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Introduction and Basic Concepts of the Study

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Introduction and Basic Concept of the Study

1.1 Introduction

We are living in the age of knowledge and information revolution. In this age of literature explosion, information is growing very fast in all the fields of knowledge and the Women’s Studies is no exception. The number of books and journals in Women’s Studies is increasing day by day. In the age of information explosion it is very essential to organize the information resources for effective and efficient use. Bibliometric study tries to portray a certain kind of human behavior with respect to the flow of information. It reveals how authors in a particular subject organize and communicate their intellectual efforts. Bazerman (1981) has quite aptly put it in these words, “from the shape of things, one can better understand how things happen”. Similarly, Frohmann (1982) has observed that, “just as a command of geography aids navigation, a good representation of the structural characteristics of a discipline help both researcher and scholar to identify issues and problems in the field”.

One of the most important aspects in Bibliometric Study is forecasting the trend and pattern in growth of literature. The increase in the amount of literature over a specific period of time is termed as ‘growth of literature’. Bibliometric indicators are quite useful in examining the direction and flow of research-based knowledge and also for mapping the structure and changing shape of knowledge creation, resources and infrastructure of a particular journal, institution and a country.

1.2 Bibliometrics

Bibliometrics is the application of mathematical and statistical method for measuring quantitative and qualitative changes in the production of literature in a given subject or area of specialization. The word ‘measurement’ means the application of mathematical and statistical technique to find out the growth of literature, scattering of literature in various type of documents, publication of documents by an author and impact of documents and so on. It is necessary for the librarians to identify the core documents in which most of the literatures are published in the subject. It has extensive applications in identifying the research trends in a subject, authorship pattern, productivity of authors obsolescence of literature and also
collaboration in research. Bibliometric technique is helpful in the formation of need based collection development policy, weeding and stacking policy and many others.

Etymologically “Bibliometrics” is composed of two words “Biblio” and “Metrics”. The prefix “Biblio” is a loan word from Greek and means “Book” or paper and the suffix “Metrics” means “the science of meter” i.e. “Measurement”. Combining the two terms we find that “Bibliometrics denotes the science of measurement pertaining to Books” The scope of “Biblio” with the passage of time has got winded to include all types of documents- books, periodicals, patents, standards, and theses and so on. The word measurement means the application of mathematical and statistical technique to find out the growth of documents, scattering of literature in various type of documents, publication of documents by an author and impact of documents and so on.

Sengupta (1985) describes in his article “Bibliometrics: a bird’s eye view” that the term ‘Bibliometric’ coined by the British scientist Alan Pritchard in 1969, include the studies of the growth of the literature in any subject, the extent of literature contributed by various individuals, groups, or organizations or countries, the availability of literature in various languages, varieties of literature available on a subject (e.g. over documentary types, language journals), and the studies of obsolescence of the literature on a subject. The backbone of Bibliometrics lies in its sound theoretical foundation most effectively laid by some pioneers like Lotka, Gross, Bradford, Zipf, Duck J De Sola Price, Bookstein, Mundelbro, Brooker, Ranganathan, Narin, Garifield, Vickery, Moraves, Hulme, and Fairthorne. Their techniques are capable of throwing light on various complicated problems faced by information scientists to quantify the process of written communication.

Many attempts have been made to define the term bibliometrics and its analogous terms since the use of the term ‘statistical bibliography’ in 1923 by Hulme. According to Hulme, the purpose of statistical bibliography is to ‘Shed light on the process of written communication and of the nature and course of development of a discipline (in so far as this is displayed through written communication), by means of counting and analysis its various facets of written communication. According to Pritchard (1969) “Bibliometrics is the application of mathematical and statistical analysis to bibliographic units. When statistical methods were applied to analyze bibliographies, a new discipline in information science emerged, known as
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Bibliometrics". Other scholars and institutions have also tried to define the term ‘bibliometrics’, which are basically similar to Prichard’s original definition.

