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Bradford's Zone to LIS Publications Published in Library Management Journal from 2010-2012: A Citation Study

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Abstract

Purpose – The aim of this paper is to investigate the research output performance of LIS Professionals and to study the citation analysis of all the journal articles published in the Library Management Journal during 2010-2012 is carried out.

Design/methodology/approach – The data for this study were drawn from a selective sample from Library Management e-journal available through the Kuvempu University web site subscribed through UGC-INFONET. A total of 139 articles published during 2010 to 2012 with 3053 citations. The analysis cover mainly the number of articles, authorship pattern, subject wise distribution of articles, average number of references per articles, forms of documents cited, Rank list of Journals, Bradfords Law.

Findings –The study reveals that journals (50.37% of citations) are the most preferred sources of information used by the researchers in the field of LIS. It is followed by web resources with 19.26%, these two together constitute 69.63% of total citations and remaining 30.37% of citations from books, proceedings, theses, reports and gazetteer. Library Review (UK) has ranked the first with 31 (1.91%) citations. Further, Bradford's Law of Scattering was applied. It is observed that major citations are from journal

literature. In addition, more cited materials were contributed by Multi authors and Degree of collaboration is 0.40.

Research limitations/implications – This paper focuses on the publication traits of Library management journal during the period 2010 to 2012. The paper present a sense of the importance of LIS research, and as such inform that community, as well as researchers involved in citation analysis.

Originality/value – This paper provides valuable insights into the nature of academic publishing published in Library management. The outcome of the study is an original research work with citation analysis of LIS Publications. . It can help the researchers, professionals, teachers and students to understand the publication trend, valuable contributions, highly cited journals, country productivity, and other parameters.

Keywords: Citation analysis, LIS publications, Library Management Journal, Authorship pattern, Journals Ranking and Bradford's Law.

Paper type: Research Paper

1. Introduction

Journals play an important role in the scientific communication process. They appear periodically, they are topically focused, and they have established standards of quality. During 20th century there were very few journals have been published in library and information science discipline but in the beginning of 21st century due to huge online revolution there is an enormous growth rate in publication of LIS scholarly information both in print and online. In LIS there are some journals which are frequently referred by the researchers because of the scholarly content which has close relation with the areas of research work. These highly cited journals are listed as core journals of the specific subject. The core journals are considered as 'central set of journals, which most clearly reflects the conceptual essence of the research being reported in the discipline'. The core journals always contain a higher concentration of relevant articles in a particular discipline. The concept of core journals is derived from Bradford's Law of Scattering, which was formulated by Samuel Clement Bradford in 1934. Among the several statistical expressions, Bradford's Law of Scattering is perhaps the most popular and the best known of all the bibliometric concepts that try to describe the effective working of science by mathematical means. Bradford law of scattering bases on literature observations. He formulated the bibliometric model to measure the quantifiable and

empirical analyses. In recent years LIS professionals have adopted quantitative methods in order to evaluate library resources and services more objectively and effectively. Bibliometrics is one of the quantitative techniques of citation analysis to measure the records of human communication through the process of collection, counts analysis and interpretation of citations given in various types of literature and there by helping in identification of significant sources of information. Present study was taken up to quantify and map the literature published in Library management journal and to know the growth of literature, authors collaboration, most productive countries and to apply Bradford's law of scattering to know the journals distribution in three zones.¹⁻⁷

2. Objectives

The following objectives of the study are:

- To determine the year wise distribution of articles and average number of citations
- To know the authorship pattern and degree of collaboration
- To study the bibliographical form wise and chronological distribution of citations
- To study the distribution of documents, according to their country of origin.
- To prepare a rank list of journals in order of their frequency of citation.
- To apply Bradford's law to the journal citations.

3. Methodology

The data for this study were drawn from a selective sample from journal of "Library Management" which is published by Emerald group. The necessary data is retrieved through online via Infonet consortia of Kuvempu University. A total of three volumes were selected from the archives of Library Management journal which cover a period of 2010 to 2012. In total 139 articles were selected and the references listed for each article were examined and duplicate references in each individual list were removed. Total of 3053 citations were analysed and authorship pattern, degree of collaboration, form wise distribution, geographical distribution were recorded. The data collected for

the study has been analysed and prepared the rank list of most cited journals and finally applied the Bradford's law and data has presented in the form of tables and graphs.

4. Data analysis and Interpretation

Analysis of data is the penultimate step in research process. It is the link between raw data and significant results leading to conclusions. This process of analysis has to be result oriented. In other words, it must aim at sitting objectives. Present citation study covered only "Library Management Journal" which is published by Emerald Group Publications. A total of 3053 citations are collected from the 139 articles which are published in three volumes covered the period of 2010-2012. The data has been analyzed and presented in the form of tables and graphs to facilitate the interpretation in the following sections.

