



Collection Building

Bradford's zone to LIS publications published in collection building journal from 2009-2012: a citation study
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Bradford's zone to LIS publications published in collection building journal from 2009-2012: a citation study

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Abstract

Purpose – The present paper aims at analyzing the research output performance of library and information science (LIS) professionals. Citation analysis of all the journal articles published in the *Collection Building* journal during 2009-2012 is carried out.

Design/methodology/approach – The data for this study were drawn from a selective sample of a free e-journal, i.e. *Collection Building*, available through the Kuvempu University Web site without subscription or registration. A total of 91 articles published during 2009 to 2012 with 1,302 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, Bradford's law.

Findings – The study reveals that journals (53.84 per cent 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 24.27 per cent, these two together constitute 78.11 per cent of total citations and remaining 21.89 per cent of citations from books, proceedings, theses, reports and gazetteer. *Collection Building* (USA) has ranked first with 68 (9.70 per cent) 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 0.44.

Research limitations/implications – The paper presents a sense of the importance of LIS research, and as such, informs the community and researchers involved in the citation analysis.

Originality/value – The outcome of the study is an original research work with citation analysis of LIS publications. The study highlights the information materials available and used by researchers in the field of LIS, and those that need to be added for a healthy collection.

Keywords Citation analysis, Authorship pattern, Collection building journal, Journals ranking and Bradford's law, LIS publications

Paper type Research paper

1. Introduction

Libraries must have a robust and dynamic collection development policy to keep abreast with changing needs of its users, be they undergraduates, teaching staff or researchers. Changing trends in research areas and information seeking behavior of users are factors that libraries need to study to provide collections and services that fulfill the information needs of their clients (Yeap Chun *et al.*). Bibliometrics is a research method used in library and information science (LIS). It is an emerging area of research in the LIS field and is a study of quantitative analysis and statistics to describe pattern analysis of publication within a given field or body of literature. Researchers use bibliometrics methods of evaluation to determine the influence of a single author or to describe the relationship between two or more authors or work. Bibliometric studies can be used to study regional patterns of research, the extent of cooperation between research groups and national research profile. The main

derivatives of bibliometrics are: publication counts, citations, co-citation analysis, co-word analysis, scientific "mapping" and citations in patents (Thanuskodi, 2010, 2011).

2. Objectives

The following objectives of the study are:

- To determine the yearly distribution of articles.
- To find out the average number of citations.
- To know the nature of authorship patterns and degree of collaboration.
- To study the bibliographical form distribution.
- To know the chronological distribution of citations.
- To study the distribution of documents, according to their country of origin.
- To prepare a rank list of journals 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 the journal, *Collection Building*, which is published by the Emerald Group. The necessary data is retrieved through online via the Infonet consortia of Kuvempu University. A

The current issue and full text archive of this journal is available on Emerald Insight at: www.emeraldinsight.com/0160-4953.htm



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total of four volumes were selected from the archives of *Collection Building*, which cover a period of 2009 to 2012. In total, 91 articles were selected and the references listed for each article were examined and duplicate references in each individual list were removed. A total of 1,302 citations were analyzed, and authorship pattern, degree of collaboration, form distribution and geographical distribution were recorded. The data collected for the study have been analyzed, prepared the rank list of most cited journals and finally applied the Bradford's law. The data have been presented in the form of tables and graphs.

4. Data analysis and interpretation

Citation studies attempt to study the characteristics of subject literature. The investigations of such kind of studies are found to be useful to manage the information resources and services in libraries and information centers.

The present citation study covered only *Collection Building*, which is published by Emerald Group Publications. A total of 1,302 citations are collected from the 91 articles which are published in four volumes covering the period of 2009-2012. The data has been analyzed and presented in the form of tables and graphs to facilitate the interpretation in the following sections.

