## Chapter 1-Introduction

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Chapter 1: Introduction

1.1 Introduction:

Publishing the intellectual knowledge by human mind in print form has an immense value through which innovative results are communicated to the society by the researchers. Importance of reporting or publishing the knowledge by scholars is to establish monopoly rights or claims of ownership. Intellectual Property Rights (IPR) is playing an important role in protecting intellectual knowledge developed by researchers which is published in different forms and formats. Generally writing and communicating knowledge is contributed by individual contributors, researchers, R&D professionals, academicians, scholars, writers, communicators, editors, evaluators etc. and establish a novel contribution in their subject area continuously. Researchers communicate their result in different form depending upon the value and nature of information viz. general writing and compilation of work is published more in book form, first hand and nascent results in journal articles, novel research in patents, test methods in the form of standards, fine research results in the form of thesis, reviews in the form of reports, annuals, treatises etc. reference contributions in the form of encyclopaedias, fact finding books etc.

Thus main purpose behind publishing information or knowledge gained by human is to make aware others of the views expressed in a particular area or field or aspects in communicable form using previously published literature. The purpose behind publishing information may be of personal interest, or to protect Intellectual Property (IP) related issues but the published information is very useful to the R&D industries, scholars, information developers and thinkers etc. Similarly others can also read the publications and comment on the work contributed by someone and add knowledge to it by means of experience and experiments. Communicating the research results is base for the development of new concepts and new process. Publishing information is a fundamental activity which creates knowledge base. Barahona (2007), has pointed out that different publications have different goals and information which prefer the medium based on it like press release, industry forum, reports, websites, journals, conference proceedings, books etc. In information society, publishing knowledge is an integral part of research process and also considered as a metric for performance of research activity.
An essential part while publishing research papers in all sciences is that the use of literature made by authors for contributing knowledge are to be cited as a list of references indicating prior publications in similar area by the contributor while publishing the knowledge. Ziman (1968) opined that a scientific paper does not stand alone but always embedded in literature or subject. Nann (1976) defines the relation between reference and citations as “a reference is the acknowledgement that one document gives to another, and a citation is the acknowledgement that one document receives from another”. Citations are very useful for correlating different policies based on counting of citation popularly known as bibliometrics and study different relationship using citation patterns. Malin (1968) rightly suggested that a citation implies a relationship between a part or the whole of the cited document and a part or the whole of the citing document.

1.2 Bibliometrics, Citation and Citation Analysis:

The term “bibliometrics” was first used by Pritchard in (1969) his article “Statistical Bibliography or Bibliometrics” published in the “Journal of Documentation”. “Biblio” means book and “Metric” means a scale or measure. Bibliometric means application of statistical studies in library and information science. According to Pritchard (1969), bibliometrics is defined as “the application of mathematics and statistical methods to books and other media of communication.” Potter (1981) defines bibliometrics as “the study and measurement of the publication pattern of all forms of written communication and their author”. Later De Sola Price (1970) is of the opinion that equating quality with citations is only one part of the problem. Most bibliometrics scholars would concur that citations reflect the communication behaviour of scholars in a particular field, and may have limited utility when compared to similar data from other fields. Derek de Solla Price (1970), pioneered the research into disciplinary differences in scholarly communication finding that scholars in the hard sciences are likely to give more citations in their papers and these citations are more recently published works. The study concluded indicating that the time lag between publication and citation was shorter in the hard sciences than it is in other disciplines. He further stated that citations represent a measure of utility rather than of quality.

Applications of citation analysis used by Garfield (1972), and he is also known as father of citation analysis studies, who has conducted enormous studies and published views based on analytical studies and out of his hundreds of studies which covers almost every branch of the natural and social sciences, indicated the better use of citation studies. Based on citation
analysis he developed Science Citation Index and Social Science Citation Index. The journal impact measure became popular and widely spread among the scientific community as journal impact factor. Journal impact factor is calculated based on citation counts and nowadays, it is linked to prestige or quality of journals in scientific area. Impact factors are not only used to rank journals, but also to evaluate individual scholars and research groups or department performance according to the journals they select for publication. Garfield pointed out importance of citation, co-citation, self citation and citation analysis studies in measuring performance. Since then citation analysis studies become more valuable. Garfield (1983) noted that citation analysis is used to study the journals as well as the people and work of science. Citation analyses of different subjects are based on a literary model of scientific process. He has observed that scientific work is represented by the papers published to report it, and the relationships between works are represented by references Garfield (2004).