4.1 Year wise distribution of Article

Table 1 clearly shows that 139 articles are published in four volumes of Journal of management from 2010 to 2012. Highest number of articles 48 (34.53%) are published in the year 2010 followed by 46 (33.09%) contributions in the year 2011 and 45 (32.38%) articles are published in the year 2012.

Table-1. Year wise distribution of articles.

Year	Volume	Issue	No of Article	Percentage
2010	31	6	48	34.53
2011	32	5	46	33.09
2012	33	5	45	32.38
Total	3	16	139	100.00

4.2 Distribution of Articles – Issue wise

Table-2 highlights the distribution of articles by issue wise. Periodicity of Library management journal is bi-monthly. V.31 contains six issues further highest number of articles (11 articles) published in sixth issue whereas 9 article in first and third issue and 8 articles in fifth issue. In case of V.32, 11 articles published in fifth issue followed by 10 articles in third issue and each 9 article in first and fourth issues. Similarly in V. 33, total 11 articles are published in first issue and 10 articles in fifth issue. From the data it is clear that there is a fluctuation in publishing of article in Library management journal.

Table-2. Distribution of Articles – Issue wise

Issue	Volume Number1			Total
	31	32	33	
1	9	9	11	29
2	6	7	7	20
3	9	10	9	28
4	5	9	8	22
5	8	11	10	29
6	11	0	0	11
Total	48	46	45	139

4.3 Year/Volume wise contribution of citations

Data from the table-3 highlights that year wise and volume wise contribution of citations from the four volumes. Data shows that 1199 (24.98%) citations have been cited in volume 31 published in the year 2010 whereas, 989 (21.5%) citations have been cited in V.32 of year 2011 followed by 865 (19.22%) citations in V. 33 of year 2012.

Table-3 Year/Volume wise contribution of citations

Year	Volume No.	Article	Total citations	Cumulative total no of Article	Cumulative total no of Citation	Average Citations /Article
2010	31	48	1199	48	1199	24.98
2011	32	46	989	94	2188	21.5
2012	33	45	865	139	3053	19.22
Total		139	3053			21.96

4.4 Average citations per contribution per volume

Summarized data from the table-4 shows the average number of citations cited in each volume. In total 139 articles are published in four volumes consists of 3053 citations. Data reveals that volume 31 of year 2010 had highest average number (39.27) of citations followed by the average of 39.27 citations from volume 32 of the year 2011.

Table-4 Average citations per contribution per volume

Year	Vol. No.	No. of Citations	Percentage
2010	31	1199	39.27
2011	32	989	32.39
2012	33	865	28.34
Total		3053	100.00

4.5 Authorship Pattern

Table-5 highlights the data about authorship pattern of the articles which is plotted across year wise and within issue wise. Data shows that maximum articles (1616) were contributed by single author with 52.94 percentage followed by two authors (720) with 23.58 percentage and three authors (251) contribution is just 8.22 percentage. It is interesting to note that 345 (11.30%) articles are contributed from corporate authors in different issues, whereas meager percent of citations (3.96%) are from more than three authors. After analyzing the data about authorship trend in different years highest number of citations (1199) received in the year 2010 whereas 2012, third issue had highest number (274) of citation compare to other issues.

Author	2010						2011					2012					Total	(%)
	Issues						Issues					Issues						
	1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5		
Single	119	75	156	81	99	137	83	89	138	71	132	71	51	144	50	120	1616	52.94
-Two	40	34	71	48	15	59	36	51	55	31	56	53	35	63	30	43	720	23.58
Three	9	18	20	13	4	22	11	18	24	8	17	8	6	38	11	24	251	8.22
More than three	4	5	3	6	1	12	7	8	9	5	7	13	8	11	6	16	121	3.96
Corporate	43	9	14	7	34	41	16	19	31	21	46	15	3	18	8	20	345	11.30
Total	215	141	264	155	153	271	153	185	257	136	258	160	103	274	105	223	3053	100.00
Total	1199						989					865						

4.6 Single V/s Multiple Author

In the present information technology era World Wide Web, e-resources, web technology, open source movement, Web/Lib2.0 components has made much more impact on library and information science domain and it leads to conduct collaborative research in LIS. One of the main objectives of the study is to know the authorship pattern in Library management journal. Table-6 shows that more number of citations is from single author (1616) and 1092 citations are from multiple authors. Further the single author citations (667) are more in volume 31 of year 2010 followed by 513 single author citation in volume 32 of year 2011 followed by 436 citations in V.33 of year 2012. In case of multiple author citation 384 citations received in year 2010 followed by 365 citations in the year 2012 and 343 citations in the year 2011.