4.1 Yearly distribution of articles

Table I shows the data related to yearly distribution of articles. The table clearly shows that the total number of contributions

Table I Yearly distribution of articles

Year	Volume	Issues	No. of Articles	(%)
2009	28	4	24	26.37
2010	29	4	23	25.27
2011	30	4	22	24.18
2012	31	4	22	24.18
Total			91	100.00

Table II Distribution of articles by issue

Month	Volume No.				Total
	28	29	30	31	
March	6	6	6	5	23
June	6	6	6	6	24
September	6	5	4	6	21
December	6	6	6	5	23
Total	24	23	22	22	91

Table III Year/volume contribution of citations

Year	Volume no.	No. of articles	Cumulative total no. of articles	Total citations	Cumulative total no. of citations	(%)
2009	28	24	24	349	349	26.80
2010	29	23	47	356	705	27.34
2011	30	22	69	290	995	22.28
2012	31	22	91	307	1302	23.58
Total		91		1302		100.00

from the four volumes is 91 articles. Among them, the highest number of articles (24) is published in 2009 and 23 (25.27 per cent) contributions are published in 2010, whereas 22 (24.18 per cent) articles are published in 2011 and 2012, respectively.

4.2 Distribution of articles by issue

Table II highlights the distribution of articles by issue. Frequency of *Collection Building* is quarterly; most of the issues have an equal number of articles, i.e. six articles each in each issue, whereas five articles were published in the September issue of Volume 29, and four articles from the same issue in Volume 30. Similarly, five articles each have been published in March and December issues of Volume 31. From the data, it is clear that the editorial board maintains the consistency in publishing the articles.

4.3 Year/volume contribution of citations

Data from Table III highlights the year and volume contribution of citations from the four volumes. Data shows that 356 (27.34 per cent) citations have been cited in Volume 29 published in 2010, whereas 349 (26.80 per cent) citations have been cited in Volume 28 published in 2009. Similarly, 307 (23.58 per cent) citations cited in Volume 22 of 2012 followed by 290 (22.28 per cent) citations in volume 30 of 2011.

4.4 Average citations per contribution per volume

Summarized data from the Table IV show the average number of citations cited in each volume. In total, 91 articles were published in four volumes consisting of 1,302 citations. Data reveal that Volume 29 of 2010 had highest average number (15.48) of citations received per contribution (from 23 articles) per volume followed by the average of 14.54 citations received from 24 contributions from Volume 28 of 2009. Subsequently, in Volume 30 and Volume 31, the average number of citations received from each 22 contribution is 13.18 citations from Volume 30 and 13.95 citations from Volume 31.

Table IV Average citations per contribution per volume

Year	Volume no.	No. of contribution	No. of citations	Average
2009	28	24	349	14.54
2010	29	23	356	15.48
2011	30	22	290	13.18
2012	31	22	307	13.95
Total		91	1302	14.31

Table V Authorship pattern of articles

Author	2009 Issue				2010 Issues				2011 Issues				2012 Issues				Total	(%)
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
Single	55	37	53	38	27	47	59	82	36	43	31	52	38	37	50	38	723	55.53
Two	16	13	22	6	16	11	21	16	17	17	10	15	19	16	16	16	247	18.97
Three	3	3	13	3	1	2	5	7	6	6	3	2	4	6	5	9	78	5.99
Four	2	0	0	2	1	0	2	1	4	5	0	2	1	0	1	2	23	1.77
More than four	0	0	2	0	1	2	0	1	0	1	0	1	4	3	2	2	19	1.46
Corporate	15	5	23	38	10	13	11	20	11	17	4	7	3	25	6	4	212	16.28
Total	91	58	113	87	56	75	98	127	74	89	48	79	69	87	80	71	1302	100.00
Total	349				356				290				307				1302	

4.5 Authorship pattern

Table V reveals the authorship pattern of the articles during the period of study. Maximum articles were contributed by single author 723 (55.53 per cent), this is followed by two authors with 247 (18.97 per cent) citations and three authors were contributed 78 (5.99 per cent). Fewer citations are from more than four authors of the total citations. It is interesting to know that corporate authors contributed 212 (16.28 per cent) of the total citations. Among the four volumes the highest number of 356 citations received in the year 2010, further in the same year, more citations contributed in the fourth issue (127). In the third issue of 2009, a total of 113 authors have been cited, whereas 89 authors have been cited in second issue of 2011. The least number of authors were cited in third issue (48 authors) of 2011 and second issue (58 authors) of 2009.