Citation refers to the list of references to other works in a published work. “Referring” means mentioning in the proper context and giving an explicit bibliographical statement in a list of references. An older article is then cited by or receives citations from the newer one (Rousseau, 2008). Citations acknowledge the existence of related literature (Coleman, 2004). Those help in communicating specialist knowledge (Leydesdorff, 1998). Merton (2000) observed that citations provide peer recognition that is central to a scholarly system of science and other fields. Typically, citation shows a relationship exists between the work of an author and the previous works done in that field. Isaac Newton as stated by Merton (1968) referred to this relationship and said that “If I have seen further, it is by standing on the shoulders of giants”. Authors contribute to existing knowledge and demonstrate that they are current with activity in their field (Aina, 2006). A citation is a bibliographical entry in a footnote, reference list or bibliography of a document that contains enough information to verify the original item (Leiding, 2005). According to Hovde (2000), citation checking of research documents and comparison of those citations with the availability of materials in a local collection offers unobtrusive and cost-effective method of evaluating that collection’s ability to support research. Several studies have used citation analysis within a discipline for checking subscriptions or budget planning, policy making, reorganizing libraries etc. (Leiding, 2005; Haycock, 2004, Edwards, 1999, Sylvia, 1998; Devin & Kellogg, 1990).

Changing trends in research areas and information seeking behaviour of users are factors that libraries need to study in order to provide collections and services that fulfil the information needs of their clients. One such method to examine actual use of library collection may be in
the analysis of citations or references listed at the end of a research publication. Citation analysis looks at citation practices (Leydesdorff, 1998). Citation analysis helps in determining the competitive position of authors and can help to identify useful journals (Aina, 2006). Citation analysis may be viewed as a collaborative effort that can promote the quality of scholarly research (Rousseau, 2008). Citation analysis is also a way to understand users. Studying references cited by faculty publications shows the sources most commonly used and valued locally (Curtis, 2005).

Meho (2007) has observed that citation analysis is actually a branch of information science in which researchers study the way articles in a scholarly field are accessed and referenced. Citation analysis is used to identify core articles, authors, or journals in a field. Citation analysis has been used beyond information science for scholarly analysis and evaluation. Johnson (2000) points out that citation studies reveal much about scholarly communication and can guide collection development in academic libraries. Based on this model, citation analysis has been carried out in a variety of ways (Johnson, 1996).

Smith (1981) suggests that citation analysis of theses and dissertations can have implications for both collection development and user services. She cautions librarians that citation does not imply quality or importance. It is a controversial methodology because it does not represent all the possible needs or uses for information (Haycock, 2004). Though valid criticism of citation analysis exists, several authors have shown that citations correlate with other methods of collection analysis, including impact factors, circulation statistics, in-house use, and user surveys (Tsay 1998, Blecic, 1999 and Fuchs et al., 2006).

Governments, funding agencies, and tenure and promotion committees may use citation to evaluate the quality of work (Meho, 2007). Citation measures have emerged from studies of citation databases. These include journal Impact Factor and Relative Impact Factor. Meho (2007) also observes the growing number of web citation tools, including download counts, link analysis, and page ranking, as well as web citations, and Hirsch's “h-index” are popularly used. Not everyone agrees that citation analysis is the best way to judge validity of scientific claims (Meho, 2007). The applicability of Institute of Scientific Information (ISI) citation databases outside the natural sciences has been questioned, because these databases contain few books, proceedings, or other kinds of documents (Russell and Rousseau, 2002).

Meho (2000), in his case study pointed out that citation analysis is an important activity to measure the progress of activities carried out in a particular branch of knowledge. Citation
analysis involves counting, number of times a paper has been cited or researcher has referred to it. This helps in finding out influential researcher and works which are cited more often and becomes more popular in the discipline. Citation analysis also helps in finding out the impact factor of the Journals.

From above contributions it is very clear that citation study is very valuable for measuring utility and based on that concluding the activity. In library and information science citation and citation analysis has received importance and value because the basic idea behind citation study measure is to access the impact, importance or quality of research work and to find out which resources have been used for conducting the research study, to analyze the scholarly work etc. Based on citations count, impact factor of the journals is calculated and this is very useful for selecting and subscribing to the journals for a library and also assist researcher to find proper way for publishing their research work for qualitative publications. Citation analysis is also considered as a best tool for collection development for libraries in the information explosion era. If a document is cited many times it is assumed that the subject discussed in the article is important, innovative in its discipline. Thus the list of articles and its published sources helps in findings information about research topic and this process is called “Citation Chasing”. Citation study has also received importance while assessing the literature ranking and tracking the historical development of the topic.