Table-6. Year wise distribution of Single V/s Multiple Author

Author	Year			Total	Parentage
	2010	2011	2012		
Single	667	513	436	1616	52.94
Multiple	384	343	365	1092	47.06
Total	1051	856	801	2708	100.00

4.7 Degree of author's collaboration

Table-7 shows the degree of collaboration of authors cited in articles published in Library management journal. To determine the extent of collaboration in quantitative terms, the formula given by K. Subramanyam⁸ was used. The formula is as follows:

$$C = \frac{N_m}{N_m + N_s}$$

Where,

C = Degree of collaboration in a discipline.

N_m = Number of multiple author papers.

N_s = Number of single authored papers

In the present case, the value of C is

TOTAL

$$C = \frac{1092}{1092 + 1616} = \frac{1092}{2708} = 0.40$$

Thus the degree of collaboration in Library management journal from 2010 to 2012 is 0.40. Further the degree of collaboration is high in the year 2012 (0.45) and 2011 (0.44). This brings out clearly the moderate prevalence has been given for collaborative research in the LIS field, even though many researchers like team research but solo research has been found to be of dominant pattern in LIS subject fields. The distribution of the degree of collaboration over the years from 2010 to 2012 is represented in table-7.

Table-7. Degree of author's collaboration

Year	Ns	Nm	Total	C
2010	667	353	1020	0.34
2011	513	343	856	0.40
2012	436	365	801	0.45
Total	1616	1092	2708	0.40

4.8 Category wise classification of articles

Table-8 indicates the category wise distribution of articles published in Library management Journal during the period from 2010 to 2012. The study reveals that quite a good percent of articles (43.16%) fall under the category of research paper, whereas 36.00% of articles are case studies followed by general review and view point article (each 7.19%) followed by literature review articles (3.59%).

Table-8 Distribution of articles by types of research paper

Category	2010	2011	2012	No of Article	Percentage
Research Paper	19	21	20	60	43.16
Case study	13	17	20	50	36.00
General review	6	2	2	10	7.19
View Point	5	4	1	10	7.19
Literature review	4	1	0	5	3.59
Conceptual Paper	1	1	2	4	2.87
Total	48	46	45	139	100.00

4.9 Chronological distribution of Citations

Table-9. Volume and Issues wise distribution of citation age

Year	2010						2011					2012					Total	Percentage (%)
	Issues						Issues					Issues						
	1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5		
Bellow 1980	7	4	8	5	11	2	10	3	4	22	0	4	2	5	1	3	81	2.65
1981-90	9	2	26	3	8	9	5	4	10	13	7	12	2	5	1	3	119	3.90
1991-00	57	26	64	27	34	35	11	25	25	14	41	33	15	69	4	25	505	16.54
2001-10	142	108	162	119	93	225	127	153	215	89	197	103	79	190	84	139	2232	73.12
2011-12	0	0	0	0	0	0	0	0	0	0	0	7	4	5	13	56	85	2.78
Unidentified	7	1	4	1	0	0	0	0	3	2	9	2	1	0	1	0	31	1.01
Total	215	141	271	155	146	271	153	185	257	140	254	161	103	274	104	223	3053	100.00

Table-9 highlights the chronological distribution of citations cited in Library management journal. To know the distribution of citations in different years for our convenience divide the years in decade begin from 1900's. After analyzing the data it is very clear that very least number of citations have been cited cover a period of 1900 to 1980. The trend of citation of article is slowly increased during 1980's onwards. Around 2232(73.12%) of cited citations cover the period of 2001 to 2010 followed by 505(16.54%) of citations are from 1991 to 2000. It is also evident from the study that more number (1199) of citations has been cited in V.31 of year 2010.

4.10 Chronological distribution of Overall citations

Table-10 reveals that number of citations scattered during a period covered from 1980 to 2012. This kind of study helps to know the growth and development of a subject in terms research activities over a period. Below table provides the data regarding how frequently LIS researchers make use of references in preparation of their articles.

Table-10. Chronological distribution of overall citations

Year	2010	2011	2012	Total	Percentage
	31	32	33		
Bellow 1980	30	39	12	81	2.65
1981-90	57	39	23	119	3.90
1991-00	243	116	146	505	16.54
2001-10	849	781	595	2232	73.12
2011-12	0	0	85	85	2.78
Unidentified	13	14	4	31	1.01
Total	1199	989	865	3053	100.00

For the convenience of the study the overall citations have been divided into six groups each comprising a time span of 10 years up to 2010 and followed by span of two years i.e. 2011 and 2012. Data shows that 73.12% of citations are cited from period covered 2001-2010 whereas very few citations cited below 1980 (2.65%). After analyzing the table it is evident that most of the researcher prefers to cite recent research article which contains nascent information which is most essential for the research and developmental activities.

