime Minister of India and was named as Maulana Azad Library. The present grand seven storied building surrounded by 4.5 acres of land.

The Oriental Division of Maulana Azad Library comprising of about two lakh printed books and periodicals including 10,000 items belonging to rare category in Urdu/Persian/Arabic/Hindi and Sanskrit forms the most significant part of the collection. One of the most priced collections of the library is its collection of about 16000 rare manuscripts (Aligarh Muslim University, 2015).
3.2.1 **Library Hours**

The Library remains open for 18 hours a day on all days except a few national & religious holidays. During the examination period, the opening hours are further extended. The Library is used extensively by students, research scholars, faculty members and visiting scholars from within the country and abroad.

3.2.2 **Library Staff**

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Librarian</td>
<td>1</td>
</tr>
<tr>
<td>Deputy Librarian</td>
<td>2</td>
</tr>
<tr>
<td>Assistant Librarians</td>
<td>2</td>
</tr>
<tr>
<td>Information Scientists</td>
<td>1</td>
</tr>
<tr>
<td>Semi Professional Assistant</td>
<td>20</td>
</tr>
<tr>
<td>Library Attendant</td>
<td>26</td>
</tr>
</tbody>
</table>

3.2.3 **Collection**

The Library collections comprise of about 18,00,000 documents including books, periodicals, newspapers, theses, dissertations, reports, pamphlets, manuscripts, paintings, photographs, CDs, microfilms, databases, e-books, talking books etc. There are about 15,000 theses and dissertations forming perhaps the largest collection of such documents in the Country. Besides hard copy collections of about 13,00,000 books, about 1,20,000 e-books and 3,00,000 full text theses are available online. In fact, the Library performs the functions of a reference library so far as the books and manuscripts in oriental languages are concerned (Aligarh Muslim University, 2015).

**E-Books**

Elsevier / Science Direct e-Books (subscribed)

(i) **E-Books (subscribed) for Social Science Digital Library**

   a. Cambridge University Press
   
   b. Taylor & Francis

(ii) **E-Journals and Electronic Databases**

   Presently about 60,000 current journals are accessible after addition of 43,000+ e-journals to the e-resources of the Library which are accessible on Campus wide Network of the University.

   a. **Online Databases available through INFLIBNET**

   In MAL, 23 more databases are accessible through UGC-INFONET digital library consortium (University Grants Commission, 2012).
1) American Chemical Society; 13) Oxford University Press
2) American Institute of Physics; 14) Portland Press
3) American Physical Society; 15) Project Euclid
4) Annual Reviews; 16) Project Muse
5) Cambridge University Press 17) Royal Society of Chemistry
6) Elsevier 18) SciFinder
7) Emerald 19) SIAM
8) Institute of Physics 20) SPRINGER Link
9) JCCC 21) Taylor & Francis
10) J-STOR 22) Wiley
11) MathSciNet 23) Web of Science
12) Nature

b. Open Access Library (OALib) database
Access to over 2,000,000 full text indexed papers is available through Open Access Library (OALib) database which covers research topics relating to almost all academic disciplines, including mathematics, physics, chemistry, engineering, biology, material science, medical science, social sciences, and humanities.

c. J-Gate Database (subscribed)
d. DELNET (subscribed)
e. IndiaStat (subscribed)
Published by Datanet India Pvt. Ltd., New Delhi is available for access. It comprises ready to use socio-economic information about India and its states and provides over half-a-million pages of statistical data classified in more than 35 categories and sub-categories (Aligarh Muslim University, 2015).
f. Databases (subscribed)
ProQuest Dissertations & Theses Full Text (15.10.2014 - 14.10.2015)
Scopus: Citation, Abstracting & Indexing Services (01.12.2014 - 30.11.2015)

3.2.4. Library Services
(A) General Services
The Library provides a wide range of services to its users including retrieval of information, orientation, assistance in locating/searching of documents, advisory services, current awareness service (CAS), bibliographic service, bibliographic instructions, inter library loan, organization of exhibitions, press clipping,
reprographic service, print facility etc.

(i) Manuscripts

It is a World famous repository of rare manuscripts and books in Urdu, Persian and Arabic languages. One of the most priced part of the Library is its Manuscripts Division which possess about 16000 rare and invaluable manuscripts including several royal decrees of Mughal emperors namely Babur, Akbar, Shahjahan, Aurangzeb, Shah Alam etc. and also the translation of Sanskrit works in Persian, such as BhagwadGeeta, Mahabharat and Leelawati. The Mughal emperor Aurangzeb’s sword and the coins of Mughal period are also preserved in this Division.