Today, bibliometrics and scientometrics make extensive use of citations to assess quality and trace patterns of scholarly communication (Borgman and Furner, 2002; Wouters, 1989). A number of researchers have used citation analysis to look at the subject focus of postgraduate students and determine their journal needs (McCain and Bobick, 1981; Momoh 1996). Bibliometrics is a method used to study or measure the importance or value of literature and information published. Citation analysis and content analysis are commonly used as bibliometric methods in the field of Library and Information Science. This method is generally used to find out the impact of literature by examinations frequency or pattern of citations from published literature like periodical articles, books, journals, thesis, reports, conference proceedings and other published literature. Citation analysis reviews citations from scholarly work to connect links to other research work or other researchers. Citation analysis involves an analysis of referred literature while contributors to scholarly documents.

Using citation analysis it is possible to find out the importance of scholarly work published. Analysis of statistical data related to scholarly (scientific) work helps in identifying subject scatters, pattern of authorship, citation trends as well as research trends in any discipline. This
practice was used since past many years and Ranganathan (1959) called it as ‘Librametrics’ where as Pritchard (1969) called it as bibliometrics, meaning the study of citations analysis while highlighting use pattern of literature. Other bibliometrics applications include: creating thesauri; measuring term frequencies; exploring grammatical and syntactical structures of texts; measuring usage by readers etc.

Presently bibliometrics have gained valuable place and used to deal with quantification of written communication like book and other media. Using this technique subject scatter, authorship pattern, citation trends and distribution pattern of information have been analyzed using bibliometric laws for developing policy management in libraries (e.g. collection development, book selection policy, maintenance policy, journal subscription etc).

In Library and Information Centres (LIC), citation analysis study has received prominent place as it is helpful for developing policies like stack maintenance based on half life, selection of journals and its subscription, collection development policies, weeding and de-selection policies, library collection organization, resource sharing policies, retro conversion policies etc. Thus citation analysis is very beneficial not only for researchers but also for analysis of collection, defying procurement policies. Similarly this method is also useful in assessing the research output in a particular area.

Citation analysis provides information on the use of references or literature in journals, thesis and others materials. In analyzing the citations, the frequency of the journal title, type and age of the resources used, place of publication, language and frequency of the author is analyzed to study use trends, which suggests means to enhance the library collection. It helps to point out the way to revise the collection and the services to allow the librarians to better serve the needs of the library users from the present to the future. Furthermore, it is also a technique that gives potentially valuable information in the management of library journal collection (Sapiah, 1997). Citation analysis helps identify the quality of the information sources. The more the information is cited, the higher the impact factor on the measure of citation count. This implies that more people use the information and the reliability of the cited information becomes higher. It is therefore pertinent that an analysis of the resources used by researchers be continually reviewed so that it can assist the library to build the collection and at the same time help researchers know the trend of their information resources use.

Citation analysis has received wide publicity and Web has also taken a note of it and they have also developed tools for citations for literature published over the web like Scopus, Web
of Science, Google scholar which have used the citation patterns for academic papers. The initial work of citation analysis was introduced by Eaugen Garfield, Institute of Scientific Information (ISI). Thomson Scientific UK, developed Web of science and also lead to several new citation methods i.e. download counts, link analysis, Google page ranks, Web citations and h-index (Jorge Harsh) etc. Citation analysis is a very essential technique to measure the quality of source of material.

Thus it is concluded that citation analysis is useful for understanding subject relationships, author effectiveness, publication trends, and so on. The first recorded citation analysis was Gross and Gross (1927) who looked at citation patterns to determine the journals to be subscribed to and back volumes to be acquired for the library. Using citation analysis one can evaluate and interpret citations received by articles, authors, institutions, and other indications of scientific activity. Citation analysis is also a way to understand users. Studying references cited by faculty's publications shows the types of sources most commonly used and valued in their disciplines It makes use of bibliographic references, which is an essential part of scientific communication. Citation analysis is a major area of bibliometric research, which uses various methods of citation analysis to establish relationships between authors or their work.

1.3 Progress of research in LIS:

The review of LIS research is presented in two levels global and national.

1.3.1 Global Status of LIS Research:

Rochester and Vakkari (2003) conducted various national studies of different countries to analyse the trends in LIS research at global scenario and record the research trends in LIS research at global level based on the analysis. The different national studies in research were conducted by these two authors as an assignment of IFLA project during 1997-1998 and compared national and international trends in LIS research and recorded the development in research. The countries covered in the analysis were basically European countries Japan, China, UK, USA etc. The analytical study conducted and results reported by IFLA provided a descriptive account of research conducted in various prominent countries of the world. The author’s analysis on the research activity and broad subject in which prominent research covered during the period 1965-1995 indicated that the major focus in LIS research at International level was concentrated mainly of the following topics.
1. Information storage and retrieval (87)
2. Library and information services (77)
3. Information seeking behavior (8)
4. Other LIS topics (25)

Thus out of 197 research studies it was reflected that ISR, LIS services and ISB were in prominent areas. Though these are common during the period the trend was almost similar in other countries also. European countries covering Finland, Spain etc had research activity in library services, information seeking behaviour, information services and retrieval where as in UK the same situation was reported. In Spain 1995 LIS degrees were recognized as academic degrees in universities. Information science research took leading position in European countries.

