1. Introduction

1.1 Introduction

Scholarly communication means the study of how scholars in any field (e.g. physical, biological, social and behavioral science, humanities and technology) use and disseminate information through formal and informal channels. The study of scholarly communication includes the growth of scholarly information, the relationships among research areas and disciplines, the information needs and uses of individual user groups, and the relationships among formal and informal methods of communication (Kumar, 2004). Researcher in writing research paper or thesis read number of literature. He is citing literature used in references or bibliography. These references are used by another researcher for further study. Bibliometric, Scientometric and Citation analysis are the quantitative technique used for the measurement of literature.

Bibliometric technique are being used for a variety of purposes like determination of various scientific indicators, evaluation of scientific output, selection of journals for library and even forecasting the potential of a particular field. The popularity in the adoption of bibliometric technique in various disciplines stimulated growth of literature. The word "bibliometric" is derived from Latin word "biblio" and the Greek word "metrics". The term "bibliometric" was first coined by Alan Pritchard in 1969. He defined it as, "The application of mathematical and statistical methods to books and other media of communication" (Pritchard, 1969). During 1970s, bibliometrics developed into a scientific tool for literature assessment and now it has been based mainly on the mathematical statistics. In general, the term bibliometrics can be applied to any form of quantitative analysis relating to the production, distribution and use of the published literature. Bibliometric studies include studies of the growth of the literature in some subject; how much literature is contributed by various individuals, groups, organisations or countries; how much exist in various languages; how the literature or some subject scattered and how quickly the literature on some subject becomes out of date. Citation analysis is concern with bibliometrics as which authors are most cited, which journals are most cited, and what linkages exist through...
citations (Lancaster, 1991, p. 1). The term bibliometrics can also be considered related to the term scientometrics for ex. - Count of number of scientists in a country is scientometric study, a count of number of publication produced in that country is a bibliometric study and a count of number of science publications produced is both bibliometric and scientometric.

1.2 Statement of the Problem

Bibliometrics is associated with analysis of the characteristics of published literature including: studies of dispersion of literature on various topics; statistical analyses of content types, references, citation and co-citation studies within and across the particular disciplines. Various bibliometric studies were undertaken on Ph. D. theses but it was restricted to particular university and it's department. There is no any study found which covers most of the university theses in Library and Information Science for bibliometric analysis. Shodhganga is the repository of open access full text Indian e-thesis. UGC Ph.D. regulation 2009 has made mandatory to upload Ph.D. theses on Shodhganga repositories hence to know University contribution in Library and Information Science Subject and to its bibliometric analyses researcher taken research problem as "BIBLIOMETRIC STUDY OF ELECTRONIC THESES IN LIBRARY & INFORMATION SCIENCE ON SHODHGANGA REPOSITORY". Also no any research were undertaken on Shodhganga Repository and Library and Information Science Subject hence there is a need to do research on this topic.

1.3 Definition of Key Terms

Present study used some important keywords in the title of theses, explanation of these terms are as follows.

Bibliometric

According to Fairthorne (1969) bibliometrics is the “Quantitative treatment of properties of recorded discourse and behaviour appertaining to it.” British Standard
Institution BSI (1976), define bibliometric as “The study of the use of documents and its pattern”. On the other hand, Lancaster (1977) defined, “Bibliometrics is the application of various statistical analyses to study patterns of authorship, publication, and literature used.”

Electronic theses


Library and Information Science

The first university affiliated school for training librarians was started in 1870's at the Columbia School of Library Economics. In the 1920's, University of Chicago founded Graduate Library School with Library Science as an academic field of research by the creation of a Ph.D. program. The origin of Information Science can be traced to the late 19th and early 20th century and the documentation movement in Europe. Library and Information Science has been defined as a discipline oriented towards providing access to vast amounts of accumulated knowledge and information (Rubin, 2010). LIS is the integration of two different fields, Library Science and Information Science. Library Science has been defined as the systematic body of knowledge related to the book and the library, including diverse aspects dealing with books as autonomous entities. Information Science is related with the principles and practices of production, organization and distribution of information and the study of information from its generation to its use and transmission in a variety of ways.
Information Science also includes generation, collection, organization, interpretation, storage, retrieval, dissemination, transformation and use of information, with particular emphasis on the applications of modern technologies in these related areas. Thus Library and Information Science refers to a systematic study and analysis of the sources, development, collection, organization, dissemination, evaluation, use, and management of information in all its forms, including the channels (formal and informal) and technology used in its communication.