Bibliometrics as a sub-discipline in Information Science is one of the quantitative techniques first known to have been applied by E.J. Cole and N. B. Eales in 1917, who designated it as ‘Statistical Bibliography’. The term ‘Librametry’ has been given by S.R. Ranganathan in 1948 during the ASLIB conference. Over the years, several terms have appeared on the horizon representing quantitative studies in library and information science. They were known as ‘Bibliometrics’ in 1960’s, ‘Scientometrics’ in 1970’s and ‘Infometrics’ in the1980’s. Further, a range of new terms for the emerging research fields has been proposed since the mid-1990, for instance, ‘Netometrics’ (Bossy, 1995), ‘Webometry’ (Abraham, 1996), ‘Internetometrics’ (Almond & Ingwerser, 1996), ‘Webometrics’ (Bjorneborn & Ingwerser, 1997), ‘Cybermetrics’ (Isidro Angwllo, 1997), ‘Web Bibliometry’ and ‘Altmetric in (2011).

The various metric fields that deal with the development and application of measurement in the area of information science have emerged, viz, Librametrics, Bibliometrics, Infomietrics, Scientometrics, Cybermetrics and more recent are Webometrics and Altmetrics. All these branches have great potentiality and application in the field of Library and Information Science.

1.2.1 Librametrics

The term “Librametrics” has two roots: Libra and Metry. The word ‘Libra’ connotes ‘library’ and ‘metrics’ means measurement. Dr. S.R Ranganathan (1948)\[6\] coined a term “Librametry” at the Aslib conference in Lamington Spa and gave a vivid description of this technique with an account of the areas where he himself had benefitted through librametric techniques. He illustrated how he had applied librametric techniques in organizing library activities and services in Madras University Library. In the library, he maintained systematically the statistics relating to various library operations. On the basis of these statistics, he calculated man-hours needed in a year for each item of work in the library. This helped him deduce a staff formula, which can be used for determining the strength of staff in an objective and impersonal way.
Librametry primarily aims at the quantitative analysis of the management of libraries. The statistical distributions of the processes relating to utilization of documents, library staff and library users, to establish a theory for the structural aspects of library. The librametric studies if developed properly as suggested by Ranganathan could become a good indicator for measuring various activities of librarianship both quantitatively and qualitatively.

1.2.2 Informetrics

This term was first coined by Nacke (1979)\(^7\) and was later adopted by Vserossiisky Institute Nauchnoi I Tekhnicheskoi Informatsii (VINITI), and International Federation of Documentation (FID. Informetrics is a well-practiced measuring technique of Information Science. It is operative mostly through the techniques of statistical and mathematical calculus. M. Morales have laid great importance, to informetrics and its applications. He views informetrics as a scientific activity relating to information and thus an integral part of information science. All its metric aspects are mainly designed to improve the efficiency and flexibility of information products, information establishment, while handling, storing, and transferring information.

Ravichandra Rao (1985)\(^8\) mentioned that informetrics is a field wherein the flow of information and behavior of information are analyzed, measured and quantitative relationship are established. It is a scientific field wherein the developments of measurement of impact of information are assessed continually. As such; informetrics encompasses the fields of which studies quantitative aspects of science. It is mostly concerned with development of models to explain and identify the various characteristics of the literature. It also discusses scientific productivity, collaborative research, etc.

1.2.3 Scientometrics

The term ‘Scientometrics’ originated as a Russian term for the application of quantitative methods to the history of science, which studies the quantitative aspects of science. The concept of scientometrics was an active research area is USSR and in the eastern European countries. Russian scientometrists, Nalimov and Mulchenko (1969)\(^9\) defined scientometrics as "the application of those quantitative methods which deal with the analysis of science viewed as an information process". According
to these interpretations, scientometrics is restricted to the measurement of science communication, whereas bibliometrics is designed to deal with more general information processes.

Price \[^{10}\] has asserted that the major aim of scientometrics is to do scientific analysis of science mathematically. He stressed that, “Since science and scientific activity is peculiarly measurable and peculiarly regular in its behavior, even compared with the models of scholarship”

Sengupta also recently outlined the objective of scientometrics as: “To evaluate quantitatively recent of any basic scientific discipline and the factors responsible for the steady growth in research activity in that area of knowledge in the post-war period”.

