CHAPTER - 1
INTRODUCTION

Curiosity is one of the wonderful characteristics of a human being which differentiate him from animals. Information is the result of human effort. Information should be put into proper use for socio-economic development of the nations. It is said that a country which is rich in information, is really rich in its socio-economic spheres. Information is an important tool for the success of any research system. Effective access of information fulfils our requirement in a good way. Lokhanda describes the information as the message conveyed by a systematized body of ideas (Lokhanda 2007).

Now-a-days there is an explosion of information. The exponential growth of literature and rapid growth of libraries generated several evolutionary studies about the effectiveness and efficiency of information services. In the age of information explosion, it is very essential to organize the information resources for their effective and efficient use. Mahapatra and Sahoo (2004) describes that the Library and Information Centres work as the purveyor of research activities.

The information professionals engaged in LICs have been striving hard to improve the conditions of information environment. Because of literature, a library cannot acquire all documents for fulfilling the requirement of its users.

Researchers/ Information Scientists and Professionals are always eager for new current type of information for their research work. Research is a systematic investigation to discover new facts and to seek new knowledge or to find solution to research problem. New research builds on previous research and investigation acknowledge this by citing previously published studies. The impact of publications can be measured by the number of times these have been cited by other investigators in subsequent works. The more time a
publication is cited, the more influential it is considered to be within its research community. It is a technique to measure or to recognize the value of previous works. Citations have become a powerful tool for studying the information behaviour of researchers particularly their information use pattern. Researchers/users can search their materials from books, journals, internet, manuscripts and research reports etc.

Citations are considered to measure the actual impact of work on the surrounding research activities. Citations have become a powerful tool of studying the information behaviour of researchers particularly their information use pattern.

To control over this explosion, Citation Analysis is relatively a new method as well as a useful tool for evaluating the use of library collection.

These studies led to the identification and application of appropriate quantitative measuring techniques known as bibliometrics. Nandi and Bandyopadhyay (2008) say that “These types of methods are generally used to identify the publication pattern, authorship, citation and or secondary journal coverage”. Generally, it helps us as a tool for document selection, identification and utilization of the information. It is one of the parts of 'Bibliometrics' which deals with the references given by an author to the previous knowledge and with the rapid changes noticed in all domains of human activity.

1.1 CONCEPTUAL FRAMEWORK: BIBLIOMETRICS

Bibliometrics is a type of research method used in Library and Information Science. The terms 'Bibliometrics' is derived from the Latin word, 'Biblio' and Greek word, 'Metrics'. The word 'Biblio' refers to books or documents and the word 'Metrics' refers to measurement. Literally it denotes the measurement of documents. Nandi and Bandyopadhyay (2008) define it etymologically as “the application of mathematics and statistical methods to books and other media of communications”.

"Bibliometrics is a branch of information theory, which analyses quantitatively the recorded knowledge to know its properties and behaviour. The recorded knowledge may be in form of books, journals etc. In almost all subject disciplines, bibliometric research has developed a body of theoretical knowledge and a group of techniques based on bibliometric data elements" (Sahoo 2001, 202).

The basic aim of bibliometric study is to assist the users in locating the existing information or identifying a book or any other materials. It helps us as a tool for document selection, identification and utilization of the information. Amudha et al. (2009) say that “Bibliometric study afford Investigators to study the quality and quantity to work done by researchers and information scientists in various fields”.

1.2 HISTORY OF BIBLIOMETRICS

The first recorded study on bibliometrics was presented by F. J. Cole and Nellie B. Eates in 1917 in Science progress project. It analyzed publications in comparative anatomy from 1543-1860 by simple counting the number of titles, from books, and journals articles. They mainly studied the functions of interest and distribution of literature among countries. The study was named as ‘Statistical analysis of literature’ E. W. Hulme introduced the second reported work on bibliometrics which was termed as ‘Statistical Bibliography’ in 1923. In this, Hulme analyzed the journal articles in ‘English International Catalogue of Scientific Literature’ and ranked the countries on the basis of their publication productivity. In 1927, Gross and Gross are firstly credited for recording the study of citation data. Though the term ‘Bibliometrics’ was first coined by British Librarian “Alan Pritchard” in 1969 in his paper on ‘Statistical Bibliography or Bibliometrics’ which was published in the Journal of Documentation. The usage of bibliometrics can be traced back to the 19th century (Mahapatra 2009).
1.3 ANALOGOUS/SYNONYMOUS TERMS

A number of analogus/synonymous terms are also used in handing information and measuring science. ‘Bibliometrics’ is just one of the many sciences whose name ends with ‘metrics’. Many scientists used the terms under different names, but the concepts were more and less supplementary and complementary to each other with some broader and narrower extension of human ideas. The terms like bibliometrics, scientometrics, informetrics and librametrics overlap to a great extent. Hulme used the term “Statistical Bibliography” in 1923. In 1948, the great Indian library scientist S. R. Ranganathan (Father of Library Science) coined the term ‘Librametry’ which historically appeared first and perhaps seemed proper to streamline the services of librarianship, while Pritchard explained the term Bibliometrics as “the application of mathematical and statistical methods to books and other media of communication in 1969” (Pritchard 1969). Nalimov and Mulchenka (1969) defined Scientometrics as “the application of those quantitative methods which are dealing with the analysis of science viewed as information process related to documents”. Scientometrics is used for the measurement of science communication, whereas bibliometrics deals with more general information process related to documents. The term Informatics' was adopted by VINITI (Gorkova 1988) and stand for a more general subfield of information using mathematical and statistical analysis to the information process in science (Glanzel 2003). It is the quantitative study of information production, storage, retrieval, dissemination and utilization and attempts to develop mathematical models to better understand information process. It can incorporate, utilize and extend many studies of the measurement of information that lie outside the boundaries of both bibliometrics and scientometrics.