4.6 Single vs multiple author

In the present information technology era, World Wide Web, e-resources, Web technology, open source movement and Web/Lib2.0 components have made much more impact on the LIS 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 *Collection Building*. Table VI shows that more citations are from a single author (723) and 579 citations are from multiple authors. Further, there are more single author citations (215) in Volume 29 of 2010 followed by 183 single author citations in Volume 28 of 2009, whereas each 162 and 163 single author citations appeared in Volumes 30 and 31. In case of multiple author citations, 166 citations were received in 2009, followed by 144 citations in 2012 and 141 citations in 2010.

4.7 Degree of author's collaboration

Table VII shows the degree of collaboration of authors cited in articles published in *Collection Building*. To determine the

Table VI Yearly distribution of single vs multiple authors

Author	Year				Total	(%)
	2009	2010	2011	2012		
Single	183	215	162	163	723	55.53
Multiple	166	141	128	144	579	44.47
Total	349	356	290	307	1,302	100.00

extent of collaboration in quantitative terms, the formula given by Subramanyam (1983) was used. The formula is as follows:

$$C = \frac{Nm}{Nm + Ns}$$

where:

- C degree of collaboration in a discipline;
- Nm number of multiple-authored papers; and
- Ns number of single-authored papers.

In the present case, the value of C is:

Total:

$$C = \frac{579}{579 + 723} = \frac{579}{1302} = 0.44$$

Thus, the degree of collaboration in *Collection Building* from 2009 to 2012 is 0.44. Further, the degree of collaboration is high in 2009 (0.48) and 2012 (0.47). This clearly brings out 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 a dominant pattern in LIS subject fields. The distribution of the degree of collaboration over the years from 2009 to 2012 is represented in Table VII.

4.8 Category of classification of articles

Table VIII indicates the category of distribution of articles published in *Collection Building* during the period from 2009 to 2012. The study reveals that quite a good per cent of articles (41.76 per cent) fall under the category of research paper, whereas 26.37 per cent of articles are case studies followed by literature review articles (13.19 per cent). The study highlights

Table VII Degree of author's collaboration

Year	Ns	Nm	Total	C
2009	183	166	349	0.48
2010	215	141	356	0.40
2011	162	128	290	0.44
2012	163	144	307	0.47
Total	723	579	1302	0.44

Table VIII Distributions of articles by types of research paper

Category	2009	2010	2011	2012	No. of article	(%)
Literature review	5	3	1	3	12	13.19
Research paper	8	6	12	12	38	41.76
Case study	6	9	4	5	24	26.37
General review	3	4	1	1	9	9.89
Technical paper	1	1	1	0	3	3.30
Conceptual paper	1	0	3	0	4	4.39
View point	0	0	0	1	1	1.10
Total	24	23	22	22	91	100.00

that meager per cent of articles fall under different categories, viz., general review (9.89 per cent), conceptual paper (4.39 per cent) and technical paper (3.30 per cent).

4.9 Chronological distribution of the overall citations

Table IX reveals that the number of citations scattered during a period covered from 1900 to 2012. This kind of study helps to know the growth and development of a subject in terms of research activities over a period. The table below provides the data regarding how frequently LIS researchers make use of references in preparation of their articles.

For the convenience of the study, the overall citations have been divided into 13 groups, each comprising a time span of 10 years up to 2009 and followed by a span of 2 years, i.e. 2010 to 2012. Data show that 60.91 per cent of the citations are cited from the period covered 2000-2009, whereas very few citations cited from the period 1900-1969 (0.93 per cent). After analyzing the table, it is evident that most of researchers prefer to cite recent research articles that contain nascent information which is most essential for the research and developmental activities.

4.10 Length of articles

In the present study, an attempt has been made to know the length of articles which are published in *Collection Building* from the four volumes. Table X shows that among a total of 91 articles, 48 (52.75 per cent) articles are six to ten pages in length, whereas 38 (41.76 per cent) articles are one to

five pages in length. Only four (4.39 per cent) articles have the length of 10-15 pages, and one article has a length of more than 15 pages. After comparing the four-year data, it is clear that present-day researchers limit their articles to one to five pages (ten articles) and six to ten pages (nine articles) in 2012.

