

Bibliometric Analysis of College and Research Libraries

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Abstract

The Present Study is based on the Bibliometric analysis of 262 research article publication in 5 volume appeared in College and Research Libraries Journal during the periods of 2014 to 2018. The analysis covers mainly the number of article, authorship pattern, degree of collaboration, author productivity, geographical distribution of author, length of papers, distribution of citation etc. The results show that out of total 262, single author contributed 97(37.02%) article, while the 165 (62.98%) articles are contributed by joint authors. It has been revealed that most of the contributors are from Australia that is United States that is 486 (86.94%). The study also shows the majority Article 166 (63.36%) is published in the 5 year during 2014 to 2018 in this journal.

Keywords: Bibliometric, College and Research Libraries, Authorship Pattern

Introduction

The term Bibliometric was coined in 1969 by Alan Pritchard who defined it as, “the application of mathematics and statistical methods to books and other media of communication”(Pritchard, 1969) and later Hawkins(1977) bibliometrics as “the application of quantitative analysis in the bibliographic references of the body of literature.” The present study has been undertaken in order to know the nature and contents of articles in the College and Research Libraries during the periods of 2014 to 2018.

Chronological Distribution of Articles by Volumes wise

This study traces the growth of publication in College and Research Libraries from 2014 to 2018. The collected data has been analyzed and interpreted in table 1.

Table 1: Chronological Distribution of Articles

Year	Vol.	Number of Article (A)	%	Cumulative of Articles	Cumulative %
2014	75	46	17.56	-	-
2015	76	63	24.04	109	41.6
2016	77	49	18.7	158	60.3
2017	78	58	22.14	216	82.44
2018	79	46	17.56	262	100
Total		262	100.00	262	100

The table 1 shows the chronological distribution of articles in 5 Volumes of the journal. The table reveals the there are total 262 articles out of which the highest number of articles 63(24.04%) are published in volume 76(year, 2015) and the Lowest number of articles are published 46 (17.56%) and 46 (17.56%) in the volume 75(year, 2014) and 79 (year, 2018).

Length of articles Distribution volume wise**Table 2: Length of Articles**

Year	Vol.	1 to 5	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30	31 More	Total
2014	75	5	1	12	17	4	4	3	46
2015	76	11	3	21	18	8	2	0	63
2016	77	6	4	19	13	3	3	1	49
2017	78	7	5	18	16	9	2	1	58
2018	79	5	4	13	14	7	2	1	46
Total		34	17	83	78	31	13	6	262
%		12.98	6.49	31.68	29.77	11.83	4.96	2.29	100.00

Table 2 indicates the length of articles published in College and Research Libraries. Major of articles i.e., 83(31.68%) are between 11 to 15 pages, followed by 16 to 20 pages in 78 (29.77%) articles and 34 (12.98%) articles are from 1 to 5 pages. Whereas 31 (11.83%) article are from 21 to 25 pages, 17 (6.49%) articles are from 6 to 10 pages, 13 (4.96%) articles are from 26 to 30 pages and only 6 (2.29%) article are more than 31 pages respectively.

Authorship Pattern Distributed Volume wise

The table 3 gives the details about the authorship pattern with number of articles contributed by authors in College and Research Libraries.

Table 3: Authorship Pattern of Contributions volume wise

Year	Number of papers with various authorship							Not Available	Total
	1	2	3	4	5	6	more than Six		
2014	15	15	9	5	0	1	1	0	46
2015	27	21	10	3	0	1	1	0	63
2016	18	18	9	2	1	1	0	0	49
2017	20	15	17	2	1	1	1	1	58
2018	17	14	7	3	2	2	0	1	46
Total	97	83	52	15	4	6	3	2	262
%	37.02	31.68	19.85	5.73	1.53	2.29	1.15	0.76	100.00

The table 3 show that the data of the authorship patters in different volume of the journal. Show the authorship pattern of the papers published during the period of study. The highest numbers of articles had been published by 97 authors. This is followed by 83 authors in two authors. The minimum numbers of authors is more than six authors of 3.

Degree of Collaboration Distribution Volume wise

An examination of the collaboration, a prominent area of inquiry in bibliometric studies, indicates the trend in pattern of single and co-authorship in College and Research Libraries, as shows in the table 4. The degree of collaboration ranges from 0.67 to 0.63. The average degree of collaboration is 0.63 during the period of the study.

Table 4: Degree of Collaboration among co-authors

Year	Single Authored Paper(Ns)	Multi authored Paper(Nm)	Nm+Ns	Degree of Collaboration
2014	15	31	46	0.67
2015	27	36	63	0.57
2016	18	31	49	0.63
2017	20	38	58	0.66
2018	17	29	46	0.63
Total	97	165	262	0.63

The extend of collaboration in research can be measured with the help of the formal given by Subramanyam.