1.4 BIBLIOMETRICS INDICATORS

Bibliometrics analysis results in indicators of research quantity and performance. They can also provide measurements of connections between
researchers and research areas through statistical analysis of co-publications and citations. Bibliometrics uses following three types of indicators:

1.4.1 PUBLICATION COUNT

“A publication count is one means of measuring and comparing the production of various aggregates such as institutions, regions and countries. It serves as an indicator of the amount of new scientific knowledge produced by researchers. The number of articles published in learned journals during a specific time frame is an indicator of the output of a set or subset within the science system. It is also possible to compare numbers in order to gauge the output intensity in specific fields.

1.4.2 CITATIONS AND IMPACT FACTOR

Number of citations can be used to evaluate the specific impact of research. The number of citations received by learned journals is systematically compiled by Thomson ISI and sold under the trademark *Journal Citation Reports* (JCI). This product includes a number of indicators related to citations received by journals and the impact factor is probably the one most commonly applied.

1.4.3 CO-CITATION AND CO-WORD ANALYSIS

Co-Citation based indicators are used to map research productivity: Co-Citation analysis and Co-Word analysis. Mapping is a mean of studying the development of emerging fields using time as a variable. Co-citation and Co-word indicators can be combined with publication and citation counts to build multifaceted representation of research fields, linkages among them and the actors who are shaping them” (Archambault and Gagne 2004, 2; quoted in Verma 2007, 7).

1.5 SCOPE OF BIBLIOMETRICS

The scope of bibliometrics include bibliometric distribution, citation analysis and library use studies, etc.
Bibliometric studies are based on the analysis of various bibliographical references like journals articles, conference proceedings, research papers, theses, etc. These bibliographical references are helpful in producing the scientific research results by representing intellectual contribution to a research topic or subfield.

Pritchard (1969) indicated the scope of bibliometrics by mentioning that the purpose bibliometrics is “to shed light on the process of written communication and of the nature and course of development of a discipline, by means of counting and analyzing the various facts of written communication.”

Nicholas & Ritche (1978) provided the scope of bibliometrics more clearly. By divided bibliometrics studies into two broad groups which are: Descriptive Studies and Behavioural Studies.

“The Descriptive Studies: These studies describe the characteristics features of a body of literature and also known as productive counts. It includes following fields of the study:

1. Bodies i.e. authors or organizations responsible for the production and transmission of information.
2. Form of transmission (i.e. journals, monographs, etc.).
3. Medium of communication (i.e. articles, letters, etc.).
4. Nature of information conveyed (i.e. how much literature exists on various languages and subjects).
5. Timing and frequency with which information is conveyed.
6. Amount of information conveyed by various individuals, groups, organizations, countries, etc.
The Behavioural Studies: These studies examine the relationship formed between components of a literature and also known as “citation studies” which relates to what the author cites. These studies also show the relationship between different authors and disciplines with the following phenomena:

1. Which authors are most cited?
2. Which journals are most cited?
3. Which linkages exist between the citing and the cited works (i.e. self-citation)?
4. Language of documents selected for use as citation;
5. Type of documents used for citation; and
6. Subject distribution and how quickly the literature on some subject becomes out of date i.e. obsolescence study” (quoted in Mahapatra 2009, 11-12).

1.5.1 BIBLIOMETRIC DISTRIBUTION

Bibliometric distribution is one of the three main bibliometrics research. The study of bibliometric distribution lead to the three most commonly used laws in bibliometrics which are: (a) Lotka’s Law on productivity of authors, (b) Bradford’s Law of scattering of scientific papers, and (c) Zipf’s Law on word occurrence. Bibliometrics data are found to confirm rather closely to a number of ‘Laws’ and mathematical distributions. They have certain things in common. They are positively skewed, long-tailed and reverse J-shaped (Sahoo 2002). These laws are:

(a) LOTKA’S LAW ON PRODUCTIVITY OF AUTHORS

Potter (1988) says that Lotka’s Law describes the frequency of publication by authors in a given field. It states that “the number (of author’s) making n contributions is about 1/n^2 of those making one; and the proportion of all contributors, that makes a single contribution, is about 60 per cent”. This
means that out of the authors in a given field, 60% will just have one publication and 15% will have just two publications. 7% authors will have three publications and so on. According to Lotka’s Law of scientific productivity, only 6% of the authors in a field will produce more than 10 articles.

(b) BRADFORD’S LAW OF SCATTERING OF SCIENTIFIC PAPERS

It has been observed that most of the relevant sources for any particular subject seem to be contributed in a relatively small part of the literature, and the rest are scattered in a fixed ratio. This phenomenon has been called the ‘Law of Scattering’ and was first described by the British librarian, S. C. Bradford. He studied the dispersion of references in a bibliography on Geophysics in the Science Library in London in the 1930s and found that he could put all the journal titles into three groups, each of which contained the same proportion of the total references (Bradford 1934).

Bradford described the phenomenon of ‘Law of Scattering’ in his own words as: “If scientific journals are arranged in order of decreasing productivity of articles on a given subject, they may be divided into a nucleus of periodicals more particularly devoted to the subject and several other groups or zones containing the same number of articles as the nucleus, when the number of articles in the nucleus and the succeeding zones will be as \(1:n:n^2\).....” In other words, if the top \(n\) periodicals contribute 33.33 per cent of the articles in a given subject, the next \(n^2\) periodicals contribute only 33.33 per cent of the literature and the rest of the literature is scattered in \(n^3\) least productive journals (quoted in Sahoo 2002, 66).

Thus it can be concluded that only a small number of journals will be needed to supply the nucleus of the papers on a given topic, assuming that the topic is of a narrow scientific subject.
(c) ZIPF’S LAW ON WORD FREQUENCY

Potter (1988) says that Zipf’s Law is often used to predict the frequency of words within a text. The law states that in a relatively lengthy text, if we list the words occurring within the text in order decreasing frequency, the rank of a word on that list multiplied by its frequency will equal to a constant.