### 1.2.4 Cybermetrics

Cybermetrics is one of the recently emerged fields in the line of metric studies. It has gained much popularity since the mid-1990 with the advent of Information Technology. As it is mainly concerned with the computer science based approaches, it has superseded all other metric studies in this Internet Era. Cybermetrics is proposed as a generic term for “The study of the quantitative aspects of the construction and use of information resources, structures and technologies on the whole Internet drawing on Bibliometric and Informetric approaches”.\[^{11}\] Cybermetrics thus encompasses statistical studies of discussion groups, mailing lists and other computer mediated communication on the internet, including the www. Besides covering all computer mediated communication by using internet applications, this definition of cybermetrics also covers quantitative measures of the Internet backbone technology, topology and traffic. The breadth of coverage of Cybermetrics implies large overlaps with proliferating computer science based approaches in analyses of web contents, link structures and web usage and web technologies. The cybermetrics, is similar to webometrics; but broadens its scope; which include namely the electronic resources.

### 1.2.5 Webometrics

Recently a new growth area in bibliometrics has been in energy fields Webometrics, The term webometrics was coined by Bjorneborn and Ingwersen. It is the quantitative analysis of Web phenomena. The growth of Web technologies has opened new avenues for Web researchers for measurement and analyses of
phenomenon. Webometrics is traditionally used for quantifying Web data related to footprints of researchers or institutions on the Web measured in terms of their research publications and other parameters.

Webometrics can be defined as using bibliometric technique in order to study the relationship of different sites on the www. Such techniques may also be used to those areas of the web that appear to be the most useful or influent and hyper linked to other websites. According to Bjorneborn and Ingwersen (2004), the definition of webometrics is “The study of the quantitative aspects of the construction and use of information resources, structures and technologies on the web drawing on bibliometric and informetric approaches”.

Thelwall (2009) has traced that Webometrics is concerned with measuring aspects of the web: web sites, web pages, parts of web pages, words in web pages, hyperlinks, web search engine results.

1.2.6 Altmetric

Kumbar (2015) discussed in his lecture that Altmetric is the new measurements for the impact of scholarly content and study of new metrics based on the social web for analyzing, and informing scholarship. It was founded in 2011 and has made it a mission to track and analyze the online activity around scholarly literature. Altmetric tracks what people are saying about papers online, and works with some of the biggest publishers, funders and institutions around the world to deliver this data in an accessible and reliable format. Altmetric is supported by Digital Science, a division of Macmillan Science and Education.

“Altmetric is the creation and study of new metrics based on the social web for analyzing, and informing scholarship.” The term "Altmetric" has been used to describe these approaches. Since many publishers have feature-rich websites allowing considerable activity on the part of page visitors, it is possible in principle and not difficult in practice to gather various measures of activity surrounding a research report.

It is an important tool to quantify how individual articles are discussed, shared, and used. These measures are claimed to be easier and faster to implement than other scholarly metrics, and to be quantitative and objective gauges of the activity surrounding the appearance of a report.
1.3 Laws of Bibliometrics

Bibliometrics laws play a significant role in modern library resource management, because at decreasing budgets and the rapid growth of periodical, library managers are desperately looking for effective ways to manage their libraries. The three fundamental laws which laid the formation of bibliometrics are:

(a) Lotka’s Inverse Square Law of scientific productivity: In 1926, Alfred J. Lotka\textsuperscript{[16]} proposed this inverse square law correlating contributions of scientific papers to their number of contributions. His law provided fundamental theoretical base for bibliometric studies involving authorships.

(b) Bradford’s Law of scattering or scientific papers: Samuel Clement Bradford\textsuperscript{[17]} noticed that in each subject there are a few very productive sources, and a large number of sources which are moderately productive and still a large number of sources of constantly diminishing productivity.