4.11 Bibliographic Form wise distribution of citations

One of the main objectives of the study is to know the distribution of citations according to bibliographic forms. Most of the researcher while publishing their research article largely depends upon different research articles which are published in different bibliographic forms. After analyzing the total 3053 citations cited in Library management journal are distributed throughout different bibliographic forms. Table-11 depicts the form wise distribution of citations. Data shows that 50.37% of citations are journal articles and 19.26% of citations are web resources. Similarly 18.49% of citations are from books/monographs very meager percent of citations are from conference proceedings (6.04%), report (1.90%), news

paper (0.95%), thesis and dissertations (1.59%). It is also found that 1.10% of citations are unidentified.

Table-11. Form wise distribution of citations

Forms	2010	2011	2012	Total	Percentage
Journal	590	517	530	1637	50.37
Web resources	263	225	138	626	19.26
Books/Monographs	258	194	149	601	18.49
Conference Proceedings	94	55	47	196	6.04
Report	26	14	22	62	1.90
Theses/Dissertation	17	15	19	51	1.59
News Paper	1	25	5	31	0.95
Others	3	1	4	8	0.24
Unpublished Paper	1	0	1	2	0.06
Unidentified	3	26	7	36	1.10
Total	1199	989	865	3053	100.00

4.12 Subject wise distribution of citations

Due to the multidisciplinary research most of the subjects are going to be fragmented, in such a situation LIS subject is not exceptional. By the impact of ICT present day library and information centres took new dimension. It is very difficult to find out particular required information due to the existence of multidisciplinary subjects. Thus to overcome this problem, subject wise distribution is helpful to find out right information at the right time.

Table-12 shows that subject wise distribution of citations. For the convenience of the study while conducting the literature search we identified few major topics comes under LIS subject field. Data shows that 29.51% of contributions belongs to broader component of LIS is “LIS profession and types of libraries” whereas 19.42% of contributions belongs to ‘Library and information science and Information literacy. Similarly 14.4% of contributions are from ‘Collection development’ followed by articles on Internet consortia and Web technology (10.80%). Very meager percent of contributions from other subject topics viz. Human resource management (8.63%), Digital library (7.20%) and library services (6.47%).

Table-12 Subject wise distribution of Articles

Sl. No.	Subjects	Total no of Articles	Cumulative Articles	Percentage	Cumulative Percentage
1	Library profession and Academic, Public, Special, Mobile library	41	68	29.51	48.93
2	Library and information science and Information Literacy	27	27	19.42	19.42
3	Collection Development and Collection Management	20	120	14.4	86.33
4	Internet Consortia and Web technology	15	87	10.80	62.60
5	HRM	12	100	8.63	71.93
6	Digital Library and Computer Application	10	130	7.20	93.53
7	Library Services	9	139	6.47	100.00
Total		139		100.00	

4.13 Length of articles

In the present study an attempt has been made to know the length of article which is published in Library management journal. Table-13 shows that among total 139 articles 71(51.06%) articles are in the length of 11-15 pages whereas, 46 (33.09%) articles are in 6-10 page length. It is also found that 18 (12.95%) articles are having the length of 16-20 pages and 02 articles are in the length of more than 21 pages. After comparing the four year data it is clear that Library management journal publish lengthy article which consists of case studies.

Table-13 Length of articles

Pages	Year			Total	Percentage
	2010	2011	2012		
1-5	0	0	1	1	0.71
6-10	12	10	24	46	33.09
11-15	28	28	15	71	51.06
16-20	6	8	4	18	12.95
21-25	1	0	1	2	1.45
Above 25	1	0	0	1	0.71
Total	48	46	45	139	100.00

4.14 Rank list of journals

The librarian has to perform the major role in collection development policy and selection of library materials. Of course among all the material periodicals play

predominant role in academic and special libraries because of its value of information. Periodical is one of the important media for communicating the recent scientific information among scientist, doctors, engineers, researcher etc. For selection of periodicals for libraries, librarian has to consult different selection tool, among them one of the important tool is bibliometric studies. In the present study an attempt has been made to provide the rank list of journals cited in journal of library management in the descending order of citation frequency and it is a common tool for the selection of periodical publications. Table-16 shows the rank list of journals cited in journal of library management.