1.5.2 CITATION ANALYSIS

Meho and Rogers (2008, 1) have aptly "summarized the concept of citation analysis as “the analysis of data derived from references cited in footnotes or bibliographies of scholarly publications. It is a powerful and popular method of examining & mapping the intellectual impact of scientists, projects, journals, disciplines and nations. The method is increasingly being used by academic, research and federal institutions in several countries worldwide for research policy making, visualization of scholarly networks, and monitoring of scientific developments” (quoted in Verma, 10).

Citation analysis provides an overall view of the body of literature in a particular field for measuring literature growth in the field, and for evaluating the research productivity of authors and academic departments.

1.5.3 LIBRARY USE STUDIES

One of sub areas in bibliometric research is library use studies. The library use studies are used to measure the authenticity of a library collection so that the future library programmes can better serve and satisfy the needs of the users. These studies help in formulating the mathematical models for patterns of library use in relation to different types of users and documents.

The characteristics of documents which have been analyzed in library use studies mainly cover the following:

1. The age of documents: The number of years since they have been published or the number of years since they have been available for use in a library.
2. Past usage of a given document: The number of times it is circulated or number of times it is used in the library.

1.6 APPLICATIONS OF BIBLIOMETRIC TECHNIQUES

Now-a-days bibliometric techniques are being applied to measure factual and accurate data in the transfer and handling of information. Its techniques have extensive applications equally in studies of science, information management, librarianship and also different branches of social sciences, etc. Gross and Gross (1927) were the first to apply bibliometric techniques to the problems of chemical library acquisition.

Most of the bibliometric models are tested and used primarily at the local level and institutional level for the purpose of:

i) It can be used to describing scientific productivity and growth of publications.

ii) It can be used for Identifying the core journals and patterns of library use.

iii) It can be used to improve the bibliographic control.

iv) It can be used to determine the statistics of literature related to the country of origin, subject, forms and language distribution of documents.

v) It can be used to determine the subject relationship.

vi) It helps in taking some management decisions.

1.7 CITATION

Broadly, a citation is a reference to a published or unpublished source (not always the original source). More precisely, a citation is an abbreviated alphanumeric expression (e.g. Newell84) embedded in the body of an intellectual work that denotes an entry in the bibliographic reference section of the work for the purpose of acknowledging the relevance of the works of others to the topic of discussion at the spot where the citation appears. Citations are
the references given at the end of the scholarly papers, to the articles of documents previously published (Gupta 2006). Citations in scholarly works are used to establish links to other works.

1.7.1 REASONS FOR CITATIONS

There are various reasons to provide citations in paper some of them are ethical and some of them are non-ethical:

1. “The citation may be used to study the rate of citations per articles, the publication rate of articles referred, the distribution of references to other journals and the trend of research, etc.

2. Citations are considered as an unit of analysis.

3. Citations are reported to serve as a label for intellectual property in all types of scholarly literature.

4. The primary function of citations is to provide a connection between two documents, one which cites and the other which is cited” (Martyn 1975; quoted in Mahapatra 2009, 20).

5. The nature of this relationship is although difficult to characterize but Smith (1981) stated that Garfield (1965) identified some fifteen reasons of why author cite. These are:

**Garfield has enumerated the following reasons for giving citations:**

1. “Paying homage to pioneers.

2. Giving credit for related work (homage to peers).

3. Identifying methodology, equipment etc.

4. Providing background reading.

5. Correcting one’s own work.

6. Correcting the work of others.
7 Criticizing previous work.
8 Substantiating claims.
9 Altering forthcoming work.
10 Providing leads to poorly disseminated, poorly indexed, or uncited work.
11 Authenticating data and classes of fact-physical constants etc.
12 Identifying original publications in which an idea or concept was discussed.
13 Identifying original publications or other works describing an eponymic concept or term. . .
14 Disclaiming work or ideas of others.
15 Disputing priority claims of others” (quoted in Smith 1981, 20-21).

These references are supposed to identify those earlier researchers whose concepts, methods, apparatus etc. inspired or were used by author in developing his own article.

1.8 CITATION ANALYSIS - BASIC CONCEPT

Citation analysis is a way of measuring the relative importance or impact of an author, an article or a publication by counting the number of times that author, article, or publication has been cited by other works. It is largely used for putting things in order. The things can be journals, articles, books, authors’ organizations, etc. This type of ordering can be linear as in ranking as multidimensional as in citation networks. Citation Analysis has been largely confined to the production of raw citation count for the purpose of determining core journals. Its use has now been extended to study the scope and structure of the subjects and to cluster the documents to prepare a bibliography on subjects, etc.

Citation analysis is one of the most widely used method of bibliometric. For example, bibliographic coupling and co-citation are association measures based
on citation analysis (shared citation or shared references). Citation analysis is an activity of analyzing the citations or references. It is one of the parts of 'Bibliometrics' which deals with the references given by an author to the previous work (Kumbar et al. 2006).

“Citation analysis is a worthwhile area of research. It refers to references in one text to another text, with information on where that text can be found. Citation analysis is useful for understanding subject relationships, author effectiveness, and publication trends and so on. The first recorded Citation Analysis was Gross and Gross who looked at citation patterns to determine the journals to be subscribed to and back volumes to be acquired for the library of Pomana College. They studied the citation frequency in the references given in the Journal of the American Chemical Society” (Verma and Patil 2008, 1).

Citation analysis is an established research tool of bibliometric study for identifying the significant sources, authorship pattern and other aggregates of scientific activities involving the counting and analysis of citation which forms a part of primary scientific communication (Madkey and Rajyalakshmi 1994).