4.11 Bibliographic form distribution of citations

Another major objective of the study is to know the distribution of citations according to bibliographic forms. Most of the researchers publishing their research article largely depend on different research articles that are published in different bibliographic forms. After analyzing the total 1,302 citations cited in *Collection Building*, they are distributed throughout different bibliographic forms. Table XI depicts the form distribution of citations. Data show that 53.84 per cent of citations are journal articles and 24.27 per cent of citations are Web resources. Similarly 14.21 per cent of citations from books/monographs and a very meager per cent of citations are from conference proceedings (2.76 per cent), reports (1.15 per cent), newspapers (1.08 per cent), gazetteers (0.84 per cent), theses and dissertations (0.69 per cent). It is also found that 0.84 per cent of citations are unidentified.

4.12 Subject distribution of citations

Due to the multidisciplinary research, most of the subjects are going to be fragmented; in such a situation, LIS subject

Table IX Chronological distribution of overall citations

Year	2009	2010	2011	2012	Total	(%)
1900-1909	1	0	0	0	1	0.08
1910-1919	0	1	0	0	1	0.08
1920-1929	0	0	1	0	1	0.08
1930-1939	0	1	2	0	3	0.23
1940-1949	0	1	0	0	1	0.08
1950-1959	0	0	0	0	0	0.00
1960-1969	0	2	3	0	5	0.38
1970-1979	6	12	13	2	33	2.53
1980-1989	10	33	15	7	65	4.99
1990-1999	42	60	54	39	195	14.98
2000-2009	241	239	167	146	793	60.91
2010-2012	0	5	35	81	121	9.29
Unidentified	49	2	0	32	83	6.37
Total	349	356	290	307	1302	100.00

Table X Length of articles

Pages	Year				Total	(%)
	2009	2010	2011	2012		
1-5	12	8	8	10	38	41.76
6-10	11	15	13	9	48	52.75
10-15	1	0	0	3	4	4.39
15 and more	0	0	1	0	1	1.10
Total	24	23	22	22	91	100.00

is not exceptional. By the impact of information and communications technology, present-day library and information centers took on new dimension. It is very difficult to find particular required information due to the existence of multidisciplinary subjects. Thus, to overcome this problem, subject distribution is helpful to find the correct information at the right time.

Table XII shows the subject distribution of citations. For the convenience of the study, while conducting the literature search, we identified a few major topics that come under the LIS subject field. Data show that 30.77 per cent of contributions belong to a major component of LIS: "Collection Development and Collection Management", whereas 19.78 per cent of contributions belongs to "Digital Library and Computer Application". Similarly, 18.69 per cent of contributions are from "Bibliography studies" followed by articles on LIS profession and types of libraries (16.48 per cent). Very meager per cent of contributions from other

Table XI Form distribution of citations per year

Forms	2009	2010	2011	2012	Total	(%)
Journal	173	182	177	169	701	53.84
Web resource	120	71	48	77	316	24.27
Books/monograph	35	63	38	49	185	14.21
Conference proceedings	8	11	12	5	36	2.76
Report	4	5	5	1	15	1.15
Newspaper	0	6	4	4	14	1.08
Gazetteer	0	11	0	0	11	0.84
Unidentified	4	5	2	0	11	0.84
Thesis and dissertation	3	2	2	2	9	0.69
Other	2	0	2	0	4	0.32
Total	349	356	290	307	1302	100.00

Table XII Subject distribution of citations

Serial No.	Subjects	Total no. of articles	Cumulative articles	(%)	Cumulative (%)
1	Collection development and collection management	28	28	30.77	30.77
2	Digital library and computer application	18	46	19.78	50.55
3	Bibliography studies	17	63	18.69	69.24
4	Library profession and academic, public, special, mobile library	15	78	16.48	85.72
5	Internet consortia and Web technology	7	85	7.68	93.4
6	Library automation	3	88	3.30	96.7
7	Library and information science and information literacy	2	90	2.20	98.9
8	Users studies	1	91	1.10	100.00
		91		100.00	

subject topics, viz., Internet consortia and Web technology (7.68 per cent), library automation (3.30 per cent) and user studies (1.10 per cent).