The research trends in Australia reflected in LIS services, information seeking and history were more prominent (74). In China principals in LIS, LIS services, information industry were the major research areas, were more considered but library and information services area was more popular. The most popular sub topics on which research was conducted more during 1965-1995 in China were:

1. Classification
2. Automation
3. Collection development
4. Information retrieval
5. Library management and administration
6. Library use

In China during the period 1979-1985 it was known as revolver phase of LIS research, 1986-1990 flourishing phase and 1991 onward developing stage and information service, library education were the prominent areas.

A comparative study conducted Vakkari (1996) for LIS research in Scandinavia countries like Denmark, Finland, Sweden, Norway; Spain etc. also reflected European trends in LIS research. Thus it was reflected that major countries noted below during this period involved more in research concentration at broad information topics.

- Denmark 47
- Finland 44
- International 40
It was found that research at international level had orientation towards solving information problems. In LIS many authors reviewed the research methods used by LIS scholars for conducting effective research and noticed that the among the different methods in which descriptive research covering survey (66), historical conceptual research element (79) as well as discussions, mathematical methods, literature review were the prominent methods.

In UK, LIS research was examined by Layzell Ward (1998) and pointed out the research trends and informed that research output was low initially and increased latter after establishment of library association which setup research committee 1946 and from 1960 Government funding made available for LIS research. Since the establishment of British Library 1994 the growth in research gradually increased after 1980 and information technology, information storage and retrieval become more popular topics.

From the above global study it is noticed that LIS research progress was slow and different topics were grouped in to three areas based in traditional practices and since 1990 area were shifted towards modernization covering :

2. Library and information services: Circulation, Collection development, Information and seeking behavior, User education
3. Information storage and retrieval: Cataloguing, classification and indexing, Information retrieval, Bibliographic databases
4. Information seeking behavior: Methods of information dissemination, Information sources, Information seeking behavior in different subject, Information use, Information management
5. Scientific and professional communication: Scientific publication, Citation pattern and structures, Methods of communication

1.3.2 National Status of LIS Research (India):-
Research in Library and Information Science (LIS) is proliferating due to many reasons and one of the prime reason is resource sharing. Research has gained value in all the subject disciplines including in LIS. Many research workers feel that there is a need to conduct research in LIS. No doubt that, developed countries conducted different research studies but developing countries are also improving and conducting research. Research in LIS is emerging since past few years, and more than 70 Indian universities have initiated research programs in LIS. The trend of research output is increasing. Out of 279 universities in India (Association of Indian Universities (AIU) Handbook 2010) about 70 (25%) universities impart to PhD research program in LIS. From 70 universities around 623 PhD theses awarded degrees during 1957-2009. This reflects the growth of research in Indian universities (AIU Handbook 2010).

AIU (Handbook 2009) and Rana (2011), listed the most productive universities in conducting research in the area of LIS and found that Karnataka University Dharwad, Andhra University Vishakhapatnam, Panjab University Chandigarh, Jiwaji University Gwalior, Osmania University Hyderabad and University of Rajasthan Jaipur are represented with more than 20 PhD’s so far. Another 5 Universities listed out viz. university of Delhi, University of Bardawan, Vikram University of Ujjain, Gulbarga University of Karnataka and Madras University of Chennai are at leading position.

The data analysis of PhD degrees reported by Rana (2011) for the degrees awarded by different universities located in the states of India pointed out that from 1957-2009, 627 degrees were awarded. The theses submitted to the different universities in India were about 627 out of which she has covered most productive universities on the basis of Number of PhD degrees awarded. She has also covered more than 20 universities awarding 10-15 degrees by the universities covered in western zone. In spite of the higher number of PhD degrees are awarded in western zone universities but these are not listed in her list like Nagpur University 32 degrees awarded, BAMU (16), University of Pune (47) western zone etc. these are unwittingly left out from her list. This indicates that the Indian universities in the western zone have also contributed heavily in LIS research, but no where its statistics was reflected properly.

Detailed analysis of the theses published it was notice that in 1957, D.B. Krishna Rao became the first scholar to receive the doctoral degree in library science and his research theme was “Facet Analysis and Depth Classification of Agriculture”. The second and the third PhD
degrees were awarded in 1963 and 1966, respectively, only three PhD degrees awarded in LIS in India during 1957-1970 (13 years) but during 1970-1980, 17 PhD degrees were awarded. The following table (1.1) indicates progress of PhD degrees in India since 1957.