Table-14 List of journal

Sl. NO	Rank	Name of the Journal	No. of citations	Cumulative citations	%	Cumulative %	Country
1	1	Library Review	31	31	1.91	1.91	UK
2	2	Library Resources and Technical Services	22	53	1.41	3.32	USA
3	3	Journal of Library Administration	20	73	1.35	4.67	USA
4	4	Bibliotecheoggi	18	91	1.09	5.76	New Zealand
5.	4	Library Administration and Management,	18	109	1.09	6.85	USA
6.	4	LIBRI	18	127	0.48	7.33	Denmark
7.	4	Online Information Review,	18	145	1.09	8.42	UK
8.	4	Technical services quarterly	18	163	1.09	9.51	UK
9.	4	Research evaluation	18	181	1.09	10.60	UK
10.	5	JASIST	16	197	0.97	11.57	USA
11.	6	D-LIB magazine	15	212	0.91	12.48	USA
12.	6	Portal; Libraries and the Academy	15	227	0.91	13.39	USA
13.	6	Library history	15	242	0.91	14.30	
14.	6	Information Outlook	15	257	0.91	15.21	India
15.	6	Journal of Public Relations Research	15	272	0.91	16.12	India
16.	7	The guardian	14	286	0.85	16.97	UK
17.	8	Information Today	13	299	0.79	17.76	USA
18.	8	Library Trends	13	312	0.79	18.55	USA
19.	8	International journal of information management	13	325	0.79	19.34	UK
20.	9	Collage and research libraries	12	337	0.74	20.08	USA
21.	9	Information Technology and Libraries	12	349	0.74	20.82	USA
22.	9	Library and Information research news	12	361	0.74	21.56	UK
23.	9	School Library Media Quarterly	12	373	0.74	22.30	USA
24.	9	Journal of intellectual capital	12	385	0.74	23.04	USA
25.	9	Journal of Academic Librarianship	12	397	0.74	23.78	UK
26.	9	International information and library review	12	409	0.74	24.52	UK

27.	9	Sa-e duc journal	12	421	0.74	25.26	USA
28.	10	American Libraries	11	432	0.68	25.94	USA
29.	10	Journal of library and information science	11	443	0.68	26.62	India
30.	10	Health Information and Libraries Journal	11	454	0.68	27.30	USA
31.	11	Library & Information Science Research	10	464	0.62	27.92	USA
32.	11	Advanced in library administration and organization	10	474	0.62	28.54	USA
33.	11	Business review	10	484	0.62	29.16	USA
34.	12	Collage & Research Libraries News,	9	493	0.55	29.71	USA
35.	12	Mississippi Libraries	9	502	0.55	30.26	USA
36.	12	Serials review	9	511	0.55	30.81	USA
37.	12	Journal of ho cork historical and archeological society	9	520	0.55	31.36	USA
38.	13	Electronic journal of academic and special Librarianship	8	528	0.47	31.83	Canada
39.	13	Information Development	8	536	0.47	32.30	USA
40.	13	Wall Street Journal	8	544	0.47	32.77	USA
41.	13	Harvard Business Review	8	552	0.47	33.24	U S A
42.	13	Financial Accountability and Management	8	560	0.47	33.71	UK
43.	13	Journal of Advertising Research	8	568	0.47	34.18	UK
44.	13	Journal of EAHIL	8	576	0.47	34.65	Europe
45.	13	Qualitative Market Research	8	584	0.47	35.12	USA
46.	13	Resource sharing and Information Networks,	8	592	0.47	35.59	India
47.	13	The system thinkers	8	600	0.47	36.06	USA
48.	14	Information Research	7	607	0.42	36.48	England
49.	14	Library Journal	7	614	0.42	36.90	USA
50.	14	International Journal of Teaching and learning higher education	7	621	0.42	37.32	USA
51.	14	Library and the academy	7	628	0.42	37.74	USA
52.	15	APLIS	6	634	0.37	38.11	Australia
53.	15	Library personal news	6	640	0.37	38.48	
54.	15	Public Services Quarterly	6	646	0.37	38.85	UK
55.	15	Library and Information Science	6	652	0.37	39.22	Taiwan, China
56.	15	Pakistan journal of LIS	6	658	0.37	39.59	Pakistan
57.	15	Qingdao exude	6	664	0.37	39.96	Indonesia
58.	15	Academic leadership lire the online journal	6	670	0.37	40.33	USA
59.	15	Academic medicine	6	676	0.37	40.70	USA
60.	15	Journal of business ethics	6	682	0.37	41.07	USA
61.	15	Library technology report	6	688	0.37	41.44	USA
62.	15	Learned Publishing	6	694	0.37	41.81	UK
63.	15	Organization studies	6	700	0.37	42.18	USA