**Shodhganga Repository**

To facilitate open access to Indian thesis and dissertations to the academic community world-wide UGC made mandatory for submission of electronic version of thesis and dissertations by the researchers in universities by Notification (Minimum Standards & Procedure for Award of M.Phil. / Ph.D. Degree, Regulation, 2009) dated 1st June 2009. To rise standard and quality of research by online availability of electronic thesis through centrally-maintained digital repositories, made easy access and archiving of Indian doctoral thesis and help in raising the standard and quality of research. This would overcome serious problem of duplication of research and poor quality resulting from the "poor visibility" and the "unseen" factor in research output. "Shodhganga" is the name coined to denote digital repository of Indian Electronic Thesis and Dissertations set-up by the INFLIBNET Centre. It provides a platform for research scholars to deposit their Ph.D. thesis and make it available to the entire scholarly community in open access. The repository has the ability to capture, index, store, disseminate and preserve ETDs (Electronic Thesis and Dissertations) submitted by the researchers. According to M. Phil. /Ph.D. Regulation dated 5th July 2016 in the Gazette of India, after successful completion of the evaluation process and before the announcement of the award of the M. Phil./Ph.D. degree(s), the Institution concerned shall submit an electronic copy of the M. Phil. dissertation/Ph. D. thesis to the INFLIBNET, for hosting the same so as to make it accessible to all Institutions/College (http://shodhganga.inflibnet.ac.in).

At present Shodhganga contains 127423 full text theses, 3485 Synopses deposited by 280 Universities. (Source - Shodhganga, 20 Feb.2017)
Shodhgangotri

Shodhgangotri is an open access repository of approved synopses of doctoral theses submitted to universities. Repository aims at highlighting the research trends across Indian universities and thus prevents duplication of efforts in research. After submitting full text theses on Shodhganga, a link from shodhgangotri synopsis to Shodhganga for particular theses will be provided.

1.4 Relevance of the Study

Bibliometric study of electronic theses in LIS is important due to following reasons

1. Present study enables the research scholar and Librarian to know the prevailing trends of research in Library and Information Science.

2. It is used to know the topic of Ph. D. in Library and Information Science.

3. Findings in this research helps in taking some management decision for Librarian in selecting primary and secondary journals and helps in planning and improving library services.

4. This study used to know geographical distribution of researcher in Library and Information Science at National and International level.

5. Research is used as a source for library administration and policy decision makers for collection building.

6. Publisher can determine journals influence in the marketplace to review editorial policies.

7. Author and Editor can identify the most appropriate journals in which to publish.

8. Researcher can discover quality papers and articles where to find the current reading list in their respective field.

9. Information analysis and bibliometrician can track bibliometric and citation trends and patterns.
1.5 Objectives of the Research

The major objectives are framed with the exclusive notion of the present study as mentioned below:


2. To examine the growth and trend of Ph. D. research in Library and Information Science subject.

3. To identify the document types used by LIS researcher.

4. To study chronological and language wise distribution of total citations and identify its half life period.

5. To determine the authorship pattern and the degree of collaboration of documents used.

6. To identify the geographic distribution of journals from which the contributions get published and find out Indian contribution.