(ii) Braille Section

One of the special features of Maulana Azad Library is its service to the visually impaired students through Braille Section. Apart from the books in Braille script, a large number of documents and devices in electronic format are also available in this section which is provided to the students. Angel Pro, a mobile like apparatus along with memory chips of 32 GB for recording the classroom lectures and listening to the already recorded books are issued to all the students for the entire duration of the course.

(iii) Central Hall

In the central hall of the Library at the entrance are displayed 'new arrivals'; 'university staff publications'; 'must read' books and 'founders library collection' in respective showcases.

(iv) Reading Halls

There are six large size reading halls apart from eight small reading rooms with a seating capacity of about 1350 students at present which will be extended to 1500 seats in near future.

(v) Newspapers Reading Area

Almost all current newspapers and magazines of English, Urdu and Hindi are available in the Library. Back files of some reputed newspapers are also being preserved and maintained.

(B) Digital Services

(i) FedGate

A single window search software to retrieve the desired information out of all the subscribed e-Resources is available.
(ii) **Online Journal Lab**

The Access to 60,000+ current peer reviewed journals, 11 bibliographical databases and 55 subject gateways is available through the Campus wide Network of the University. These resources can also be accessed by Faculty Members and Research Scholars in the Online Journals Lab of Maulana Azad Library.

(iii) **Digital Resources Centre**

CDs of lectures of IITians, Medical tutorials, reference documents, over three lac Ph.D. theses, one lac e-books and over one lakh of e-books in English and thousands of rare printed books of Maulana Azad Library in oriental languages also are accessible in the Digital Resources Centre.

(iv) **OPAC**

OPAC (Online Public Access Catalogue) is now being accessed by large number of readers and the digital resources are accessible in Digital Resource Centre. Several systems providing search facility for library materials through OPAC and traditional catalogues are available in the Central Hall.

(v) **Automation**

Maulana Azad Library has introduced state of the art information technology and it is fully automated with LibSys 7.0 software which connects almost all 9,500 computers within the University as well as the centers in distant states.

(vi) **Links for Free Resources (available on public domain)**

(vii) **Links for Free Resources in Medical Science**

(viii) **Resources available in Oriental Languages**

   a. Marfat Library

(ix) **Subject Information Gateways (available on public domain)**

   a. Browse by Subject

   b. Browse by Title

4. **BANARAS HINDU UNIVERSITY**

4.1. **About the University**

Banaras Hindu University ranks among the first few in the country in the field of academic and research output. BHU has two campuses, 3 institutes, 16 faculties, 140 departments, 4 advanced centers and 4 interdisciplinary schools. The University is making its mark at the national and international levels. BHU today has nearly from 34 nations. Banaras Hindu University is an internationally reputed temple of learning, situated in the holy city of Varanasi. This Creative and innovative
university was founded by the great nationalist leader, Pandit Madan Mohan Malviya, in 1916 with cooperation of great personalities like Dr. Annie Besant. Banaras Hindu University was created under the Parliamentary legislation BHU Act 1915.

4.2. Sayaji Rao Gaekwad Central Library of B.H.U

The Banaras Hindu University Library system is one the largest University Library System in the country, germinated from a small but precious collection donated by Prof. P.K. Telang in 1917. Library was also shifted to the Central Hall of the Arts College (now Faculty of Arts) and then in 1941 to its present majestic building built with the munificent donation from Maharaja Sayajirao Gaekwad of Baroda, on the pattern of the great library British Museum of London on the suggestion of Pandit Madan Mohan Malaviya, the founder of university. In 1931, library grew by leaps and bounds with magnificent donations of personal and family collections from many eminent personalities and families like Lala Sri Ram of Delhi, Jamnalal Bajaj of Wardha, Roormal Goenka, Batuk Nath Sharma, Tagore Family collection, Nehru Family collection, etc. amongst a score of others and purchase of books and journals out of the regular fund with the result that it has a collection of around 60,000 volumes. The trend of donation of personal and family collection to the library continued as late as forties with the result that it has unique pieces of rarities of books and journals dating back to 18th century. With this sound footings and background, the library took long strides during sixties and seventies in its development and metamorphosed in a system of libraries with the establishment of institute, faculty and departmental libraries during the period. Presently, the Banaras Hindu University Library System consists of Central Library at apex and 3 Institute Libraries, 8 Faculty Libraries, 25 Departmental Libraries, with a total collection of over 10,46,064 lakh volumes to serve the students, faculty members, researchers, technical staff of fourteen faculties consisting of 126 subject departments of the university.