Citation analysis is an unobtrusive method to determine which resources researchers are using. Through this method or technique one can evaluate and interpret the citations received by articles, authors, institutions and other indicators of scientific activity. According to Encyclopedia of Library and Information Science (2006) “Citation Analysis makes use of bibliometric references, which are an essential part of scientific communication” (quoted in Verma and Patil 2008). According to Ane's Encyclopedia Dictionary of Library and Information Science (2006) Citation Analysis is “a major area of bibliometric research, which uses various methods of citation analysis to establish relationships between authors or their work” (quoted in Verma and Patil 2008, 2).

The citation analysis of theses and dissertations has a particular value for the institutions’ information system. Citation analysis reveals the information use pattern of researchers in the particular field or in a particular institution and it
explains the dependence of the researchers on their institutional information system. The findings from citation analysis can also be used for making the system more responsive.

In the process of citation analysis, citations explore the structure of science. In 20th century maximum changes occurred in the concept of bibliographic references and citations. Now-a-days citations are accepted as an integral part of scholarship.

Citation analysis is one of the most common technique accepted all over the world as an authentic and accurate tool for journal evaluations.

1.8.1 HISTORICAL BACKGROUND OF CITATION ANALYSIS

The modern concept of citation analysis came into existence in 19th century when Shepard index was started in 1873 for the US legal profession. It is a common practice in court proceedings to cite earlier cases of same court or higher court as precedence to prove a point in a new case. The Shepard index incorporated bibliographical information of the new case under the entry for earlier case. Eugene Garfield while working on welch project realized the importance of citations and for the purpose of properly networking the citations with the citing documents he studied the already publication (Shepard index) employing this mechanism. By the time of completion of the project Garfield was convinced about practical utility of citation index in the field of science (Balesh 1997).

“Garfield thought the idea of a printed citation index was feasible…he tried for US Government findings, but was turned down. So he took the financial risk himself. Production started in 1956, originally Garfield called his company Doc. Mation Inc., but it soon changed its name to ISI. Initially, it produced a genetics citation index and current contents. Then, in 1961, ISI published the published the first edition of Science Citation Index. Social Science Citation Index (SSCI) was launched in 1973” (Baird and Oppenheim 1994, 5).
Although Gross and Gross seem to have originated the concept of counting the references in a central scientific journal as a means of identifying the key journals in a subject in 1927 (Mahapatra 2009).

1.8.2 USEFULNESS OF CITATION ANALYSIS
Citation analysis can be used in a number of ways. Ramesh and Nagaraju, 2000 (quoted in Verma 2007, 13-14) have enumerated the following uses of citation analysis:

1. Citation analysis helps in identification of key documents and core journals.

2. Citation analysis provides relevant measures of utility and relationships of journals whose primary function is to communicate research results.

3. It helps in clustering of documents according to common references and citations.

4. It helps in studying the attributes of literature including growth rate obsolescence and citation practices.

5. Citation analysis can also be used to find the extent of co-authorship or co-operation among researchers in a field.

6. Citation analysis is known to be a low-cost method whereby a researcher can gather and study citation data in an unobtrusive and non-invasive way.

7. Citation analysis is a flexible and well-studied method in a university library environment.

1.8.3 NEED FOR CITATION ANALYSIS

1. Rising subscription costs, shrinking budget allocation, and lack of space for current holdings have resulted in a number of ‘document use studies that is citation analysis. Librarians try to determine collection development polices which will make optimum use of money and space available while meeting the current and future needs of their library users.
2. Citation Analysis is one of the popular methods employed in the identification of core journals in a particular subject field or for a particular scientific community in a geographical area.

3. It is a technique of listing of references appended to the articles in significant periodicals and counting the frequency with which periodicals are cited.

4. Ranked list of periodicals can be used by librarians and the information scientists to select journals of greater coverage and productivity in particular subject areas in the field of Management.

1.8.4 TYPES OF CITATION ANALYSIS

There is a rapid growth in the number and types of studies using citation analysis. Citation analysis since its introduction has developed various techniques and measures, the exploitation of new tools and the study of different unit of analysis. Mahapatra defined the types of the citation analysis. “These are:

1.8.4.1 CITATION ANALYSIS ON SIMPLE COUNTING METHODS

This is the most common and simple technique in citation analysis. Here the citation count technique is applied to determine how many citations are being received by a given document or a set of documents/ or by an author over a period of time from a particular set of citing documents. The main areas of this type of study are:

Authorship study;
Type of documents used;
Language of the cited documents;
Ranking of journals and books;
Self-citation study;
Dispersion of subjects; and

Obsolescence and Half-life studies.

1.8.4.2 BIBLIOGRAPHIC COUPLING

In 1963, Kessler first introduced the concept of bibliographic coupling. Bibliographic coupling happens when two papers use a reference as a unit of coupling between those two papers. It makes the assumption that when two papers cite the same reference common in them, then there must exist some kind of relation between the two citing papers. The strength of bibliographic coupling is measured by the number of references that the two papers have in common.

1.8.4.3 CO-CITATION ANALYSIS

The concept of Co-citation was introduced by Small in 1973. Co-citation analysis can be applied as subject similarity indicators. Co-citations are defined as “the frequency with which two cited documents are cited together”. In citation analysis special attention is given to the emergence, change, connectedness of specialty areas is revealed by co-citation analysis. Diodato (1994) believed that co-citation happens when two or more authors, documents or journals are cited by another document simultaneously. The strength of co-citation is believed to be related to the number of times two earlier documents are cited together by a new article” (Mahapatra 2009, 26-41).

1.8.5 APPLICATIONS OF CITATION ANALYSIS

The various applications of citation analysis are given below:

1. Citation analysis can be used to find out subject relationships which help in suggesting titles of journals relevant to a particular subject in a particular library.

2. The citation data can be used to determine the list of highly cited journals or books which can be used in taking decisions while discarding the stock of the library.
3. The citation data can be used to determine the volume of publication in year-wise that help in planning retrospective bibliographies.

4. Citation index can be used in identifying relevant documents and provides the indications of the importance of the article.