7. To create rank list of journals and apply Bradford's Law.

8. To find keywords in title of theses and apply Zipf's law.

9. To find ranking of Publisher, Books and websites.
1.6 Hypotheses

Keeping the objectives stated above in view, the following hypotheses are formulated

1. The relative growth rate of research in LIS shows a progressive increase in trend of research.

2. The journals are more cited in comparison with other source of publications.


4. There has been an increasing trend in collaborative research.

5. Use of E - resources are higher than that of Print resources.

6. University uploaded LIS theses on Shodhganga timely and regularly.

1.7 Scope and Limitations

Electronic theses in Library and Information Science subject submitted by different Universities on Shodhganga upto 10th March 2014 will be studied in present research. There are 108 E theses submitted by 28 University on Shodhganga. Only references and its content given in Ph. D. theses are analysed by using bibliometric technique.

1.8 Research Methodology

Redman and Mory (1923) defined research as, “Systematized effort to gain new knowledge”. Research methodology is a way to systematically solving the research problem. Descriptive method of research is used in present study. The study is primarily based on bibliometric technique. Bibliometric studies are used to identify the pattern of literature, content and citation analysis. Bibliometric study used
quantitative analysis and statistics to describe patterns of publication within a given field or body of literature.

The references appended at the end of each chapter and bibliography of 108 Ph.D. theses submitted on Shodhganga Repository in the subject of Library and Information Science up to March 2014 were studied as data source for the present study. Each theses was examined manually and noted its references. Later the data was fed into the computer using MS-Access 2007. After feeding data, database file in Access was imported in MS Excel and analysed using MS Excel and SPSS Software.

Methodology applied in the present study involves the following

1. Literature survey

2. Bibliometric analysis

1. Literature survey

At the primary stage literature searched by referring journals, books, website and online databases to find out problem and its statements. Various references related to research were referred for writing review of literature in Bibliometrics, research trend in Library and Information Science and analysis of present study.

2. Bibliometric analysis

The doctoral dissertations were chosen due to the fact that they are original studies and represent an innovative contribution to Library Science field since they are results of further investigation on a topic with defined theoretical approach. Moreover, they are available in the library collection to the general public and can be found both printed and online. From Ph. D. theses, the following data were identified:

a) Type of Publication;

b) Publisher;

c) Year of Publication;

d) Language;

e) Form of Publication;
f) Authorship pattern;
g) Subject, Supervisor / Guide and list of University of theses.


Data were analysed by using MS Excel Software and also using the SPSS program, various analyses were made.

1.9 Conspectus

Research report of present study contains following chapters and contents.

1. Introduction
This chapter includes Statement of the problem, Definitional Analyses, Relevance of the Study, Objectives of the research, Hypothesis, Scope & Limitations, Research Methodology, Conspectus and Major findings and Conclusions. In conspectus chapter scheme of the study along with contents have been discussed.

2. Review of Literature
   It deals with a comprehensive review of literature comprising studies in foreign countries as well as in India, bibliometric and its related terms.

3. Library and Information Science Research
   It gives an overview of Library Science Education, Research trend in LIS and review in Library and Information Science research in India.

4. Data Analysis and Interpretation
   Data analysed in various tabular and graphical form by bar chart, pie chart, line Chart and its interpretation given by applying various statistical tools.
5. Conclusion and Suggestions
This chapter comprehensively summarises the entire analysis, conclusions and suggestions. It also describe the areas suitable for further studies.

Bibliography
List of References consulted during study

Annexure
List of Ph.D. theses in Library and Information Science Subject on Shodhganga
Impact factor of Journals

1.10 Major Findings and Conclusions
The present study analysed 16982 citations from 108 theses in Library and Information Science submitted to 28 University in India on Shodhganga Repositories.

On the basis of analysis following findings and conclusions are drawn

- Maximum contribution obtained by 22 ( 78.57 % ) State Universities by 80 (74.07 % ) theses followed by 4 (14.29 % ) Central Universities by 24 (22.22 % ) theses also One Deemed Universities by 3 (2.78 %) theses and One Private Universities by 1 thesis. It means that largest no, of Contribution of theses 80 (74.07 % ) is found by State University and least contribution i.e.1 (0.93 %) thesis by Private University.