(c) Zipf’s Law of word occurrence: Zipf\textsuperscript{[18]} developed and extended an empirical law governing a relation between rank of a word and frequency of its appearance in a long term.

1.4 Citation Analysis

Citation analysis, which is one of the areas of bibliometrics can be used for identifying the core journals and for knowing the characteristic features of a discipline such as authorship pattern, scatter of literature in different bibliographic forms and in different subjects, etc.

Identification of core journals helps librarians, who are facing the problems due to the rising costs of periodicals every year, ever increasing demands of user community for getting new periodicals and diminishing budgetary provisions to meet the user requirements, in the procurement of useful periodicals within the given financial resources for providing effective service to the users of the library.

According to Deshmukh (2011)\textsuperscript{[19]} It is used as a tool to identify the core references in a subject by counting the citations appended at the end of each scientific article. The author of paper customarily presented references as authentic source of information with research value or to substantiate the point of view expressed in the cited paper. It is analysis of papers is used as a measure of impact of individual
articles, periodicals, authors, etc. and has become accepted practice in almost all research.

Citation analysis is an excellent tool for the compilation of reading lists or bibliographies, especially in an emerging field of knowledge or in subjects where areas are not clearly demarcated and the literature is scattered. It helps in identifying how the literature of one discipline is scattered in the journals of other disciplines. This technique can also be used to identify the countries and impact factor of journals which are being cited in the literature. Citation counts may be used directly as a measure of utilization or influence of a single publication or all publications of an individual, department, university, funding agency, or country. This is based on comparison of citation counts of one research group to number of citations received by similar documents by the other research group.

1.5 Growth of Social Science and Women’s Studies

Kent (1968) \[20\] stated that “Growth of literature refers to an increase in the number of documents published in a subject. Evidence of growth includes not only an increase in documents but also increase in sources. The simple measures of growth in documents are annual count, documents cited, authors listed by indexing and abstracting services, or number of journals titled”. The primary journal literature of the Social Sciences certainly appears to have grown exponentially at about 3.5% per annum, but there is no such firm trend in the monograph literature. One of the important characteristics of the Social Sciences in recent years has been the diversification of the field into interdisciplinary and practitioner specialties. Srivastava (2003) \[21\] has been describes that growth in the traditional subject areas such as Sociology, Economics, and Political Science has resulted in the creation of important sub-areas such as the Sociology of Education, the Sociology of leisure, Regional Economics and Econometrics, the study of the political problems of International Economics and the Women’s Studies as well.

1.5.1 Women’s Studies

Women’s Studies is an important field for research in this country and a subject of great interest in countries abroad today. According to McFadden (2005) \[22\] “It has moved around the world as an idea, a concept, a practice, and finally a field. By the early twentieth century, this area of Women’s Studies was recognized in
higher education from India to Indonesia, United States to Uganda, China to Canada, Austria to Australia, England to Egypt, and South Africa to South Korea.” Over the year the term itself and the naming of the enterprise have been contested and changing. The first name was “female studies”, but “Women’s Studies” quickly found more adherents. The name “Women’s Studies” has been criticized for its ambiguous apostrophe (the study of or by women?). Some programs have changed their names to “gender studies”, “women and gender studies”, or “feminist studies”, and of course in the exporting of “Women’s Studies” around the world.

Tanwar (2007) [23] has been describes in her book Women’s Studies in India that Women’s Studies was first made to appear in the United States in the second half of the 1960s, by feminists who began asking questions about themselves in the context of a serious social crisis there and they sought answers to why women were unequal, subordinate and oppressed? Women’s Studies has two terms- ‘Women’ and ‘studies’. The word ‘Studies’ in academic parlance refers to a discipline, sub-discipline or a mixture of disciplines- that is an area earmarked for inquiry. Women’s Studies is an academic discipline, with its own identity and autonomous existence.