64.	15	Performance Library and Metrics	6	706	0.37	42.55	USA
65.	15	Research on library science	6	712	0.37	42.92	
66.	15	Texas Library Journal	6	718	0.37	43.29	USA
67.	15	The information technologist	6	724	0.37	43.66	USA
68.	15	The news and observer	6	730	0.37	44.03	North Karolina
69.	16	Association of research libraries	5	735	0.31	44.34	USA
70.	16	Collection management	5	740	0.31	44.65	USA
71.	16	Inter lending and document supply	5	745	0.31	44.96	UK
72.	16	Journal of the society for Information science	5	750	0.31	45.27	USA
73.	16	Journal of librarianship and information	5	755	0.31	45.58	USA
74.	16	Science and technology libraries	5	760	0.31	45.89	USA
75.	16	European Journal of Operational Research	5	765	0.31	46.20	Europe
76.	16	Journal of knowledge management	5	770	0.31	46.51	Romania
77.	16	Visual sociology	5	775	0.31	46.82	united kingdom
78.	16	While paper Elsevier library conned	5	780	0.31	47.13	Canada
79.	16	Zatschrift for abreast and organization psychology	5	785	0.31	47.44	South Africa
80.	16	Bijiao Jiaozuo xenia	5	790	0.31	47.75	China
81.	16	Industrial and commercial training	5	795	0.31	48.06	USA
82.	16	Journal of marketing for higher education	5	800	0.31	48.37	USA
83.	16	Journal of nursing scholarship	5	805	0.31	48.68	USA
84.	16	Management decision	5	810	0.31	48.99	USA
85.	16	Online	5	815	0.31	49.30	
86.	16	Organization	5	820	0.31	49.61	UK
87.	16	Pulls news	5	825	0.31	49.92	
88.	16	Scandinavian Public Library Quarterly,	5	830	0.31	50.23	Sweden
89.	16	Science progress	5	835	0.31	50.54	US
90.	16	Social Science Research Network,	5	840	0.31	50.85	Europe
91.	16	Strategy entrepreneurship	5	845	0.31	51.16	Germany
92.	16	The academy of mgt review	5	850	0.31	51.47	USA
93.	16	The Atlas of New Librarianship	5	855	0.31	51.78	USA
94.	16	The IUP Journal of Accounting Research and Audit Practiced	5	860	0.31	52.09	UK
95.	16	The research strategies	5	865	0.31	52.40	Canada
96.	16	The star: ledger	5	870	0.31	52.71	USA
97.	17	African journal of Library	4	874	0.25	52.96	Africa
98.	17	American documentation	4	878	0.25	53.21	USA
99.	17	Aslib proceedings	4	882	0.25	53.46	UK
100.	17	Australian library journal	4	886	0.25	53.71	Australia
101.	17	Journal of Medical Library Association	4	890	0.25	53.96	USA
102.	17	Collection Building	4	894	0.25	54.21	USA
103.	17	Asia pacific disability rhea dilatation	4	898	0.25	54.46	India

		journal					
104.	17	EDUCAUSE Review Online	4	902	0.25	54.71	USA
105.	17	First Monday	4	906	0.25	54.96	USA
106.	17	Journal of library science in China	4	910	0.25	55.21	China
107.	17	Proceedings of the American Society for Information science and technology	4	914	0.25	55.46	USA
108.	17	Serials	4	918	0.25	55.71	USA
109.	17	South African journal of LIS	4	922	0.25	55.96	Africa
110.	17	The International Information & Library Review	4	926	0.25	56.21	USA
111.	17	British journal of educational technology	4	930	0.25	56.46	UK
112.	17	Collaborative Librarianship	4	934	0.25	56.71	USA
113.	17	Librarian career development	4	938	0.25	56.96	USA
114.	17	LIRS	4	942	0.25	57.21	Australia
115.	17	Wharton scholarly research scalars journal	4	946	0.25	57.46	USA
116.	17	ACIMED	4	950	0.25	57.71	Spain
117.	17	Advertising age	4	954	0.25	57.96	USA
118.	17	Electronic Library	4	958	0.25	58.21	USA
119.	17	OCLC news letter	4	962	0.25	58.46	USA
120.	17	Information management	4	966	0.25	58.71	UK
121.	17	Information Science Research	4	970	0.25	58.96	UK
122.	17	Invocative higher education	4	974	0.25	59.21	USA
123.	17	Journal of Information Science	4	978	0.25	59.46	USA
124.	17	Journal of postgraduate medicine	4	982	0.25	59.71	
125.	17	Journal of services marketing	4	986	0.25	59.96	USA
126.	17	Journal of southwest university for nationalities	4	990	0.25	60.21	Australia
127.	17	Leadership quarterly	4	994	0.25	60.46	UK
128.	17	LIBRES	4	998	0.25	60.71	Australia
129.	17	Management library finance	4	1002	0.25	60.96	
130.	17	MIT Sloan Management Review	4	1006	0.25	61.21	USA
131.	17	Nursing and health care	4	1010	0.25	61.46	USA
132.	17	Organizational Learning – Perspectives and Practices,	4	1014	0.25	61.71	Europe
133.	17	Problemas e Práticas	4	1018	0.25	61.96	Spain
134.	17	Social science computer review	4	1022	0.25	62.21	Europe
135.	17	Sue trump trills	4	1026	0.25	62.46	
136.	17	Systematic practice and action research	4	1030	0.25	62.71	USA
137.	17	Teaching of Psychology	4	1034	0.25	62.96	UK
138.	17	The Journal of College Literacy and Learning	4	1038	0.25	63.21	USA
139.	17	THE new review of academic librarianship	4	1042	0.25	63.46	USA
140.	17	The Serials Librarian	4	1046	0.25	63.71	USA