- Considering increase in number of theses in LIS on Shodhganga, hypotheses made in present study " The relative growth rate of research in LIS shows a progressive increase in trend of research" is valid .

- There are 38 subjects covered in 108 theses. Highest number of theses 10 (9.26 %) was submitted in the subject of Information Seeking Behavior followed by 9 (8.33 %) in Information Communication Technology. More research contribution require in Librarianship, Intellectual Property Right and Web Technology .

- Dr. M. T. M. Khan has given highest contribution as a research guide by guiding 9 (8.33 %) research scholar followed by Dr. U. N. Singh guided 6
(5.56%) research scholar. Thus 58 guide among 28 University guided 108 research scholar. There are 09 main guides worked with another guides as a joint guide.

- There is no any co-relation between theses submitted year and uploaded year on Shodhganga repository. It means that although UGC has made mandatory to upload Ph.D. theses on Shodhganga but many universities are not uploaded there theses timely hence hypotheses made before present study regarding "Universities uploaded LIS theses on Shodhganga timely and regularly" is invalid.

- English is the most prominent language found in Library and Information Science research which occupies 95 (87.96%) theses among 108 theses. Second ranking occupied by Marathi language by contributing 9 (8.33%) theses. Hindi and Gujrathi language contribution are two theses each.

- Frequency (f) of occurrence of keyword ranged between 48 to 497 which is not constant in all frequency of words hence Zipf’s law is not valid for present study.

- Majority of citations are from print resources (88.85%) while E-citations contribution is 11.15% hence use of print resources are higher than that of e-resources. Due to this findings hypotheses made in present study i.e. "Use of E-resources are higher than that of print resources" is invalid.

- Bibliographic form of cited document reveal that type of bibliographic form i.e. journal was more cited than the other sources of information. Hence the hypothesis "Journals are more cited in comparison with other source of publication" is valid and accepted.

- Maximum number of journals referred are from LIS field its contribution is 56.03%.

- English is the most prominent language and Information source used by researcher (96.34%).

- Total 3655 book citations found during analysis. Majority of books (30.01%) cited were published during year 1991-2000 followed by 25.25% during year 2001-2010.

- From Obsolescence of Book Citations half life period (median citation age) for books is 20 years.
• From total number of 8024 journal articles majority of articles 3347 (41.71 %) cited were published during year 2001-2010 followed by 2786 (34.72 %) during year 1991-2000.

• Half life period (median citation age) for journals in LIS is 13 years.

• Geographical distribution of journal reveal that 771 journals were published from 40 countries. United States scored the top position with 210 (27.24%) journals, second rank goes to United kingdom with 165 (21.40%) journals, followed by India with 66 (8.56%) journals.

• Total 3655 citations of books were published by 309 publishers. Study revealed that Ess Ess Publications ranked first with 145 (3.97%) citations.

• Total number of 1894 e resources in URL/ Website form were found. Highest rank of citations secured by www.emeraldinsight.com 42 (2.22%) followed by second rank http://www.en.wikipedia.org with 41 (2.16%) citations, third http://www.shodhganga.inflibnet.ac.in with 36 (1.90%) citations.

• Single author articles (48.86%) are more than that of multi author so collaborative research is not predominant than single author hence hypotheses "There has been an increasing trend in collaborative research" is invalid.

• Degree of author collaboration is 0.39.

• Highest cited book was Five Law of Library science with 24 (0.66%) citations followed by Prolegomena to Library Classification with 23 (0.63%) citations, Little Science Big Science with 22 (0.60%) citations.

• Bradford's law does not fit verbally but according to Leimkuhler model percentage error is very negligible i.e 0.045 hence it is concluded that Bradford’s law fits very well in this data set. Hence hypotheses made in present study as "Rank list of Journal obeys Bradford's law" is valid.

References


http://shodhganga.inflibnet.ac.in


?cx=partner-pub-0939450753529744%3Av0qd01-dlq&cof=FORID%3A9&ie=UTF-8&q=library%20science&sa=Search#906.