Jain and Rajput(2008) [24] have been discuss in their book Narrative From the Women’s Studies Family, Recreating Knowledge that Women’s Studies is a new field which is being considered by Indian universities in the recent years. It is not only for academic and intellectual ideas but also for bringing change. It is not an ivory tower exercise but much more than this. The Indian Council of Social Science Research (ICSSR) and later the National Policy of Education (NPE 1986, which was updated in 1992) identified Women’s Studies as a “critical instrument of social and educational development’. The policy, stressing the need for education of women, laid down that ‘education will be used as an agent of basic change in the status of women. The National Education System will play a positive interventionist role in the empowerment of women.

One of the major outcomes of this was the entry of the University Grants Commission (UGC) into this field. UGC is the agency for the promotion of higher education in India. As such it has the primary responsibility for developing and strengthening Women’s Studies in the Universities. Much of the action has to hence emanate from its initiative and support by way of policy guidelines, grants, supportive
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structures. In 1986, the UGC \(^{25}\) established a standing committee on Women’s Studies. This standing Committee, specified specific organizational structures and an action plan to begin some organized activities for Women’s Studies in the Universities and Colleges. It identified seven Universities from various parts of India to play a leadership role in curriculum, material and human development and to carry out research. Currently, there are 87 Women's Studies Centers (WSCs) established in various universities and colleges in the country. Many of these WSCs are those newly established under the UGC XI Plan.\(^{26}\) Tara Bhai (2000)\(^{27}\) did a random analysis of Women’s Studies experts and showed that 36% of the Women’s Studies experts especially academicians serving in the universities had Sociology as a discipline. Next to Sociology, 16% of the people had History, 12% of the Women’s Studies experts had Psychology, and an equal member had Political Science. There were only 8% of Women’s Studies experts from Economics and the rest of 16% included people from the fields of Home Science, Education, Management, Anthropology or Literature. However, the people from Pure Sciences were very reluctant to come to the field of Women’s Studies, as they assumed that they would loosen their status in their subject and were also afraid to enter into a totally new era.

1.6 Statement of Problem

The literature available on Women’s Studies is widely scattered in India. So, access to appropriate and relevant literature by the researchers becomes both critical and difficult. Similarly, the Bibliometric studies in the field of Women’s Studies are negligible.

Efforts are needed to develop a database of the available literature and apply Bibliometric indicators to know the growth of literature, productivity, and citation analysis in Women’s Studies. It is with the objective of meeting this shortcoming and to enable researchers to consult available literature on Women’s Studies systematically, effectively and efficiently that brings the researcher to conduct the present study entitled ‘Information Sources in Women’s Studies in India: A Bibliometric Study of Periodical Literature’
1.7 **Objectives of the Study**

The present study undertakes to explore the information sources from the selected research journals and analyse them with the assistance of suitable Bibliometric techniques. The main objectives of the study are given below:

1. To determine or identify the following significant Bibliometric indicators in Women’s Studies in India:
   
   a) Growth of the subject  
   b) Authorship pattern  
   c) Highly productive authors  
   d) Content analysis

2. To determine the citation pattern, such as:
   
   a) Core journals  
   b) Core authors  
   c) Half-life of literature  
   d) Classics in the subject

3. To create the machine-readable database on the Women’s Studies to have a better control and access to the literature and to facilitate the analysis.

1.8 **Research Questions**

This study will seek to answer two different sets of questions- one set for the analysis of source articles and another set for the analysis of cited literature.

1.8.1 **Questions for Source Articles**

(a) Which disciplines and research topics form the core of Women’s Studies?  
(b) Which authors contributed the most?  
(c) What is the growth rate of literature in Women’s Studies?

1.8.2 **Questions for Literature Cited**

(a) What are the subject areas mostly referred by the authors?  
(b) Who are the most highly cited authors?
(c) What are the most highly cited sources?

1.9 Hypothesis

Hypothesis is usually considered as the principal instrument in research. Its main function is to suggest new experiments and observations. Hypothesis is a theoretical proposition that is capable of empirical verification. It may be viewed as an explanation of some events and which may be true or false explanation?

On the basis of sample study conducted and literature review, the following hypothesis have been formulated which has also tested at the end of the study.