5. It can be used be used in evaluation and interpretations of the citations to measure scientific influence and productivity.

6. It can be used to compare the user behaviour at different points of time.

7. It can be used to measure the dissemination of results reported in certain types of literature such as government documents.

8. It can be used to identify the citation pattern in a particular subject field.

9. The analysis of citation pattern can be used to identify the problem areas of communications.

10. The analysis of changes in patterns of co-citations from year to year can be used to reveal the history of ideas in a given speciality.

11. The analysis of use of library’s collection can be used in building an effective collection development for a library (Smith 1981).

1.8.6 LIMITATIONS OF CITATION ANALYSIS

Citation analysis like any other technique is not free from criticism. Some of the major problems and limitations of citation analysis are as follows:

- “One problem with citation analysis is that it does not provide information on possible reasons, why a particular information source is used or not used or why information sources are considered important enough to merit a citation.

- The bibliographic references, which are taken for citation study, are not always standardized.

- In case of collaborated authors, the cited articles appear only under the name of the first author as listed in each article. Here one must determine
the names of individual contributors who have contributed the work to get the actual rank of the authors. This is very difficult and tedious process.

- Self-citation is another limitation of citation analysis study. Although the case of self-citation of single author publications can be determined and eliminated but in case of collaborated works it is difficult to find out the self-citations of authors especially for authors in second or later positions.

- A serious problem of citation study is “hello citations” (Mahapatra, 1992), where author internationally cite another author as only goodwill. It is not easy to estimate such citations while ranking the authors on the basis of their citations” (Lancaster 1991; quoted in Mahapatra 2009, 57-59).

Despite these limitations and weak points, citation analysis is considered more reliable than any other research method. One advantage of citation analysis is that it is an unobtrusive method, so counting the citations generally does not cause any changes in them. This fact contributes to the overall validity of the method’s use.

It is generally regarded as a valuable tool for determining the impact of scholarly work. The present study “Citation Analysis of Management Doctoral Dissertations Submitted to the Universities of Haryana, Punjab & Himachal Pradesh” is an effort to identify the primary information resources used by researchers by performing their research, which is a qualitative and quantitative analysis of the citations or references.

1.9 UNIVERSITIES: A BRIEF PROFILE

The study was conducted on the doctoral dissertations submitted in the Department of Management in the Universities of 1) Haryana (Kurukshetra University, Kurukshetra; Maharshi Dayanand University, Rohtak and Guru Jambheshwar University of Science & Technology, Hisar) 2); Punjab (Punjabi University, Patiala and Guru Nanak Dev University, Amritsar) and 3) Himachal Pradesh (Himachal Pradesh University, Shimla) during 2000-2009.
1.9.1 KURUKSHETRA UNIVERSITY, KURUKSHETRA

The Kurukshetra University was established in 1956 as a unitary residential University and its foundation stone was laid by late Dr. Rajendra Prasad, the first President of India, located in the holy city of Kurukshetra, land of the historical battle of 'Mahabharata' and the great message of Bhagwad Gita, its campus is situated on the western bank of Brahm Sarovr (the holy tank) and extends over an area of over 400 acres. Starting with only the Department of Sanskrit, it has grown into a multi-faculty University as one of the premier centres for advanced study and research in the region. It has nine faculties under that comes 52 Departments existing approximately 449 teaching staff and with 1965 approximately non-teaching staff.

JAWAHARLAL NEHRU LIBRARY

The university library was established in 1956. Its name is Jawaharlal Nehru Library. The university Library is centrally located and is an air-conditioned three storey building having 49,230 sq. feet plinth area. The Library is fully
automated in house activities such as library membership, circulation of documents, holding of periodicals, catalogue as Online Public Access Catalogue (OPAC). The Library is providing automated service using LIBSYS software. Kurukshetra University Library is providing ERNET facility for the faculty members, students and research scholars. Library has also provided the internet connectivity to almost all the teaching and non-teaching Departments, Hostels and the entire Campus through Wi Fi internet connection.

Total number of membership of university library was 12,972. The bar-coded membership cards with tickets are issued to all categories of members for issuing/ returning facility. The library has also book bank collection, for SC/ ST and poor students who are members of library.

The University Library has a rich collection i.e. 3, 54,758 (including books, bound volume journal and theses). In addition to this, under U.G.C.- INFONET E-Journals consortium library provides an access to 8453 scholarly journals. It has also a rich collection of manuscripts i.e. 15,160. The university library subscribes 17 magazines with 20 newspapers.

The University Library provides different Services to its users i.e. reference service, reading Facility, circulation facility, internet surfing facility, on line public access catalogue (OPAC), photocopying services, extension service (Departmental Libraries, Book Exhibitions/ Fairs etc.), display of new arrivals, book bank facility and users’ orientation programmes.

The University Library remains open on 360 days excluding 5 National/ Gazatted holidays i.e. 26th January, Holi, 15th August, 2nd October and Haryana Day. Library working hours varies from time to time keeping in view the needs of Library users, but generally opens on Monday-Saturday 9 a.m. to 5 p.m. (www.kuk.ac.in).

1.9.2 MAHARSHI DAYANAND UNIVERSITY, ROHTAK

Maharshi Dayanand University by an Act No. 25 of 1975 of the Haryana Legislative Assembly in 1976 came into existence with a specific objective to
promote inter-disciplinary higher education and research in the fields of environmental, ecological and life sciences. It was rechristened as Maharshi Dayanand University in 1977 after the name of a great visionary and social reformer, Maharshi Dayanand. In its nascent stage it had a unitary and residential character, but became an affiliating University in November 1978. The University secured the recognition of University Grants Commission—the higher education regulatory body of India— for central Govt. Grants in February 1983.

From its original objective of studies in the life sciences, the university has 13 faculties, 27 Postgraduate Departments and runs 77 academic programmes on campus. There are 66 Boards of Studies for developing and designing courses. In addition to the main campus, there is a satellite campus at the National Law College (UILMS) at Gurgaon.