<table>
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<th>Duration</th>
<th>Number</th>
<th>%</th>
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<tr>
<td>1957-1980</td>
<td>20 (3+17)</td>
<td>3.2%</td>
<td>Slow growth period</td>
</tr>
<tr>
<td>1981-1990</td>
<td>104</td>
<td>16.7%</td>
<td>Steady growth period</td>
</tr>
<tr>
<td>1991-2000</td>
<td>232</td>
<td>37.3%</td>
<td>Rapid growth period</td>
</tr>
<tr>
<td>2001-2009</td>
<td>266</td>
<td>42.8%</td>
<td>Spectacular growth period</td>
</tr>
<tr>
<td>1957-2009</td>
<td>622</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Table 1.1: LIS Research output (1957-2009)
Source: - Rana (2011)

Rana has pointed out that in 1950 Mr. Minendranath Basu was awarded the PhD degree by Kolkata University but no where it reported. From the above table it is notice that spectacular growth of research was reported during the period 2001-2009. It is concluded that due to new emerging areas and need of PhD in the LIS profession, there is an increasing trend in LIS research. Another reason might be, new universities have been added in the cluster of conducting LIS research programs. Rana (2011) cursory reviewed the LIS research subject areas in which more PhD degrees were awarded and these are reported under:

1. Library use and user studies.
2. University library, Public libraries, Information resources centers, Personals, Bibliometrics, information technologies, library networks, automation, reference and information sources etc.

He further stated that out of 62 PhD theses Information Technology (IT), automation, library networks accounts for 57 (25+20+12 respectively) thesis, i.e. 9%, and the rest are still working in the traditional zone but their contribution is also much important. The paper also revealed the low focussed areas in the field. During 2001-2009 the growth is expansive and overall increase is 42.8%.
On the review of literature it is also reflected that few studies have been conducted by the researchers in different zones of India and analyzed the research output in the area of LIS and studied trends in citing references by the researchers. The following eight research studies have been reported in literature review, wherein citation and citation analysis is being used for the research purpose as a technique.

1. Sangam S L (1986) Citation analysis of doctoral dissertations in social science accepted by Karnataka university during 1964-1982 from Gulbarga.

2. Kannappanavar B U (1991), Citation analysis of doctoral dissertations in library and information science accepted by the University of Karnataka from Karnataka.

3. Mapatra G (1993), Citation pattern among the Indian library and information science in English from 1975-1985 from Utkal.

4. Misra R (1997), Citation analysis of doctoral dissertations in library and information science accepted by the universities of Orissa and Manipur till 1993: A comparative study from Sambhalpur.


6. Arvind N (1997), The literature of Physical Anthropology : A citation Analysis. Accepted by Padmavati Mahila University


Few studies are also reported in the area of bibliometrics, scientometrics but use of citation is prominent tool.

1.4 Status of LIS Research in Western Indian Universities:
Western India covers three prominent states viz. Maharashtra, Gujrat and Goa. These three states have 36 universities in all including agriculture and non-agriculture universities. Out of those 36 universities 21 (MS=11, GUJ=09, Goa=01) are non-agriculture, 06 agriculture (MS=5, GUJ=01, Goa 00) and 09(MS=8, GUJ=01, Goa=00) are other universities like Deccan College, Central Fisheries etc. In this study universities conducting research programs in LIS are considered. The remaining is eliminated as there is no LIS education and research activity reported. Thus for this study total 21 universities are considered but on review it is noticed that there is only Bachelors and Masters Degree Courses in LIS at Goa University and no research programs are being conducted in this university. Hence in all 20 universities where LIS research programs are being conducted.

Among 20 universities total 152 theses are submitted and awarded till 2010 among two states viz. Maharashtra and Gujrat. In Maharashtra from 11 universities, 136 PhD degrees were awarded and in Gujrat from 09 universities only 16 degrees were awarded. The period covered for this study is from 2010 during which the degrees awarded by the respective universities. The data collected for this study is by means of visiting each university and physically checking and getting the citations reported by researchers in their thesis. Similarly discussions with the LIS department heads were very useful for getting data related to degrees awarded, ongoing research, number of registered guides etc. It is analyzed that 16313 citations are being reported in 124 theses and on an average 131 citations are in each thesis. From the above review it is also found that few studies in western Indian universities are conducted in LIS area in which bibliometrics, citation analysis are being used. These are:


1.5 Reason to select the Research Topic:-

In the area of LIS initially education and now research is gaining momentum. In most of the universities research activities are flourishing. Considerable research awareness is reported since 2000 onwards. It is now felt necessary to access the trends in LIS research and progress made in LIS area. This might give a clue for gap in research areas for conducting prominent research. Researchers have to consult the literature for tracking the past events in the field and cite the relevant literature used for research. The trends in using citations might give the use of literature by researchers. Such studies are necessary to analyze and support to research activities by providing proper information support.