The formula is as follows:

$$C = \frac{NM}{NM+NS} = ?$$

Where, C= Degree of Collaboration

Nm = Number of multiple authors

Ns = Number of single authors

Author Productivity Distribution volume wise:

Yoshikane calculated Average Author per Paper (AAPP) and Productivity per Author (PPA) in the paper, which is published in scientometrics journal. The formula is mathematically represented as below:

Average Author per Paper= No. of Author/No. of Papers

$$=559/262$$

$$=2.13$$

Productivity per Authors =No. of Papers / No. of Authors

$$=262/559$$

$$=0.47$$

Table 5: Author Productivity

Vol.	Year	Papers	Authors	Average Author Per Paper	Productivity Per Authors
75	2014	46	106	2.30	0.43
76	2015	63	124	1.97	0.51
77	2016	49	100	2.04	0.49
78	2017	58	128	2.21	0.45
79	2018	46	101	2.20	0.46

The table 5 show that the data pertaining to author productivity and average author per papers. It is revealed from table no 5 that the overall average number of authors per article is 2.13 for 262 articles published between the periods of the study. It is also clear from above table that 2.30 is the highest average author per paper in 2014 followed by 2017 that is 2.21, 2018 is 2.20, 2016 is 2.04, and the lowest average author per paper is 1.97 is recorded in the year 2015.

The overall average productivity per author for the periods of 2014 to 2018 is 0.47. The above table reveals that in year 2015 is highest productivity is 0.51 followed by 0.49 in the year 2016. 0.46 is in 2018, and the lowest average author per author is 0.43 is recorded in the year 2014.

Channels Communication

Channel, in communication, refers to the medium used to convey information from a sender (or transmitter) to a receiver. Researchers communicated their publications through variety of communication channels.

Table 6: Various Channels of Communication

Sr. No.	Document Types	Total	%	Rank
1	Article	166	63.36	1
2	Review	70	26.72	2
3	Editorial	24	9.16	3
4	Conference Paper	1	0.38	4
5	Erratum	1	0.38	4
Total		262	100.00	

The Table 6 show that the highest 166(63.36%) of literature was published in Article, followed by review is 70(26.72), Editorial is in 24 (9.16%) and per Conference paper and Erratum have recorded equal productivity per 1 (0.38).

Country wise Distribution of Contributions

The country wise distribution of College and Research Libraries from 2014 to 2018 has given in the table 7

Table 7: Country wise Distribution of Contribution

Sr. No.	Name of Country	Total	%	Rank
1	United States	486	86.94	1
2	Canada	31	5.55	2
3	Norway	7	1.25	3
4	Australia	6	1.07	4
5	Israel	4	0.72	5
6	Spain	4	0.72	5
7	Brazil	2	0.36	6
8	Iran	2	0.36	6
9	Russian Federation	2	0.36	6
10	United Arab Emirates	2	0.36	6
11	China	1	0.18	7
12	Kazakhstan	1	0.18	7
13	Netherlands	1	0.18	7
14	Poland	1	0.18	7
15	Singapore	1	0.18	7
16	NA	8	1.43	8
Total		551	98.57	

The table 7 show that, the county wise distribution of contribution; out of the total 559 contributions, the highest 486 (86.94%) of the contribution of the United States. 31(5.55%) of the contribution have been contributed from Canada and lowest country have been contributed China, Kazakhstan, Netherlands, Poland, Singapore pre county 1(0.18%) each.

Distribution of Reference and articles by volume

The volume wise distribution of references indicates that the five volumes of College and Research Libraries contained 11181 references 262 articles. The average number of reference per article count that is 42.68.

Table 8: Volume wise Distribution of Reference

Year	Vol.	Number of Article (A)	Number of References(B)	Average Number of References Per	%	Cumulative		Rank (B/A)*
						References	%	
2014	75	46	2608	56.70	23.33	2608	23.33	1
2015	76	63	2595	41.19	23.21	5203	46.53	2
2016	77	49	1826	37.27	16.33	7029	62.87	5
2017	78	58	2127	36.67	19.02	9156	81.89	3
2018	79	46	2025	44.02	18.11	11181	100.00	4
Total		262	11181	42.68	100.00	11181	100.00	

The table 8 shows that, the volume wise distribution of reference given in College and Research Libraries during 2014 to 2018. The highest number of reference has been published in vol.75, 2014 that is 2608, Hence, vol. 75 stand in 1st position with having more average number of references per articles that is 56.70, followed by vol.76 with 41.19 average number of reference per articles and the lowest average number of references per article is 36.67 in vol.78.

Distribution of Prolife Authors Contributions

The collaboration of articles/contributors is important in bibliometric study as such the rank wise distribution of collaboration has been analyzed in the table 9.