VIVEKANANDA UNIVERSITY LIBRARY

Though the establishment of the university, the Library coincides with the establishment of Regional Centre of Panjab University, Chandigarh in 1966,
the year 1989 is a land-mark in its history, as the present library building was officially dedicated to the university community in particular, State in general and the country at large in this year. Vivekananda Library, named after Swami Vivekananda - the illustrious son of the country, has carved a niche for itself in the university firmament.

The library is housed in a three-storey building having 84,000 sq. feet plinth area. It has the capacity to accommodate more than 3 lakh volumes of books and bound journals in its stack areas; it subscribes 540 Indian and foreign print journals. It has a reading hall with capacity for 1200 readers including a 24-hour reading hall with capacity for 250 readers, 13 scholars’ rooms, a committee room-cum-video conferencing hall, and so on.

The Library has five satellite libraries namely, Law Library, Management Library, Engineering Library, Math Library and Hotel & Tourism Library (www.mdurohtak.ac.in).

1.9.3 GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR

The Guru Jambheshwar University of Science & Technology, Hisar, was established on October 20, 1995 by an Act of the Legislature of the State of Haryana with the objectives ‘to facilitate and promote studies and research in emerging areas of higher education with focus on new frontiers of technology, pharmacy, environmental studies, non-conventional energy sources and management studies and also to achieve excellence in these connected fields’.

It was formally inaugurated on November 1, 1995. It is named after Guru Jambheshwar Ji Maharaj, a saint environmentalist of the 15th century.

The University is recognized by the University Grants Commission under Section 2(f) for recognition of degrees on 11.1.1996 and under Section 12(B) of the UGC Act to be eligible for central assistance on 7.2.1997. The University has been accredited at “A” by the National Assessment and Accreditation Council (NAAC), in 2002. The university has 7 faculties under that come 17 Departments.
The University Library building has a total area of 55833 sq. ft. of which the library has been allocated a space of 22838 sq. ft. The Library has two reading halls with a total capacity of 250 seats. One reading hall with a seating capacity of 80 has been provided for periodical section where all the journals and back volumes are available. At present the Library has a collection of more than 70,860 books. The Library has subscribed 198 Indian journals in the year 2011. The journals already subscribed in the Library were reviewed keeping in view their use pattern. The Library subscribes 64 magazines and 20 newspapers to cater to the general information needs of library users. The library has provided lists of journals of 14 publishers available online for the use by the faculty and the students of the departments. The library renewed one online database, ‘PROWESS’. The library has subscribed one database, Emerald Management Xtra 175. The library is a member of INFLIBNET- an organ of UGC, which
undertakes the subscription of e-journals and makes them available in the consortium mode. At present under consortium access of full text journals of 14 publishers is available to the academic community of the University Library. The Library is also a member of INDEST (Indian National Digital Library in Engineering, Science and Technology) Consortium set up by the Human Resource Ministry which e-journals on Science and Technology including IEEE are made available. The University Library is also the institutional member of American Library. The Library has 4175 bound back volumes of journals.

Using the Integrated Library Computer Software, “LIBSYS” the complete database of holdings of books, library membership including students, officers, faculty members, research scholars and non-teaching staff has been created. For borrowing facility the bar-coded library identify cards have been provided to all categories of members. The library provides On-Line Public Access Catalogue (OPAC) facility to the members to search and know the status of the reading material available in the library. OPAC is now extended to the desktop of every user over Intranet by using WEB-OPAC and it functions even if the internet is not functional due to connectivity problem. On this system, books on demand are reserved for the students and follow up action by generating letters and sending to the students is taken promptly.

The library has computerized other library operations including acquisition to facilitate students, research scholars and faculty members. The internet facility is provided in University Computer & Informatics Centre located in the University Library. For the library surveillances a CCTV system has been installed using 16 cameras (www.gjust.ac.in).

1.9.4 PUNJABI UNIVERSITY, PATIALA

Punjabi University was established on the 30 April 1962 in the erstwhile princely state of Patiala with the main objective of furthering the cause of Punjabi language, art and literature. Punjabi University has since evolved into
the Largest University in the state. Spread over 600 acres of land, its 500 teachers are imparting instruction and guidance to nearly 9,000 students in a multi-faceted, multi-pronged and multi-faculty environment comprising 65 Teaching and Research Departments covering disciplines in Humanities and Science, as diverse as Fine Arts, Computer Science and Business Management on its Campus, five Regional Centres, six Neighbourhoods Campuses and 166 Colleges affiliated to it.

**BHAI KAHN SINGH NABHA UNIVERSITY LIBRARY**

![Picture 1.9.4](image)

The Main University Library housed in a spacious modern building stock more than 4, 20,000 volumes and subscribes to more than six hundred journals. Latest books are added regularly every year. The library is kept open for 360 days of the year from 8.15 a.m. to 8.15 p.m. every day. The library has a majestic reading hall, which has a capacity for 400 readers where they can sit and consult reference books and other relevant literature. Special reading
rooms have been made available for students who wish to work in calm and comfortable surroundings. The library is actively participating in the INFLIBNET programme.

In the recent past new specialized wing called the Punjabi Reference Library or Dr. Gandha Singh Punjabi Reference Library has been added. The aim of this library is to build up a strong collection on Punjab History, Culture, Sikhism, Punjabi Language and Literature. The rich collection of this library comprises nearly 99,267 documents out of which 57,719 documents approximately have been collected from eminent historians and literatures. It also contains all Punjabi newspapers, magazines, books, diaries and manuscripts pertaining to the 19th and 20th century. More than 120 Punjabi newspapers and periodicals published anywhere in the world are available in this Library.