From the literature survey it was reported that citation analysis studies were conducted in different areas using bibliometric methods. There are in all Thirty Three research studies during the period 1983 to 1999 are reported in different universities of India wherein citation and bibliometric techniques were applied to analyze the research output in different areas (Appendix 1). But only eight studies are conducted using purely citation analysis technique.

Counting citations from scholarly research helps in measuring the importance of publications cited by scholars and based on these tracking the path of research in a particular discipline is treated as an important achievement to show the importance of areas and use pattern of literature by researchers. There is a need to undertake citation analysis study in the area of library and information science to find out the emerging trends in subject, research areas in the field, forms and formats of publications used by the scholars in completing their research, finding popular resources used by researchers, area of interest, emerging areas as well as gaps in research. Such studies may be useful to future researcher in the discipline. Library and information science is treated as an important discipline which support to various activities based on the collection and services. In Indian universities, research is treated as an essential qualification for the librarianship especially in academic library structure. The global scenario is much advanced and research element is embedded in the developed countries and the situation in the developing countries has also shown rise in LIS research area. Growth of research in Library and Information Science is increasing and there is a need to track the
disciplines already covered by the scholars and the emerging areas or missing areas in research where research is needed. This helps researchers in developing future library profession.

It is therefore decided to evaluate research conducted in different universities covered in Western part of India based on citations, subject area covered, literature used etc. Hence “A Citation Analysis of Doctoral Dissertations in Library and Information Science accepted by the Universities in Western India” is selected for research study.

This study might be useful for the future researcher for deciding the research topics to match the trends and policy makers of the libraries and the one where the more research is required to be undertaken. Considering these facts it was decided to conduct the research study of citations cited by researchers in LIS from 36 universities covered under western zone of India (non agriculture 21 universities selected where research element is introduced and PhD degrees are reported).

1.6 Statement of the Problem:-

The present study is an attempt to analyse bibliometric citations which have been cited by researchers in LIS work. While comparing doctoral dissertation from universities from western part of India since 1980 till 2010 to find out the trends using citation analysis method. The citations covered in the bibliography or footnotes are cover which contains all forms and literature used by researcher. The present study is entitled “A Citation Analysis of Doctoral Dissertations in Library and Information Science accepted by the Universities in Western India”. The main aim and objective of study is to map the trends in research and literature used pattern in the area of LIS. This study is helpful to the LIS research scholars in tracking the prevailing trends of research in LIS and its growth.

1.7 Aim of the Study:-

The aim of research study is to focused on two aspects

1. To track the research activities conducted in universities of western zone of India in LIS and assess the trends.
2. To analyze the bibliographic citations which have been cited in doctoral dissertations by the research scholars from library and information science in different universities located in western part of India.

1.8 Objectives:-

1. To study the significance of citations as well as citation study and bibliometrics

2. To study use of different information sources consulted and cited by the LIS scholars while conducting research study.

3. To study the research areas / topics covered by researchers in western Indian university and find the trends in LIS research.

4. To identify most cited sources, age of cited items, frequently cited journals and ranking, use of non-LIS resources, and identify half life of periodicals.

5. To study research growth and trends in LIS and compare it with the current developments in LIS.

6. To find out prominent research areas and the gap in research in LIS.

1.9 Hypothesis:-

1. There is a paucity of research on the emerging trends in LIS.

2. Available Information Communication Technology (ICT) facilities are hardly explored by the researchers to substantiate their coverage and productive output.

3. PhD students prefer periodical literature more as a source of information than other sources and now using web resources also in study.

1.10 Research Methodology:-

The research method used to undertake the study is descriptive research method. Two major sources for data collection used were, theses submitted for the Doctor of Philosophy (PhD) degree in the Department of LIS from universities located in western states of India. The population under study was, the total population of theses for which the degrees were awarded. In all, 152 theses have been awarded the degrees and out of these 124 theses were available at the time of visit and hence the population was 124 doctoral theses which were
analyzed thoroughly. Citations from the thesis reported by researchers were collected and analysed.

The references from each thesis were checked and collected and a total of 16313 citations were compiled from 124 theses. The references found in those theses were compiled according to the following characteristics: (a) year of publication; (b) name of researcher or author; (c) source title; (d) bibliographic format; (e) language; (f) subject category; and (g) place of publication. The subject category is decided on the basis of title and objectives of the theses defined by the scholar.

