CHAPTER - I

INTRODUCTION
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Literature is increasing day by day in libraries. It is available in print form such as books, theses, journals, bibliographies, dissertations, encyclopedias, and other secondary and tertiary sources and in non-print form such as C.D., floppy, pen-drive and online databases etc. The librarian has to give the accurate information to the users; for this purpose he has to consult different sources in the library available in different formats and media. All sources are not acquired by librarian in the library. It is not possible for any library to acquire all information sources, so the librarian has to decide which sources are going to be more useful to the users of that library and acquire them.

There are many methods of knowing the useful sources like user survey, analysis of the library records, analysis of documents produced by the users, etc. Analysis of different types of documents and their characteristics is quite popular in Library and Information Science, and is known as Bibliometrics.

According to Allan Pritchard (1969) Bibliometrics is “Application of mathematical and statistical methods to books and other media of communication” (Quoted in Narang, 2004, 28). Hawkins (1977) defined bibliometrics as “The application of quantitative analysis in the bibliographic references of body of literature” (Quoted in Mahapatra 2009, 7).

Bibliometric study as a sub discipline in Information Science is first known to have been applied by F.J. Cole and N.B. Eales in 1917. Subsequently Hulme conducted studies in 1923. Both studies designated it as ‘Statistical Bibliography’. Allan Pritchard, in 1969 coined the term “Bibliometrics”. The term ‘Librametry’ was coined by S.R. Ranganathan in 1948 during ASLIB conference. Other terms used for similar concepts are ‘Scientometrics’, Informetrics etc. (Surendra Kumar 2005, 305).

In 1970s, Russian Concept ‘Scientometrics’ and FID’s ‘Informetrics’ were also used together with “Bibliometrics”. The term Scientometrics gained wide recognition by publication of the journal by Tibor Braunin, Hungary in 1978. In 1979 Nacke introduced a term ‘Informetrics’ which is also closely related to Scientometrics and Bibliometrics. In 1995, Bossy introduced the term ‘Netometrics’ to describe internet mediated scientific interaction. In 1997 Almind and Ingwerson suggested ‘Webometrics /Cybermetrics’ for the study of world wide web. Many synonymous of Bibliometrics are used in present time (Mahapatra 2009, 5).
In 20th century maximum changes occurred in the concept of bibliographic references and citations. The citations today are accepted as an integral part of scholarship. The present format of bibliographic description has passed from title as entry word to author, further surname of authors as entry word instead of forename. These citations and references are considered as the basic parameters of bibliometric study (Mahapatra 2009, 17).

Many types of bibliometric studies were conducted in different subjects. These studies are:

1. Citation analysis- authorship study, types of document used, language of the cited documents, ranking of journals and books, subject dispersion, obsolescence and citation half-life and self- citation etc.
2. Literature study- growth of literature, growth models, methods of growth studies.
3. Authorship pattern- types of authorship studies, techniques of authorship studies, author’s collaboration.
4. Core journals study- concepts of core journals, bradford’s law, impact factor and immediacy index of journals, techniques of core journals analysis.
5. Core books study- concepts of core books, techniques of core books study.
7. Internet data base study- internet and Informetrics laws and methods study.

CITATION

“The citations are the established scientific practice for an author to cite earlier articles, which relates to his scientific subject. When one document (B), mentions or refers to another document (A), the later (A) has been listed by former (B) as a source of information, as support for the point of view, as authority for a statement of fact, etc. The word citation is used to indicate not only the fact that document (A) has been cited in reference of document B, but also for the description of document (A) contained in the reference. In this case, not only document (A) is a reference of document (B) but also it has received a citation from document (B). In other words, according to bibliometrics terminology document (B) is citing document and document (A) is a cited document” (Mahapatra 2009, 18-19).

On the basis of description given above one can conclude that citation is a link or chain between the two documents, one citing and another cited document.
REASONS FOR CITATION

“A citation is, of course, a reference to some previously published work that is relevant to the argument the author wants to make. The author may be criticizing the earlier item, may be building on it, may be using it to enhance his or her argument, or may be acknowledging an early pioneer. May be an author makes a citation simply to employ the author has read widely around his or her subject. The author believes the earlier item is relevant and wishes to draw the reader’s attention to it” (Baird 1994, 3).