141.	18	International journal of manpower	4	1050	0.25	63.96	USA
142.	19	Journal of medical library	4	1054	0.25	64.21	USA
143.	20	70 Journals with 3 Citations	210	1264	12.90	77.11	
144.	21	100 Journals with 2 Citations	200	1464	12.27	89.38	
145.	22	173 Journals with 1 Citations	173	1637	10.62	100.00	
Total			1637		100.00		

Table-14 provides an overall rank list of journals. This should be done by counting the total number of citations from the source document and on the basis of grand total a ranking list has been made according to descending order of arrangement. The above table shows that, the journal with the highest number of citations occupies the highest rank and thus obviously the most important journal referred by authors in LIS, while the least important titles are placed at the bottom of the table. After analyzing the data it is found that around 491 journals have been cited in four volumes of journal of library management and the complete list is provided in the form of table.

It is found that Library Review published from UK occupies the first rank as the most preferred journal and has been cited 31 (1.91%) times. Similarly other top nine journals in the rank are viz. Library Resources and Technical Services from USA (22 Citations) and Journal of Library Administration (USA) (20 Citations). Further each of 18 citations have been cited by Bibliotecheoggi (Newzealand), Library Administration and Management (USA), LIBRI (Denmark), Online Information Review (UK), Technical services quarterly (UK) and Research evaluation (UK) etc. Interesting to note that the entire top cited 10 journals are published from USA and UK only and remaining journals are in an average 3 to 4 times cited in library management.

4.15 Geographical v/s Bibliographic forms wise distribution of citations

Summarized data from the table-15 highlights the country wise distribution of citations. In case of geographical contribution of citations in Library management journal, it is evident from the data that United States of America occupies the top position with accounting of 1039 (31.96%) citations followed by

United Kingdom 595 (17.07%) citations. Similarly only 109 (3.35%) citations are from England and 106 (3.26%) citations are from India, whereas rest of the country contribution is very less. After analyzing the four year data study totally reveals that the most of the LIS researchers depends on literature published from USA and UK only. Further an attempt has been made to know the form wise distribution of citation across the country. Study shows that journal article is the most cited citation from USA (709) followed by books (250).

Table-15 Country wise distribution of citation

Sl. No	Country	Journal	Books	Conference	Thesis	Report	Newspaper	Online	Other	Total	Percentage
1	USA	709	250	49	11	17	3	0	0	1039	31.96
2	UK	353	185	26	12	15	4	0	0	595	17.07
3	England	106	0	3	0	0	0	0	0	109	3.35
4	India	85	11	8	0	1	1	0	0	106	3.26
5	China	82	12	3	0	0	0	0	0	97	2.98
6	Canada	58	5	5	0	0	0	0	0	68	2.09
7	New Zealand	36	4	4	6	0	0	0	0	50	1.39
8	Europe	30	18	6	0	0	0	0	0	54	1.66
9	Australia	16	13	10	5	4	2	0	0	50	1.44
10	Africa	14	2	7	5	2	0	0	0	30	0.93
11	Switzerland	13	3	2	0	0	0	0	0	18	0.55
12	California	12	10	2	2	0	0	0	0	26	0.81
13	Nigeria	12	0	2	0	0	0	0	0	14	0.43
14	Japan	11	4	4	0	0	0	0	0	19	1.48
15	Romania	10	8	0	0	0	0	0	0	18	0.41
16	Netherlands	8	0	2	0	0	0	0	0	10	0.37
17	Pakistan	7	4	4	3	0	0	0	0	18	0.45
18	Singapore	6	0	4	0	0	0	0	0	10	0.3
19	France	5	1	2	0	0	0	0	0	8	0.25
20	Brazil	5	2	1	0	0	0	0	0	8	0.24
21	Italy	3	7	4	0	0	0	0	0	14	0.37
22	Denmark	3	0	3	1	0	0	0	0	7	0.21
23	Spain	3	10	6	1	0	0	0	0	20	0.54
24	Florida	1	1	2	0	0	0	0	0	4	0.12
25	Hong Kong	1	0	0	2	0	0	0	0	3	0.09
26	Germany	1	12	9	2	0	0	0	0	24	0.65
27	Ireland	1	0	3	0	1	0	0	0	5	0.15
28	Finland	1	12	3	0	0	0	0	0	16	0.49

29	Russia	0	18	4	0	0	0	0	0	22	0.61
30	Botswana	0	0	0	0	0	0	0	0	0	0
31	Bulgaria	0	0	2	0	0	0	0	0	2	0.06
32	South Konia	0	0	2	0	0	0	0	0	2	0.06
33	Island	0	0	1	0	0	0	0	0	1	0.03
34	Philippines	0	0	2	0	0	0	0	0	2	0.06
35	Israel	0	0	1	1	0	0	0	0	2	3.07
36	Unidentified Country	45	5	14	0	0	0	0	0	64	1.96
37	Other	0	0	0	0	0	0	426	53	682	20.01
Total		1637	601	196	51	62	31	426	53	3053	100.00