The University Library provides different services to its users i.e. reference service, reading facility, circulation facility, internet surfing facility, on line public access catalogue (OPAC), photocopying services, extension service (Departmental Libraries, book exhibitions/ fairs etc.), display of new arrivals, book bank facility, users’ orientation programmes, subject bibliographies, catalogues of donors' collections. (www.punjabiuniversity.ac.in).

1.9.5 GURU NANAK DEV UNIVERSITY, AMRITSAR

Guru Nanak Dev University was established at Amritsar on November 24, 1969 to commemorate the 500th birth anniversary of Sri Guru Nanak Dev Ji. It is both a residential and an affiliating university. In conceiving the future course of the university, the objectives enshrined in the Guru Nanak Dev University, Act 1969, emphasized that the new university would make provision for imparting education and promoting research in the humanities, learned professions, sciences, especially of applied nature and technology. Studies and research on the life and teachings of Guru Nanak, in addition to working towards the promotion of Punjabi Language and spreading education
among educationally backward classes and communities were the other commitments. The university has 7 faculties.

BHAI GURDAS UNIVERSITY LIBRARY

University Library has been named after the great Sikh Scholar Bhai Gurdas, who had the privilege of taking dictation from the reverend fifth Sikh Guru, Guru Arjan Dev Ji for the compilation of the holy scripture of the Sikh, the ADI GRANTH. Bhai Gurdas Library was established in March 1970. The University library building is a marvel and a masterpiece of architecture. This building is five storyed, inverted pyramids shaped magnificent building directly visible from the main gate of the university on the grand trunk road. It is centrally located with teaching departments all around.

The library remains open on all the days of the year except on two National Holidays i.e. 26th January and 15th August.
Bhai Gurdas Library is subscribing 87 Foreign and 146 Indian Journals. In addition to it, Library is also receiving about 150 journals as gift.

The library is a member of INFLIBNET UGC-INFONET E-Journals Consortium programme which is providing access to 7500+ e-journals and some databases. Almost all the disciplines are covered in the e-journals. Bhai Gurdas Library is also subscribing more than 416 Journals through INDEST.

Bhai Gurdas Library is a member of DELNET (Developing Library Network). This will help the faculty members and researchers to procure those books, articles and documents from other educational institutions through DELNET which are not available in university library.

The library has its own computer section. All library operations such as housekeeping, bibliographic services, cataloguing of new books, preparation of database of books with complete bibliographical details of all books and serial control are carried out by computer section. Bar-coding of books is being done at a rapid speed in order to make the circulation work fully computerized. It has prepared a number of databases of books, periodicals, manuscripts etc. Database of books written by faculty members has also been prepared by this section.

Bhai Gurdas Library has its own webpage. The address of this webpage is http://library.gndu.ac.in. This webpage can also be accessed from the Guru Nanak Dev University website (www.gndu.ac.in) under the Library option of ‘on campus’. This website contains useful information about library services. It also contains bibliographic detail of manuscripts in five volumes, Department-wise list of subscribed printed journals, subscribed e-journals and list of Ph.D. theses. Website is updated regularly in order to cater the needs of the users.

Bhai Gurdas Library has prepared databases of books in English, Hindi and Punjabi Languages. As soon as new books are purchased and processed, their bibliographic description is added in the OPAC. Two terminals have been
dedicated for the readers to use OPAC for their search of books. In addition to OPAC this facility is also available on INTRANET within University Campus to benefit the students/ faculty members by giving access to catalogue at their respective departments.

Soft copies of M.Phil. Dissertations and Ph.D. theses in the form of CDs are deposited in this section. CDs with books, census reports, gazetteers are also available in this section. Students, researchers and faculty members can have access to these CDs in this section.

Microfilming facilities are available for academic and research purpose only. Microfilming of rare books and manuscripts is in process. So far microfilming of 600 manuscripts has been completed. Conservation as well as preservation of manuscripts is also being done in this section. Lamination of brittle manuscripts is such one technique. Fumigation chamber is available for chemical treatment of infected manuscripts.

Bhai Gurdas Library has 1516 rare manuscripts relating to Punjab History, Culture, Sikh Religion and other faiths. These manuscripts have also information about present Himachal Pradesh, Haryana, Punjab and North West frontier province of Pakistan. These Manuscripts are in Punjabi (Gurmukhi Script), Hindi, Sanskrit, Urdu, Persian and Arabic languages. Bhai Gurdas Library has prepared the catalogues of Bibliographic description of Manuscripts. Its five volumes are available in print as well as CD/DVD form. First part of 5th volume is related to Urdu and Persian manuscripts. Second part of 5th volume is related to Hindi and Sanskrit. All the Manuscripts have been fully digitized. In addition to manuscripts, the library has more than 5500 rare books. Most of these books relate to Indian as well as Punjab History, Sikh religion and various movements.

The library has its own binding unit run by professionally trained binders. This section binds current newspapers, journals and books. All efforts are made to provide properly bound books to the students.
Bhai Gurdas Library has a reading hall, which remains open for 24 hours 365 days. Air conditioners and Blowers have been installed in the reading hall for the convenience of students. A library attendant remains present at every time in the reading hall to provide assistance to the students.

Students, research scholars and faculty members are constantly kept aware of the latest books added to the library through display of selected books and book jackets in the new arrival corner. The matic displays are also organized on various occasions. ‘Books of the month: bibliographical detail of the books’ is sent to all the departments from time to time in printed form as well as through e-mail. ‘Contents of the Journals’ are a fortnightly service.

Library Orientation Programme is arranged for the new students in the beginning of the session to familiarize them with various library services, sections of the library and their working. Free training to use Internet is also provided to the new students.

For the convenience of the students and teachers 22 Departmental libraries (14 Individual Libraries, 5 Multidiscipline Libraries and 3 Libraries maintained by the departments) have been established in different departments’ buildings (www.gndu.ac.in).