The present study is also based on analytical methods, analytical nature of study is due to analysis of citations used in completion of doctoral dissertation studies in various angels and pattern like author, form usages, chronological, geographical etc. The data analysis was completed with the help of excel sheet (instead of card preparation). The information from citations have been collected and organized in an excel sheet using different fields, like type of documents, source, year, publication etc. In brief citation analysis method is more suitable and valid for conducting this research. In addition to this, technique like secondary analysis is also used.

1.11 Sample Selection (Population):-

Out of 36 universities (Appendix 2) in western Indian Zone from three states viz. Maharashtra, Gujrat and Goa, and 21 non agricultural universities (Appendix 3) covered under the survey where researcher physically visited and reviewed the research work carried out in department of LIS. (MS=11, GUJ=09, Goa=01). Thus while conducting the present study only those universities are considered where research activity in LIS is practiced. Out of 36 universities from western India only 21 universities participate in LIS education. But according to a survey it is noticed that only 14 universities (as detailed in table 1.2) are conducting research programme in LIS (PhD). The remaining are only conducting education up to post graduate level i.e. MLISc. 152 PhD degrees have been awarded by these 14 universities right from its inception (1980) till 2010. Out of 152 theses (MS from 11 universities, 136 degrees were awarded and in Gujrat from 09 universities only 16 degrees were awarded), only 124 theses could be physically evaluated (28 theses were not made available for physical analysis). Hence the study is restricted to 124 theses from 14
universities. The data collected by visiting each university and physically checking and getting the citations from theses by researchers accounted 16313

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>State</th>
<th>University</th>
<th>Degrees Awarded (2010)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MS</td>
<td>Amravati University, Amravati</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>MS</td>
<td>University of Mumbai, Mumbai</td>
<td>02</td>
</tr>
<tr>
<td>3</td>
<td>MS</td>
<td>Nagpur University, Nagpur</td>
<td>32</td>
</tr>
<tr>
<td>4</td>
<td>MS</td>
<td>University of Pune, Pune</td>
<td>57</td>
</tr>
<tr>
<td>5</td>
<td>MS</td>
<td>Shivaji University, Kolhapur</td>
<td>05</td>
</tr>
<tr>
<td>6</td>
<td>MS</td>
<td>SNDT Women’s University, Mumbai</td>
<td>08</td>
</tr>
<tr>
<td>7</td>
<td>MS</td>
<td>Yashwantrao Chavan Maharashtra Open University, Nashik</td>
<td>02</td>
</tr>
<tr>
<td>8</td>
<td>MS</td>
<td>Swami Ramanand Teerth Marathwada University, Nanded</td>
<td>04</td>
</tr>
<tr>
<td>9</td>
<td>MS</td>
<td>Dr. Babasaheb Ambetkar Marathwada University, Aurangabad</td>
<td>15</td>
</tr>
<tr>
<td>10</td>
<td>Guj</td>
<td>Bhavnagar University, Bhavnagar</td>
<td>01</td>
</tr>
<tr>
<td>11</td>
<td>Guj</td>
<td>Gujrat Vidyapeeth, Ahmedabad</td>
<td>02</td>
</tr>
<tr>
<td>12</td>
<td>Guj</td>
<td>M S University, Vadodara</td>
<td>01</td>
</tr>
<tr>
<td>13</td>
<td>Guj</td>
<td>North Gujarat University, Patan</td>
<td>09</td>
</tr>
<tr>
<td>14</td>
<td>Guj</td>
<td>Sardar Patel University, Vallabh Vidyanagar</td>
<td>03</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Degrees Awarded</td>
<td>152</td>
</tr>
</tbody>
</table>

Table 1.2 PhD degrees awarded in Western Indian Universities (Up to 2010)

1.12 Scope and Limitations:-

The present work covers review of doctoral dissertation awarded in the university department of LIS (non agriculture university only) covered in the jurisdiction of western India i.e. Maharashtra, Gujrat and Goa. The scope of the study is restricted to 36 non agriculture universities in western India. There are around 36 universities associated with UGC plan and since inception of LIS courses in universities around 152 theses have been granted till 2010.
Out of 152 theses, 124 theses have been consulted and analyzed by the researcher. The universities, where research element is not available are excluded from the review. M Phil research is excluded from the study and only PhD research programs are considered.

The concepts of terms used in the dissertation connote the meaning as:

1.12.1 References: A list of items appended to a published work with bibliographic details.

1.12.2 Citation: A bibliographic description of a reference item, which gives information about the cited author, cited journal, cited year, etc.

1.12.3 Citation analysis: Citation analysis is nothing but analysis of citations or bibliographical references that have been used by the researcher or scholar while conducting research study or writing scholarly communication, these are appended either as a foot note or at the end of chapter or at the end of study in the form of bibliography. These citations are very useful to conduct research and find out trends in subject, authorship pattern, and use of documents.