4.13 Geographical vs bibliographic forms distribution of citations

Summarized data from Table XIII highlights the country distribution of citations. In case of geographical contribution of citations in *Collection Building*, it is evident from the data that USA occupies the top position, accounting for 662 (50.84 per cent) citations followed by the UK with 73 (10.06 per cent) citations. Twenty-nine (2.23 per cent) citations are from India, whereas the rest of the country contributions are less. After analyzing the four-year data, the study clearly revealed that most of the LIS researchers depend on literature published in the USA and the UK only. Further, an attempt has been made to know the form distribution of citations across the country. Study shows that journal articles are the most cited citation from the USA (502) followed by books (127).

4.14 Rank list of journals

In collection development policy, selection of library material is the most important job that has to be performed by the librarian. Of course, among all the material, periodicals play a predominant role in academic and special libraries because of its value of information. Periodicals are one of the important media for communicating the recent scientific information among scientists, doctors, engineers,

Table XIII Geographical vs bibliographic forms distribution of citations

Serial No.	Country	Journal	Books	Conference	Thesis	Report	Gazetteers	Newspaper	Online	Other	Unidentified	Total	(%)
1.	The USA	502	127	10	5	6	–	12	–	–	–	662	50.84
2.	The UK	109	18	2	1	1	–	–	–	–	–	131	10.06
3.	India	24	2	3	–	–	–	–	–	–	–	29	2.23
4.	Canada	12	3	–	–	–	–	–	–	–	–	15	1.15
5.	Africa	–	4	6	–	1	–	1	–	–	–	12	0.92
6.	Nigeria	6	4	1	2	1	–	–	–	–	–	14	1.08
7.	Kenya	2	–	–	–	–	–	–	–	–	–	2	0.15
8.	China	1	–	1	–	–	11	–	–	–	–	13	0.99
9.	The Netherlands	5	4	1	–	–	–	–	–	–	–	10	0.77
10.	Switzerland	1	2	1	–	–	–	–	–	–	–	4	0.31
11.	Malaysia	1	–	–	–	–	–	–	–	–	–	1	0.08
12.	Australia	5	9	2	–	–	–	–	–	–	–	16	1.23
13.	Ireland	1	–	–	1	–	–	–	–	–	–	2	0.15
	Finland	1	5	1	–	–	–	–	–	–	–	7	0.54
14.	Egypt	–	–	–	–	1	–	–	–	–	–	1	0.08
15.	West Indies	–	–	–	–	–	–	1	–	–	–	1	0.08
16.	Italy	1	–	1	–	–	–	–	–	–	–	2	0.15
17.	Iran	–	–	–	–	1	–	–	–	–	–	1	0.08
18.	Russia	1	–	–	–	–	–	–	–	–	–	1	0.08
19.	Spain	–	1	–	–	–	–	–	–	–	–	1	0.08
20.	Grease	1	1	–	–	–	–	–	–	–	–	2	0.15
21.	New Zealand	1	–	1	–	–	–	–	–	–	–	2	0.15
22.	Malawi	2	–	–	–	–	–	–	–	–	–	2	0.15
23.	Germany	1	2	–	–	–	–	–	–	–	–	3	0.23
24.	France	1	–	–	–	–	–	–	–	–	–	1	0.08
25.	Qatar	–	1	1	–	1	–	–	–	–	–	3	0.23
26.	Denmark	2	–	1	–	–	–	–	–	–	–	3	0.23
27.	Senegal	–	–	1	–	–	–	–	–	–	–	1	0.08
28.	Korea	–	–	1	–	–	–	–	–	–	–	1	0.08
29.	Thailand	–	–	1	–	–	–	–	–	–	–	1	0.08
30.	Botswana	–	–	–	–	1	–	–	–	–	–	1	0.08
31.	Unidentified Country	22	2	1	–	2	–	–	–	–	–	27	2.07
32.	Unidentified Forms	–	–	–	–	–	–	–	–	–	11	–	0.84
33.	Web resources	–	–	–	–	–	–	–	316	–	–	–	24.27
34.	Other	–	–	–	–	–	–	–	–	4	–	–	0.31
	Total	701	185	36	9	15	11	14	316	4	11	1302	100.00

researchers, etc. For selection of periodicals for libraries, librarian has to consult different selection tools among them one of the important tools is bibliometric studies. In the present study, an attempt has been made to provide the rank list of journals cited in *Collection Building* in the descending order of citation frequency and it is a common tool for the selection of periodical publications. Table XIV shows the rank list of journals cited in *Collection Building*.