“Weinstocks observes that “Scientific tradition requires that when a reputable scientist or a technologist publishes an article, he should refer to earlier articles which relates to his theme. These references are supposed to identity those earlier researchers whose concepts, methods, apparatus etc. inspired or were used by the author in developing his own article. According to Martyn “some specific reasons for using citations are as follows: 1. Paying homage to pioneers. 2. Giving credit for related works. 3. Identifying methodology, equipments etc. 4. Providing background reading. 5. Correcting one’s own work. 6. Correcting the works of others. 7. Criticizing previous work 8. Substantiating claims. 9. Alerting researchers to forth coming work. 10. Providing leads to poorly disseminated, poor indexed or incited work” (Quoted in Martyn 1975, 290).

CITATION ANALYSIS

Citation analysis is an established research tool used by librarians, teachers and information scientists to indicate relationship that exists between the cited and citing documents.

When one author cites another, a relationship is established. Citation is used in scholarly works to establish links; many different links can be ascertained, such as links between authors to scholarly works, journals, fields or even between countries. Citation both form and to a certain document may be studied. One very common use of citation analysis is to determine the impact of a single author and a given field by counting the number of times, the author has been cited by others (Mahapatra 2009, 27).

Martyn (1975, 290) has defined citation analysis as, “the analysis of citations or references which from part of the scholarly apparatus of primary communication”.

According to Baughman (1974, 293) “it is a systematic enquiry into the structural properties of the literature of the subject”.
Simply we can say that citation analysis is a method which analyses the bibliographic references that were usually appended with every research communication. Citation analyses are frequently taken to be indirect use of material or documents.

According to Ravichandra Rao (1983, 199) “main objective of citation analysis is to evaluate and interpret, citation received by articles, authors, institutions and other aggregates of scientific activities, it is also used as a tool for measuring communication links in the sociology of science”.

Citation study is most common technique followed all over the world and is considered today an authentic and accurate tool for use and evaluation of documents.

HISTORICAL BACKGROUND OF CITATION ANALYSIS

The modern concept of citation analysis dates back to the 19th century when Shepard index was started in 1873 for the US legal profession. It is a common practice in the court proceeding to cite earlier case of same court or higher courts as procedure 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 project realized the importance of citation and for the purpose of properly networking the citations with the citing documents, he studied the already existing 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. “Garfield thought the idea of a printed citation index was feasible….he tried for US government funding, but was turned down. So he took the financial risk himself. Production started in 1956 a converted chicken coop the classic US start up success story. 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, it 1961, ISI published the first edition of science citation index. Social science citation index (SSCI) was launched in 1973. Other soon followed. Now, thousands of major commercial, academic, and scientific libraries around the world use citation index’s, in print, online or on CD-Rom” (Baird 1994, 3-4).

Garfied et al. (1978) described “citation analysis as an analytical tool which uses reference citations of a scientific paper” (Quoted in Mahapatra 2009, 22).

A flood of literature followed the publication of Science citation index (SCI) as SCI database could be conveniently subjected to computer manipulation for a number of
purposes. This trend helped the field to grow in terms of techniques from simple citation count to more complex and sophisticated bibliographic coupling, co-citation and impact factor.

**BASIC CONCEPTS OF CITATION ANALYSIS**

There are two basic concepts of citation analysis to identify the documents likely to be closely related: 1. Bibliographic coupling 2. Co-citation analysis.

**Bibliographic Coupling**

The concept of Bibliographic coupling was development by M.M. Kessler to establish relationship between individual scientific papers. Bibliographic coupling is referencing, in common by two documents to the same one or more previously published documents. The number of such as a common reference to determine the coupling strengths. One convenience of the bibliographic coupling techniques is that it requires only a scan of the references list of two papers to determine whether they refer to papers in common (Mahapatra 2009, 37).

**Co-citation Analysis**

The concept of Co-citation was introduced by Small. When two documents are jointly cited by one or more subsequently published papers they are called co-cited documents. Thus Co-citation is main dynamic measure and the Co-citation strength depends upon the year from which they are viewed. A disadvantage of Co-citation is that it is totally dependent upon having a comprehensive citation index available (Mahapatra 2009, 38).

**LIMITATIONS OF CITATION ANALYSIS**

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 and why information sources are considered important enough to merit a citation. The author of paper may not cite all the works actually used in its preparation and can refer to the materials that contributed marginally to the research. Citations may be made to increase the number of citations or citation to friends. An author may cite a well-known authority in the field, without actually reading the cited work, as a means of asserting that the author is staying current with his or her area of studies.

Ease of access to journal articles can effect journal use and thus effect what journals are cited. Users are most likely to read and cite materials that they have easy access locally.
Thus, there should be higher incidence of citations to the materials held in the nearest-librarians and researcher may take this into consideration when analyzing citations from a local user group.