1.9.6 PANJAB UNIVERSITY, CHANDIGARH

Panjab University is one of the oldest Universities in India. It was established in 1882 at Lahore (now in Pakistan). After the Partition in 1947, the University was constrained to function for almost a decade without a campus of its own. The administrative office was located at Solan and the Teaching Departments functioned from Hoshiarpur, Jalandhar, Delhi and Amritsar. In 1956, it was relocated at Chandigarh. Till the re-organization of Punjab in 1966, the University had its regional centres at Rohtak, Shimla and Jalandhar and its affiliated colleges were located in the States of Punjab and the U.T. of Chandigarh. With the re-organization of Punjab, the university became an
Inter-State Body Corporate catering to the newly organized States of Haryana, Himachal Pradesh and Punjab the UT of Chandigarh. Gradually the colleges of Himachal and Haryana were affiliated to the Universities in the respective states and the Panjab University was left with the affiliated colleges in the UT of Chandigarh and some parts of Punjab. The university has 75 teaching and research Departments. It has 188 affiliated colleges spread over Punjab, Chandigarh & Regional Centres at Muktsar, Ludhiana and Hoshiarpur.

**A.C. JOSHI UNIVERSITY LIBRARY**

![Picture 1.9.6](image.jpg)

The Panjab University Library, named officially as "A. C. Joshi Library", after the name of an illustrious Vice-Chancellor of this University, was established in the U.S. Club, Shimla in 1947 after the Partition of the country. The Panjab University started shifting its offices to Chandigarh, the new Capital of Punjab, in 1955-56. The foundation stone of the new Library building was laid by Dr. S. Radha krishnan in 1958, the then Vice-President of India. The Library in its
new premises was formally inaugurated in 1963 by Pt. Jawaharlal Nehru, the then Prime Minister of India.

The five storeyed impressive Library building in red stone and concrete is based on modern principles of architecture, while all the reading areas face the North, the staff area is on the South side, with the stack area being in between. Its two main reading halls facing the Shivalik Hills afford a panoramic view of the natural surroundings. The Library building centrally air conditioned and equipped with computer and communication network houses more than six lakh volumes and has a seating accommodation of 500 readers. Besides the two reading halls there are reading rooms in the Periodicals and Special collection sections, and an outer reading hall for studying personal books. There is a provision of 24 research carrels for teachers engaged in serious research work, and 90 lockers for research scholars.

The Library has a collection of over 6.4 lakh publications which include books, bound volumes of journals, theses/dissertations, rare books, reports, government documents, back files of newspapers, and a prized collection of 1490 manuscripts. The Library is now fully computerized with an integrated system connected to the Campus Network providing Internet and e-mail facility to the University community. The reference collection of the Library is continuously updated, and augmented with the acquisition of CD-ROM databases and access to on-line databases on Internet. On-line Public Access Catalogue facility is available at the reference desk of the first floor of the Library. OPAC can also be accessed through any terminal on the campus network. Library collection can also be searched through Web OPAC.

The Library subscribes to about 600 current periodicals. Its holdings of back volumes of periodicals go back to nineteenth century. Library subscribes to Math Sc. Net online comprising of current Mathematical publications & Mathematical Reviews, and has access to 225 online full text journals as part of print journals subscription. Also access to approximately 5000 online full text
journals is available through INDEST- Consortium and UGC- INFONET (www.puchd.ac.in).

1.9.7 HIMACHAL PRADESH UNIVERSITY, SHIMLA

The Himachal Pradesh University was founded on July 22, 1970. It is located at Summer Hill which is at a distance of 5 kms from the main town, Shimla. The University campus occupies an area of 200 acres and has been designed to possess a distinctive architectural style. Himachal Pradesh University is the only multi-faculty and affiliating University in the state. It firmly believes in what India's first Prime Minister Jawaharlal Nehru said in his oft. Cited convocation address at the University of Allahabad, a university stands for humanism, for tolerance, for region, for progress, for the adventure of ideas and for the search for truth.

CENTRAL LIBRARY (H.P.U., Shimla)

![Picture 1.9.7]

The University Library is housed in its own multi-storeyed building specially designed to house various functions of a modern University Library. The Library building has adequate space to accommodate more than 2 lakh of
volumes in stack-hall, about 450 readers in reading halls and about 100 Research Scholars in cubicles on different floors.

The Library has been organized into different reader services viz. main lending section, text book section, general reference section and a periodical publication section in the subject of Humanities, Social Sciences and borderline disciplines and four Sectional Libraries in the subject fields of Physical Education, Biological Sciences, Law and Education.

The Library maintains comprehensive collection of books and periodicals to support University’s formal programme of instruction and research in various disciplines and promote inter-disciplinary communications and research as well as general pursuits in the advancement of knowledge. The Library has a total collection of 1,82,738 books including bound volumes of periodicals (excluding unbound periodicals and pamphlet literature). The number of current periodicals on the subscription list of the Library is 308 costing about 17,50,000. The reading materials have been organized on the shelves in a scientific and helpful order following the Dewey Decimal System of classification. Open access facility has been provided in Library is that reader can go directly to the shelves and select the materials needed by them (www.hpuniv.nic.in).

1.10 OBJECTIVES

The main objective of the present study is to know about the Information use pattern of researchers while performing their research in the field of Management. On the basis of main objective, the following objectives are also taken for conducting the present study:

1. To know the university-wise subject distribution of Doctoral Dissertations in the field of Management, and to identify the average number of subject-wise distribution;

2. To know the bibliographic form of citations and average number of citations;
3. To know the authorship pattern in citations (single and multiple authors) and degree of collaboration with highly cited authors;
4. To know the chronological distribution of citations of cited books and journals;
5. To identify the half-life of literature cited in books and journals;
6. To analyze the cited Journals and prepare a rank list of Journals;
7. To know the country-wise distribution of journals publications; and
8. To know the cited Journals’ productivity in the field of Management by applying the Bradford’s Law of Scattering.
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