H1. A high level of sole authorship in the Women’s Studies literature in India.

H2. Preponderance of female over male authors in the Women’s Studies literature in India.

H3. Growth in literature in the Women’s Studies may increase after 1970.

H4. Key words distribution would be according to Zipf’s Law in the subject.

1.10 Methodology

The term ‘Methodology’ means a system of methods used in a particular field. The term ‘Method’ means particular procedures for accomplishing or approaching something. In the field of research methodology is a way to systematically solve the research problem.

The following Systematic approach followed to achieve the desired outputs of present study:

a) Two computerized databases designed and created for this study-One for compilation of Women’s Studies literature and another for citation analysis of ‘Indian Journal of Gender Studies’.

b) The literature published on Women’s Studies collected from source journals and ‘Guide to Indian Periodical Literature’. All the relevant articles on Women’s Studies entered to the database as per the requirements of the study.

c) The data was tabulated and presented in different formats for analysis.
d) The different bibliometric techniques and laws applied for achieving the objectives.

e) For citation study, all the issues of ‘Indian Journal of Gender Studies’ scanned and all the references appended to the articles entered to the database created for citation analysis.

1.11 Significance of the Study

The vast amount of literature generated in the Women’s Studies at a considerable cost of time and energy is lying scattered and unused. There is hardly any bibliographic control especially in the field of periodical literature. This literature is extremely significant for determining the contribution of Indian social scientists to the growth and development of Social Science literature. Thus, computerized database of literature published on Women’s Studies will assist the social scientists and researchers in accessing the desired literature on the subject. Further, bibliometric techniques will help in the determination of various types of indicators in the Women’s Studies, such as- growth of the subject, authorship pattern, highly productive authors, content analysis and citation pattern.

1.12 Scope and Limitations of the Study

There have been no bibliometric studies performed for Women’s Studies in India. This study is the first study of its kind to understand Women’s Studies in India through bibliometric techniques by creating machine-readable database.

Keeping in view the time and other constraints, the present study is confined to the periodical literature published up to 2008 in the following primary and secondary sources:

1. Kurukshetra [1952-2008 (Monthly)]
2. Social Welfare [1953-2008 (Monthly)]
3. Seminar [1959-2008 (Monthly)]
4. Mainstream [1962-2008 (Weekly)]
5. Economic & Political Weekly [1966-2008 (Weekly)]
6. Contributions to Indian Sociology [1967-2008 (Triannual)]
7. Indian Journal of Gender Study [1994-2008 (Triannual)]
The above journals, on the basis of a sample study conducted, have been identified as the most productive sources on Women’s Studies. Further, ‘Guide to Indian Periodical Literature’ is scanned to have a better coverage of literature on the Women’s Studies. As far as the citation analysis is concerned, the journal Indian Journal of Gender Studies, being a specialize journal on the subject available in India, it has been taken as a source journal since its inception.

1.13 Chapterisation of the Study

Chapter one covers the background of the study, overview of Bibliometric techniques, Women’s Studies, scope, objectives, hypothesis and methodology of the study.

Chapter two presents reviews of the related literature on the subject. It considers the different aspects of Bibliometrics Studies.

Chapter three describes the growth of literature and also position of Indian women in different era from the Vedic period to the modern period.

Chapter four deals with the creation of database on Women’s Studies for the present study and explore the growth of Women’s Studies literature in India.

Chapter five discusses the authorship pattern and productivity of Women’s Studies literature.

Chapter six covers content analysis, mapping of keywords and application of Zipf’s law.

Chapter seven discusses citation analysis of Women’s Studies in detail, such as bibliographic forms of cited literature, cited journals, and obsolescence of literature, core authors and classics in Women’s Studies and other related aspects.

Chapter eight deal with the summary and conclusions drawn by the analysis of data, observation and suggestions for further research.

1.14 Reference Rendering Style

MLA Style is used for rendering the references in the study. This style is published by Modern Language Association, America.
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References


15. www.altmetric.com