Table XIV provides an overall rank list of journals. After analyzing the data, it is found that around 223 journals have been cited in the four volumes of *Collection Building* and the complete list is provided in the form of a table.

It is found that *Collection Building* published from the USA occupies the first rank as the most preferred journal and has been cited 68 (9.70 per cent) times. Similarly, the other top nine journals in the rank are, viz., *Journal of Academic Librarianship* (33 citations), *Collection Management* (28 citations), *Library Collection Acquisition and Technical Services*

(24 citations), *College and Research Library* (22 citations), *Library Journal* (14 citations), *Against the Grain* (13 citations), *Library Hi-Tech* (13 citations), *Journal of Library Administration* (12 citations), *The Electronic Library* (12 citations), etc. Interesting to note that the entire top-cited ten journals are published from USA only and altogether of these first top ten journals in the ranking list constitute 30.00 per cent of the total citation.

4.15 Production of journals

Table XV reveals the productivity of journals. The first groups of citations are covered by the first five journals of the rank list with an average productivity of 35.00 citations per journal. The average productivity has considerably gone down to 1.17 articles in the fourth group. This shows that the concentration of more citations in fewer journals.

Table XIV Rank list of journals

Serial No.	Rank	Journal name	No. of citation	Cumulative citations	(%)	Cumulative (%)	Country
1	1	<i>Collection Building</i>	68	68	9.70	9.70	The USA
2	2	<i>Journal of Academic Librarianship</i>	33	101	4.71	14.41	The USA
3	3	<i>Collection Management</i>	28	129	3.99	18.4	The USA
4	4	<i>Library Collection Acquisition and Technical services</i>	24	153	3.42	21.82	The USA
5	5	<i>College and Research Library</i>	22	175	3.14	24.96	The USA
6	6	<i>Library Journal</i>	14	189	1.99	26.95	The USA
7	7	<i>Against the Grain</i>	13	202	1.85	28.8	The USA
8	7	<i>Library Hi-Tech</i>	13	215	1.85	30.65	The USA
9	8	<i>The Journal of Library Administration</i>	12	227	1.71	32.36	The USA
10	8	<i>The Electronic Library</i>	12	239	1.71	34.07	The USA
11	9	<i>Science and Technology Libraries</i>	11	250	1.57	35.64	The USA
12	10	<i>Information Technology & Libraries</i>	10	260	1.43	37.07	The USA
13	11	<i>The Serials Librarian</i>	9	269	1.28	38.35	The USA
14	11	<i>Journal of Interlibrary loan Document delivery and Information supply</i>	9	278	1.28	39.63	The UK
15	11	<i>Annals of Library Information Studies</i>	9	287	1.28	40.91	India
16	12	<i>Library Trends</i>	8	295	1.14	42.05	The USA
17	12	<i>D-Lib Magazine</i>	8	303	1.14	43.19	The USA
18	12	<i>Journal of American History</i>	8	311	1.14	44.33	The USA
19	13	<i>Interloan and Document supply</i>	7	318	0.99	45.32	England
20	13	<i>Journal of the American Society for Information Science & Technology</i>	7	325	0.99	46.31	The USA
21	14	<i>Journal of the Medical Library Association</i>	6	331	0.86	47.17	The USA
22	14	<i>Library Philosophy and Practice</i>	6	337	0.86	48.03	The USA
23	14	<i>Serials</i>	6	343	0.86	48.89	Unidentified
24	14	<i>Journal of the Association for History and Company</i>	6	349	0.86	49.75	The USA
25	14	<i>Publishing Research</i>	6	355	0.86	50.61	The USA
26	15	<i>Library Management</i>	5	360	0.71	51.32	England
27	15	<i>Library Resource and Technical Service</i>	5	365	0.71	52.03	The USA
28	15	<i>Journal of information Science</i>	5	370	0.71	52.74	The Netherland
29	15	<i>Library Acquisition Practice And Theory</i>	5	375	0.71	53.45	England
30	15	<i>Acquisitions Librarian</i>	5	380	0.71	54.16	The UK
31	15	<i>Bulletin of the Medical Library Association</i>	5	385	0.71	54.87	The USA
32	15	<i>American Librarian</i>	5	390	0.71	55.58	The USA
33	16	<i>Reference and User Service Quarterly</i>	4	394	0.57	56.15	The USA
34	16	<i>Issues in Science and Technology Librarianship</i>	4	398	0.57	56.72	The USA
35	16	<i>Technicalities</i>	4	402	0.57	57.29	The USA
36	16	<i>Libraries and the Academy</i>	4	406	0.57	57.86	The USA
37	16	<i>Science</i>	4	410	0.57	58.43	The USA
38	16	<i>Information Processing and Management</i>	4	414	0.57	59	The USA
39	16	<i>Information Research</i>	4	418	0.57	59.57	England
40	16	<i>Journal of Information and Library Science</i>	4	422	0.57	60.14	India
41	16	<i>Journal of Librarianship & Information Science</i>	4	426	0.57	60.71	The USA
42	16	<i>Library Review</i>	4	430	0.57	61.28	The UK
43	16	<i>Perspectives</i>	4	434	0.57	61.85	Unidentified
44	17	<i>Association of Research Libraries</i>	3	437	0.43	62.28	The USA
45	17	<i>Journal of Electronic Resource Librarianship</i>	3	440	0.43	62.71	The UK
46	17	<i>Internet Reference Service Quarterly</i>	3	443	0.43	63.14	The UK
47	17	<i>Technical Services Quarterly</i>	3	446	0.43	63.57	The UK
48	17	<i>The Canadian Journal of Library And Information practice & Research</i>	3	449	0.43	64	Canada
49	17	<i>College And Research Library News</i>	3	452	0.43	64.43	The USA
50	17	<i>The Indexer</i>	3	455	0.43	64.86	England