4.16 Production of journals

Table-16 reveals the production of journals. The first groups of citations are covered by the first 28 journals of the rank list with an average productivity of 15.42 citations per journal. The average productivity has gone down considerable to 1.39 articles in the fourth group. This shows that the concentration of more number of citation in a few journals

Table-16 Production of journals

Sl. No	Percentage of Citations	Number of Citations	Number of Journals Covered	Percentage of Journals	Average production of Journals
1	0-25	432	28	5.72	15.42
2	26-50	393	59	12.01	6.66
3	51-75	413	117	23.82	3.52
4	76-100	399	287	58.45	1.39
Total		1637	491	100.00	3.33

4.17 Bradford's Zones

Bradford's empirical law of concentration for articles in the scientific periodicals proved to be a land mark event in the field of bibliometrics.

Bradford's law states that the articles on a given subject concentrate heavily in a relatively small core of highly productive journals.

If scientific journals are arranged in a decreasing productivity of articles on a given subject, they may be divided into a nucleus of periodical more particularly devoted to the subject and several groups of zones containing the same number of articles as the nucleus, when the number of periodicals in the nucleus and succeeding zones will be 1: n : n².

In the present study an attempt is made to find out whether the distribution of citations among periodicals in LIS literature published in Library management Journal is in accordance with Bradford's law of scattering or not, for this purpose a bibliography of cumulated some of citations verses rank was developed on semi-log graph paper. Naturally this tables, shows that when frequency is low the cited journal is high and visa-versa.

Table17 Bradford's Zones

Sl. No	Number of		Cumulative No. of	
	Citations	Journals	Citations	Journals
1	545	40(8.15)	545	40
2	546	115(23.42)	1091	155
3	546	336(68.43)	1637	491

It is observed from the table-17 that there are 40 journals in the nucleus and they are the most productive journals devoted to LIS articles which published in Library management with sharing 8.15% of total cited journals. The next zone is represented by 115 journals which share 23.42% of total journal, and the last zone is represented by 336 journals which share 68.43% of total cited journals. Each zone has approximately one-third of the total citations.

Table-17 and fig. also reveals the same results and hence the journal data fits well with Bradford's Law of distribution. Hence the journals distribution as per the Bradford's Law reveals the ratio 40:115:336.

4.18 Distribution of cited journals by decreasing frequencies of citations

The graphical interpretation of the Bradford's law of scattering has been applied to the articles published in Collection Building Journal. Table -18 represents journals arranged in decreasing frequency of citations. To testify the applicability of Bradford's Law of scattering, a graph is plotted by taking the cumulative number of citations on "y" axis and log of cumulative number of journals on "x" axis.

Table -18 Distribution of cited journals by decreasing frequencies of citations

No. of journals	Cumulative no. of journals	Log of Cumulative Journals	No. of citations	Total citations	Cumulative No. of Citations	% of cumulative citations	% of cumulative journals
1	1	0.00	31	31	31	1.89	0.20
1	2	0.30	22	22	53	3.24	0.41
1	3	0.47	20	20	73	4.46	0.61
6	9	0.95	18	108	181	11.05	1.83
1	10	1.00	16	16	197	12.03	2.04
5	15	1.17	15	75	272	16.61	3.05
1	16	1.20	14	14	286	17.47	3.25
3	19	1.27	13	39	325	19.85	3.87
8	27	1.43	12	96	421	25.71	5.49
3	30	1.47	11	33	454	27.73	6.11
3	33	1.51	10	30	484	29.57	6.72
4	37	1.56	9	36	520	31.76	7.53
10	47	1.67	8	80	600	36.65	9.57
4	51	1.70	7	28	628	38.36	10.38
17	68	1.83	6	102	730	44.59	13.85
28	96	1.98	5	140	870	53.14	19.55
44	140	2.14	4	176	1046	63.89	28.51
69	209	2.32	3	207	1253	76.54	42.57
102	311	2.49	2	204	1457	89.00	63.34
180	491	2.69	1	180	1637	100.00	100.00
491				1637			



5. Findings and Conclusion

The techniques of citation analysis is being used for a variety of purposes like determination of various scientific indicators, evaluation of scientific output, selection of journals for libraries and even forecasting the potential of a particular field. The popularity in the adaptation of citation analysis techniques in various disciplines stimulated stupendous growth of literature on bibliometrics and its related areas. The journal of Library management has published 139 articles during the period of study. In total 3053 citations have been cited and the maximum numbers of contributions are single authors with 52.94 (52.94%). The present study reveals that journal article is the highest cited citation and the highest number of citation cited from Library review journal. In case of geographical contribution study found that USA is the highest

contributor of citations followed by UK. Library management is the highly preferred journal for communication by the library and information science professionals.

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