1.12.5 Bibliometrics: Bibliometrics is defined as the application of mathematics and statistical methods to books and other media of communication.

1.12.6 Cited Literature: Cited literature is defined as literature that was cited by the citing document.

Since the study is mainly concerned with citation analysis of literature used by researchers in their research study in LIS. The main focus given in the present study is for citation analysis; a popularly used method of bibliometrics.

1.13 Features of Past Studies:

Previously many studies are conducted using citation analysis in different subject fields, but the present study has some different angles focused in selection of area and coverage etc.
1. It is found that there is no attempt made so far by the scholars in analyzing Library and Information Science research area, though studies are reported in agricultural sciences, pure sciences and social sciences etc.

2. The research conducted in Karnataka University, Dharwad, Karnataka entitled, “Citation Analysis of Doctoral dissertation in library and information science accepted by the universities in Karnataka. (Kannappanavar B U, Ijari S R, May 1991) is the study noticed in this area but its scope is restricted to single university (Dharwad) whereas the present research study covers 20 universities from western India.

3. Sambhalpur University has awarded degree to Mishra R entitled “Citation Analysis of PhD dissertation in Library and Information Science accepted by the Universities of Orissa and Manipur till 1993: A Comparative study”. This research study covers only two universities.

1.14 Features of Present Research Study:

The present study covers following,
- 36 non-agricultural universities from three states from western India.
- Library and information science area is basically covered in the study.
- The citations selected are large in number (16313 citations).
- Data analyzed through various angles in LIS.
- Gap in research is identified as well as list of emerging areas is also recorded.

Thus the present study has covered different aspects related to its scope, coverage as compared to previous studies.

1.15 Structure of Research Study:

Chapter 1: Introduction: This chapter covers the importance of bibliometric and citation analysis studies and its value for research analysis. Chapter highlights the progress of research in India. The methodology covers in detail aim, objectives, and scope and research methods used for conducting study.

Chapter 2: Literature Review: This chapter mainly covers the literature searched and evaluated for the study which is collected from various resources. This also covered the list of the theses and data collected from different universities. This literature review helped in building foundation and elaborating the concepts in the study.

Chapter 3: Bibliometrics, Citations and Citation Analysis: This chapter describes the importance of citations and citation analysis in LIS and its application for assessing the trends and analyzing the impact of citations in defining policies and trends in LIS.
Chapter 4: Progress of Education and Research in LIS: This chapter highlights the developments in the LIS education and research. Similarly it focuses on the different areas of LIS in which research is conducted on large scale at national level.

Chapter 5: Research Trends in LIS: Western Indian Universities: - This chapter highlights the research activity in the area of LIS covering national and western India developments (three states) in detail. It covers research completed, and ongoing research activity, research trends, prominent research etc.

Chapter 6: Data Analysis and presentation: - This chapter covers the analysis of data collected from 20 universities and its interpretation. Based on this tabulated data, observations were derived related to status of university research, research completed, ongoing, and research guides available etc. The data analysis highlights mainly type of documents used (Books, journals, thesis, conferences other) by researchers, area of studies selected for research, format of documents used, use of web sites, chronological distribution of citations, use patterns, author patterns, subject patterns, language, geographical, and territory patterns (country) etc.

Chapter 7: Findings, suggestions and conclusions: - This chapter is based on chapter 5 and 6 and the data analysis and its interpretation helped in deriving findings and drafting suitable suggestions to improve the research activity and productivity and conclude the study at the end with scope for further research.

Bibliography: - It represent complete list of references used for conducting this study.

Appendices: - There are five appendices for this study.

Summary: -

Education and research both have prominent importance in LIS sector. Recently since the technological use is increased in this area research has also more proliferated areas than before. LIS education is restructured at regular intervals and updated the syllabus to meet the demands in the profession similarly research is growing and now there is a necessity to evaluate the research conducted and analyse the emerging trends and gap in research areas in LIS. To analyse the research trends citation studies are more beneficial than any other method. This chapter highlight the importance of citations and citation analysis and its
applications, trends in LIS research and education in brief. (Detailed study is covered in chapter 3 and 4). Citation analysis developed by Garfield is used as a tool for better activities in libraries viz. in acquisition and periodical collection management as well as maintenance of collection in libraries. In acquisition it is used to fix collection development policies, resource sharing and priority to subscribe journals based on ranking and impact factor as well initiation in consortium programs. It is also useful for the researchers and in analysing the research trends. Reason for selection topic, aim, objectives, method used etc. is also detailed in this chapter. The following chapter covers literature review in detail and this has supported to the present study in fixing ideas and concepts.

References:

- Association of Indian Universities (2010), AIU handbook. New Delhi, AIU.