(continued)

Table XIV

Serial No.	Rank	Journal name	No. of citation	Cumulative citations	(%)	Cumulative %	Country
51	17	Journal of Professional issues in Engineering Education & Practice	3	458	0.43	65.29	The USA
52	17	Modern Fiction Studies	3	461	0.43	65.72	The USA
53	17	Journal of Electronic Publishing	3	464	0.43	66.15	The USA
54	17	Library & Information Updates	3	467	0.43	66.58	Canada
55	17	Journal of Education for Librarianship	3	470	0.43	67.01	The USA
56	17	Nigerbiblios	3	473	0.43	67.44	The USA
57	17	Libri	3	476	0.43	67.87	Denmark
58	17	Electronic Journal of Academic & Special Librarianship	3	479	0.43	68.30	Canada
59	17	International Digital Library Perspectives	3	482	0.43	68.73	The USA
60	17	Art Documentation	3	485	0.43	69.16	The USA
61	17	Chronicle of Higher education	3	488	0.43	69.59	The USA
62	17	Aslib Proceedings	3	491	0.43	70.02	England
63	17	Serials Review	3	494	0.43	70.45	The USA
64	17	Library and Information Science Research	3	497	0.43	70.88	The USA
65	17	APLIs	3	500	0.43	71.31	Australia
66	17	International Journal of Grey Literature	3	503	0.43	71.74	The UK
67	17	Grey Journal	3	506	0.43	72.17	The UK
68	17	IASLIC Bulletin	3	509	0.43	72.60	India
69	17	RBM	3	512	0.43	73.03	The USA
70	17	Knowledge Quest	3	515	0.43	73.46	The USA
71	18	33 Journals with 2 Citations Each	66	581	9.42	82.88	
72	19	120 Journals with 1 Citations Each	120	701	17.12	100.00	
Total			701		100.00		

Table XV Productivity of journals

Serial No.	Grouping of citations	No. of citations	No. of journals covered	(%) of journals	Average production of journals
1	0-25	175	5	2.24	35.00
2	26-50	180	20	8.97	9.00
3	51-75	176	53	23.77	3.32
4	76-100	170	145	65.02	1.17
	Total	701	223	100.00	3.14

4.16 Bradford's zones

Bradford's empirical law of concentration for articles in the scientific periodicals proved to be a landmark 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 periodicals 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:n (Keat and Kaur, 2008).