Despite these limitations and weaknesses, 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 use.

SCOPE OF CITATION ANALYSIS

Citation analysis is one of the important study and major branches of bibliometrics. Bibliometrics has established itself as a viable tool for the literature search techniques studying science based on citation analysis. Analysis of citation analysis is one of the most important bibliometric techniques involving analysis of the references forming part of primary and secondary data communication (Mahapatra 2009, 19).

The presently conducted citation analysis studies include the following:

1. Authorship study- The author-wise distribution of the citations according to number of authors, name, gender, age and frequencies.
2. Types of document used- Literature cited in may be the print and non print media and published in different form like books, journals, conference proceedings, magazines and web source and thesis etc. it has been well understood that books and journals are the most form in social sciences. Therefore, these forms have been further analysed.
3. Ranking of journals and books- books and journals are arranged according to number of citations received by print and non print journal and books during a particular period.

SOCIAL SCIENCES

Social sciences may be defined as all the disciplines which deal with men in their social contacts. They are concerned with the behavior of man in society. The focus of the study of Social Sciences is behavioral analysis of human groups, collectivities, communities etc.

In the International Encyclopedia of Social Sciences Prof. Edwin R.A. Seligman explains the Social Sciences as “those mental or cultural sciences which deal with the activities of the individual as member of a group” His second answer was to list the
disciplines that were included in the encyclopedia. In so doing, he made a distinction between
the social sciences (which he defined as politics, economics, law, anthropology, sociology,
penology, and social work); the semi-social sciences (ethics, education, philosophy, and
psychology); and the sciences with social implications (biology, geography, medicine,
linguistics, and art)” (Seligman 1968, 21). New Lexicon Webster’s dictionary of English
language (1987, 941-42) defines Social Sciences, “The study of human society, esp. of its
organization and of the relationship of individuals members to it”.

The international encyclopedia of social sciences includes under social sciences such
disciplines as: Anthropology, Economics, Geography, History, Law, Political Science,
Psychiatry, Psychology, sociology, Statistics.

History and Political Science are the two major Social Science disciplines with a long
period of existence.

HISTORY

History is the record of past events. The word “History” was derived from the Ancient
Greek “historia” meaning, ‘relation of incidents story’. The word “History” was first time
used by Herodotus. And it was first used in English language in 1390. “Historia” means,
‘learning or knowing by inquiry, history, record, narrative’ (Jaiswal 2008, 44). According to
Jones, “History is precious store-house of the experiences of human race. History is recorded
so that people may take advantage of the experience of people of the past generation”
(Quoted in Lal 2008, 2). Carr says, “History is a process and you cannot isolate a bit of
process and study it on its own…. Everything is completely interconnected” (Carr 2001, 12).
History correlates the present of mankind with his past. We can not say that future is outside
the scope of history. Ancient history begins with Stone Age. At the end of the Stone Age
there was the development of civilization. The modern period begins with showing of the
highest development of culture and civilization. After considering all the facts, History can be
classified on the following major grounds. Firstly, there is the classification of history based
on the space or geographical boundaries as world history, national history, regional history
and local history. Secondly, the classification of history on the basis of time or period, as pre-
historical period, ancient history, medieval history and modern history and lastly the
classification of history based on the circumstances as political history, economic history and
social history (Jaiswal 2008, 51-52).
POLITICAL SCIENCE

The word “Politics” was first used by Aristotle and he called it ‘the master science’. The word politics is derived from the Greek word ‘polis’ meaning a city-state. The word politics has acquired a new meaning in the context of advancements made in the discipline of Political Science (Kapur 1997, 17). According to Poul Janet, “Political Science is the part of Social Science which treats of the foundations of the state and the principles of government” (Quoted in Agarwal 2010, 3). Gettel says, “political science is thus, a study in the past, present and future of political organizations and political theories” (Quoted in Agarwal 2010, 3). According to Lord Acon, “Political science is concerned with the state and with conditions essential for its development” (Quoted in Agarwal 2010, 3). The scope of political science according to Gettel, “is thus a historical investigation of what the state is and a politico-ethical discussion of what the state should be” (Quoted in Mahajan 2011, 107). In the UNESCO conference held in September attended by 1948, distinguished Political Scientists from the various parts of the world marked out the subject matter of Political Science which included (1) Political theory (2) Political institutions (3) Political dynamics and (4) International relations” (Quoted in Mahajan 2011, 107).