Table 9 Rank list of Authors

Sr. No.	Name of the Contributed Authors	Papers	%	Rank
1	Walter S.	11	1.97	1
2	Kaspar W.A.	7	1.25	2
3	Galbraith Q.	5	0.89	3
4	Luo L.	3	0.54	4
5	Aharony N.	2	0.36	5
6	Albarillo F.	2	0.36	5
7	Brady J.E.	2	0.36	5
8	Brancolini K.R.	2	0.36	5
9	Davis-Kahl S.	2	0.36	5
10	Dempsey P.R.	2	0.36	5
11	Evanson C.	2	0.36	5
12	Fransen J.	2	0.36	5
13	Garrison M.	2	0.36	5
14	Gilbert J.	2	0.36	5
15	Goodsett M.	2	0.36	5
16	Gross M.	2	0.36	5
17	Hare S.	2	0.36	5
18	Hensley M.K.	2	0.36	5

19	Hinchliffe L.J.	2	0.36	5
20	Ireland A.	2	0.36	5
21	Kennedy M.R.	2	0.36	5
22	Knowlton S.A.	2	0.36	5
23	Kot F.C.	2	0.36	5
24	LariviÃ`re V.	2	0.36	5
25	Lowe M.S.	2	0.36	5
26	Lundstrom K.	2	0.36	5
27	Malenfant K.J.	2	0.36	5
28	Martin P.	2	0.36	5
29	Murray A.	2	0.36	5
30	Nackerud S.	2	0.36	5
31	Neal J.G.	2	0.36	5
32	Shreeves S.L.	2	0.36	5
33	Silva E.	2	0.36	5
34	Soria K.M.	2	0.36	5
35	Stone S.M.	2	0.36	5
36	Witt S.W.	2	0.36	5
37	467 auther contributing 1 paper each	467	83.54	
38	No author name available	2	0.36	
Total		559	100.00	

It can be observed from Table 9 that, the most productive authors are Walter S. who had contributed 11(1.97%) papers, Kaspar W.A. in 7(1.25%). It is also observed from table 9 that is there were 33 author associated with two papers, 467 author associated with single paper.

Institution wise Distribution of Contributors

Table 10 Institution wise Distribution of Contributors

Sr. No.	Name of Institution	Total	%	Rank
1	Texas AandM University Libraries, United States	12	2.15	1
2	DePaul University, United States	9	1.61	2
3	Harold B. Lee Library, Brigham Young University, United States	8	1.43	3
4	University of Minnesota, United States	8	1.43	3
5	Brigham Young University, United States	7	1.25	4
6	School of Library and Information Science, Indiana University Bloomington, United States	7	1.25	4
7	University of Illinois, Urbana-Champaign, United States	6	1.07	5
8	Utah State University, United States	6	1.07	5
9	Department of International and Area Studies Library, University of Illinois, Urbana-Champaign, IL, United States	5	0.89	6
10	Eastern Michigan University, United States	5	0.89	6
11	University of Illinois at Chicago, United States	5	0.89	6
12	Appalachian State University, United States	4	0.72	7

13	College of Computing and Informatics, Drexel University, United States	4	0.72	7
14	Department of Outreach and Special Initiatives, Jody Bales Foote Is Geology Librarian, University of Oklahoma Libraries, United States	4	0.72	7
15	Florida State University Libraries, United States	4	0.72	7
16	Francis A. Countway Library of Medicine, Harvard Medical School, United States	4	0.72	7
17	Goldey-Beacom College, United States	4	0.72	7
18	Loyola Marymount University, United States	4	0.72	7
19	OCLC Research, United States	4	0.72	7
20	Ohio State University Libraries, United States	4	0.72	7
21	School of Information, San Jose State University, United States	4	0.72	7
22	Texas Tech University, United States	4	0.72	7
23	University Libraries, University of Nebraska-Lincoln, United States	4	0.72	7
24	University Library, Indiana University-Purdue University Indianapolis, United States	4	0.72	7
25	University Library, University of North Carolina, Chapel Hill, United States	4	0.72	7
26	17 Institution Contributing 3 each	51	9.12	
27	52 Institution Contributing 2 each	104	18.60	
28	262 Institution Contributing 1 each	262	46.87	
29	NA	8	1.43	
	Total	559	100.00	

The table 10 show that the institution wise distribution of contributors, out of 559 contributors the highest number of contributors 12 (2.15) are from Texas A and M University Libraries, United States, second rank goes to DePaul University, United States, with 9(1.61%) contributions, 52 institution contributing with 2 that is 104(18.60%), and 262 institution that is 262(46.87%) contributed one each respectively.

Finding and Conclusion

The present study confined to the publication of 262 research article printed in 5 vol. of appeared within the College and Research Libraries during 2014 to 2018.

- The study reveals that the very best number of articles 63 (0.57%) are printed in vol.76 and therefore the lowest number of articles are printed 46(0.67%) each in Vol. 75 and Vol. 79 have recorded equal productivity of article.
- It also found that out of total 559 contributors, 462 contributors contributed a joint authored paper and 97 contributors contributed a single author paper out of 262 articles.
- United State is at rank first with 486(86.94%) publication.
- Out of 262 articles, highest 166(63.36%) Articles used by authors in the study.
- The most productive authors are Walter S. who had contributed 11(1.97%) papers.
- Total 11181 references used by authors in their study, out of 262 articles, and 2608 keywords out of 262 articles by the contributors.

- Texas A and M University Libraries, United States are the most productive institution.

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