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

It is observed from the [Table XVI](#) that there are ten journals in the nucleus and they are the most productive journals devoted to LIS articles which published in *Collection Building* with sharing 4.48 per cent of total cited journals. The next zone is represented by 47 journals, which share 21.08 per cent of the total cited journals, and the last zone is represented by 166 journals, which share 74.44 per cent of the total cited journals. Each zone has approximately one-third of the total citations.

Table XVI Bradford's zones

Serial No.	No. of Citations	No. of Journals	Cumulative no. of Citations	Cumulative no. of Journals
1	239	10 (4.48)	239	10
2	237	47 (21.08)	476	57
3	225	166 (74.44)	701	223

Table XVII Distribution of cited journals by decreasing frequencies of citations

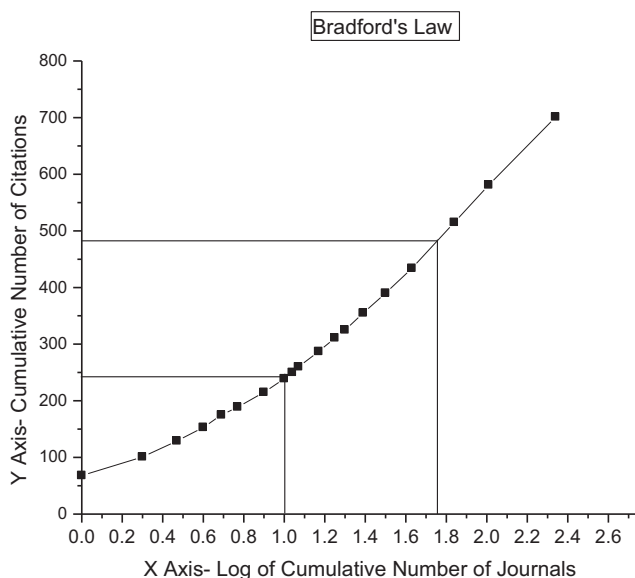
No. of journals	Cumulative no. of journals	Log of cumulative Journals	No. of citations	Total citations	Cumulative no. of citations	% Cumulative citations	% Cumulative journals
1	1	0.00	68	68	68	9.70	0.45
1	2	0.30	33	33	101	14.41	0.90
1	3	0.47	28	28	129	18.40	1.35
1	4	0.60	24	24	153	21.83	1.79
1	5	0.69	22	22	175	24.96	2.24
1	6	0.77	14	14	189	26.96	2.69
2	8	0.90	13	26	215	30.67	3.59
2	10	1.00	12	24	239	34.09	4.48
1	11	1.04	11	11	250	35.66	4.93
1	12	1.07	10	10	260	37.09	5.38
3	15	1.17	9	27	287	40.94	6.73
3	18	1.25	8	24	311	44.37	8.07
2	20	1.30	7	14	325	46.36	8.97
5	25	1.39	6	30	355	50.64	11.21
7	32	1.50	5	35	390	55.63	14.35
11	43	1.63	4	44	434	61.91	19.28
27	70	1.84	3	81	515	73.47	31.39
33	103	2.01	2	66	581	82.88	46.19
120	223	2.34	1	120	701	100.00	100.00
223				701			

Table XVII and Figure 1 also reveal the same results and, hence, the journal data fits well with Bradford's law of distribution. Hence, the journal's distribution as per the Bradford's law reveals the ratio 10:47:166.

4.17 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*. Table XVII represents journals arranged in decreasing frequency of citations. To testify the

Figure 1



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 (Mubeen, 1996).

5. Findings, suggestions 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. *Collection Building* has published 91 articles during the period of study. In total 1,302 citations have been cited and the maximum numbers of contributions are single authors with 723 (55.53 per cent). It is also observed that among the 91 articles, 8 articles do not include even a single citation. The present study reveals that journal article is the highest cited citation and the highest number of articles has appeared in the area of collection development and collection management. In case of geographical contribution study found that the USA is the highest contributor of citations followed by the UK. *Collection Building* is the highly preferred journal for communication by LIS professionals.

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Further reading

- Banateppanavar, K., Biradar, B.S. and Kannappanavar, B.U. (2013), "Citation analysis of doctoral theses in botany submitted to Kuvempu University, India: a case study", *Collection Building Emerald Publishing*, Vol. 32 No. 1, pp. 12-20.

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This article has been cited by:

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