In the recent past, many information sources have been used by the Historians and Political Scientists which were not existing until a few decades back. Earlier, mostly books, journals, and other printed sources were used by Historians and Political Scientists in the literature. At present the digital information sources available on the internet are changing the way information is used by the Historians and Political Scientists.

CITATION BEHAVIOR OF RESEARCHERS

Citation analysis of Ph.D theses reveals the literature used by doctoral students of a particular university. It shows the bibliographic forms and media preferred by researchers in different disciplines. It also helps in evaluation of the collection of university libraries. Quite a large number of such studies are regularly being conducted in different disciplines.

Sherriff (2010) found in his study that 3498 citations were cited by 47 master’s theses of History submitted to Southern Connecticut State University, United States during the period 1998-2008. The five most frequently cited journal titles were: American Historical Review, English Historical Review, Journal of American History, Diplomatic History, and History of Education Quarterly. On the basis of 15 M. Phil. dissertations in Political Science submitted to the department of Political Science, Kurukshetra University Kurukshetra during
1983-1985, Bajaj (1987) revealed that books were the major source of information covering 38.07 percent citations. Journals accounted for 22.12 percent. Malik (2016) analysed Ph.D theses in Political Science from Vikram University, Ujjain, (M.P) during 2009-2012. During this period, out of 43 Ph.D’s theses, 19 number of Ph.D. were submitted in year 2012. Books contribute the highest number of citations counting for 65.59 (3928) percent followed by journals with 30.07 percent of the total citations. Lokhanda (2007) analyzed 20 doctoral dissertations in the department of Library and Information Science awarded from Poona University, Poona. The total 5252 citations were cited in doctoral dissertations. In journals, 2372(45.16 percent) citations were cited more than book (42.11 percent) citations. Pillai and Sudhier (2007) investigated 71 doctoral theses in Physics awarded from the Indian Institute of Science, Bangalore during the period 1999-2003. The journals received highest number of citations (11239). Among the cited books, 642 (48.86 percent) citations were referred within a time span of 15 years by researchers, while 138 (10.5 percent) citations of books were up to 5 years of time span.

Thus, the above analysis shows that literature use pattern in different disciplines in different.

**KURUKSHETRA UNIVERSITY, KURUKSHETRA**

Kurukshetra University, Kurukshetra was established in 1957. The University has 10 faculties and 45 departments. The Faculty of Social Sciences includes the subjects- Economics, History, Political Science, Psychology, Public Administration, Social Work, Sociology and Women’s Studies. The History and Political Science departments were established in 1961 in the University. These are two major subjects of Social Sciences (Kurukshetra University, Kurukshetra Prospectus 2017-18).

**MAHARISHI DAYANAND UNIVERSITY, ROHTAK**

Maharishi Dayanand University was established at Rohtak in 1976. There are 10 faculties and 38 departments in the university. The faculty of Social Sciences included the subject are Economics, History, Political Science, Psychology, Library and Information Science, Social Work, Geography, and Defense and Strategic Studies. History and Political Science departments were established in the university campus since the begging of the university in 1976 (Maharishi Dayanand University Prospectus 2017-18).
STATEMENT OF THE PROBLEM

The researchers use information resources available in their university library or other libraries or even available free on the internet. Knowledge of the sources used by researchers shall not only improve the understanding of the researchers but also help in making the information system more efficient by allocation of budget for resources in different form and acquiring highly used sources. The two disciplines of Political Science and History have some common content and therefore may have some common information resources also. The study shall be able to identify those information sources used by both Historians and Political Scientists.

OBJECTIVES OF THE STUDY

1. To analyse doctoral theses according to year, gender of researcher, name of supervisor, language, size, supervisor and total citations.
2. To analyse citations appended to these theses according to bibliographic form of cited documents.
3. To analyse the book and periodical citations according to number and gender of author, place of publication and period.
4. To identify highly cited books and periodicals, and compare these will the collections/subscription lists of respective libraries.
5. To identify the books and journals commonly used by Historians and Political Scientists.

SCOPE OF THE STUDY

Kurukshetra University, Kurukshetra and Maharishi Dayanand University, Rohtak being major centers of education and research, provide opportunity for conducting a large number of doctoral studies every year and have houses their products in the form of 180 doctoral theses available in History and Political Science up to 2012. The present study is intended to estimate the use of various documentary sources of information by doctoral researchers of the Departments of history and political science based on doctoral theses submitted and awarded since beginning of the research in these universities up to the end of 2012.
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