4.2.1. Library Hours

Library opens 359 days in a year. It remains open generally for 11 hours in a day. During Sunday/Holidays open hours of library are only for seven hours. SRG Library is highly used library. Being a residential University a large number of students utilise resources of the library.
4.2.2. Library Staff:

At present, Sayajiroa Gaekwad Central Library has following sanctioned positions (Banaras Hindu University, 2015):

- Librarian Incharge: 01
- Deputy Librarians: 05
- Assistant Librarians: 12
- Information Scientist: 01
- Professional Assistant: 14
- Semi-Professional Assistants: 34
- Library Attendants: 45

4.2.3. Library Collections

Recognizing the role of library and information services in meeting the requirements of the University\'s academic and research programmes, the library purchases books and other information resources related to the courses offered by the University. Library has adequate number of information resources to satisfy the information need of library users. Collection: (as on 27.01.2015).

<table>
<thead>
<tr>
<th>Resource</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Books</td>
<td>9,71,962</td>
</tr>
<tr>
<td>Journals (Bound Vols)</td>
<td>1,41,056</td>
</tr>
<tr>
<td>Current Journal</td>
<td>455</td>
</tr>
<tr>
<td>Ph.D Theses</td>
<td>13,476</td>
</tr>
<tr>
<td>Manuscripts</td>
<td>7,233</td>
</tr>
<tr>
<td>UN &amp; Govt. Publications, Staff Publications, Rare &amp; Out of Print Books, Local History Collection, University &amp; its Founder Collection</td>
<td>3,632</td>
</tr>
<tr>
<td>Online Journals</td>
<td>11,879</td>
</tr>
<tr>
<td>Databases</td>
<td>10</td>
</tr>
<tr>
<td>E-Books</td>
<td>52,560</td>
</tr>
</tbody>
</table>

(i) Electronic Database and Online Journals:

SRG Library is a part of UGC- INFONET and INDEST Consortia for e-journals subscription. SRG library is having access to about 4000 online journals and databases. It includes publications of American Chemical Society, Royal Society of Chemistry, Nature, Science, Science Direct (Elsvier), Project Muse (Social Science & Humanities), Emerald, Institute of Physics, American. Institute of Physics, American Physical Society (AIP/APS), Cambridge University Press,
Springer, Kluwer online publications, etc. BHU is having access to databases like Chemical Abstracts and Biological Abstracts. The access is available to all users through campus network of BHU.

- **Online Databases available through INFLIBNET**

  In SRG, 18 databases are acquired through UGC-INFONET digital library consortium (University Grants Commission, 2012).

1. American Chemical Society; 10. Nature
4. Annual Reviews; 13. Project Euclid
7. Emerald 16. SIAM
8. Institute of Physics 17. SPRINGER Link

### 4.2.4. Library Services

The Sayaji Rao Gaekwad Central Library BHU categories the services in two types. First, library provides "Inside the Library Study facility" for Research Journals, Books, Ph.D theses, UN and Govt. Publications, Text Books, Reference Books, etc. However, through "outside the Library Study facility", user can be provided lending for home study departmental study.

**A. General Services**

(i) **Reprographic Service:** The Reprographic Section of the Library is equipped with four photocopying machines. Photocopy of periodical articles and parts of books are made available to the readers at a nominal rate.

**B. Electronic Services**

(i) **Information Services:**

Library provides Information Services through DELNET and INFLIBNET

(ii) **Internet Facility**

Internet connectivity with 12 nodes has been provided for the use of teachers, researcher and undergraduate and postgraduate students of the University for browsing of websites and databases, of their interest.
(iii) **Electronic Document Delivery Services**

To fulfill the information needs of the end user through information/document supply library has document delivery service, which is new service initiated by INFLIBNET in collaboration with other six university libraries which are well known for their strong collection base and commitment to provide timely service.

(iv) **Institutional Membership**

Sayajiroa Gaekwad Central Library is the member of DELNET and INFLIBNET Programme.

(v) **UN Depository Library for UN Publications**

The Central Library has a Depository Library for publications of the United Nations and its agencies. After the scheme of depositing (free of cost) ceased in 1973, the library continued to obtain U.N. publications by way of depository library subscription scheme and select purchases. This is a unique feature of this library.
REFERENCES


