AUTHORSHIP PATTERN: SCIENTOMETRIC STUDY ON CITATION IN JOURNAL OF DOCUMENTATION

Miss. Priya A. Suradkar.
Research Student,
Dept.of Library & Information Science,
Dr. Babasaheb Ambedkar Marathwada University,
Aurangabad. (MS).

Dr. Khaparde. Vaishali. S
Associate Professor & Head,
Dept.of Library & Information Science,
Dr. Babasaheb Ambedkar Marathwada University,
Aurangabad. (MS)

Abstract:

The present study is based on 5 volumes, 30 issues of the Journal of Documentation during 2007-2011. The present study is based on overall 5521 citations appended to 532 articles. The mean of relative growth and Doblin Time for the first five year was 0.278 and 1.813,the productivity authors was measured in terms of the number of times a particular author was during 2007 to 2011. The value group co-efficient for citation (g_c) was 0.42, The calculated chi-square value (896.5). The average rate of citation per articles (C/A) was 10.37.

Keywords:

Journal of documentation, Authorship Pattern, Degree of collaboration, Productivity Author, Scientometrics, Bibliometrics.

Introduction:

Scientometric is to provide quantitative characterization of scientific activity; scientometric is branch of library and information science. In 1969, vassily V. Nalimov and Z.M. Mulchenko coined the term 'scientometric' ('nalkometriyas') (Nalimov and Mulchenko, 1969). As the name imply, term this is mainly used for the study of all aspects of the literature of science and technology. The term had gained wide recognition by the foundation in 1978 of scientometrics by Tibor Brawn in Hungary. According to its subtitle, scientometrics includes all quantitative aspects of the science of science, commutation in science, and science policy (Wilson, 2001). Soon after its foundation

Nalimov became the consulting Editor. Some other early papers by Nalimov which helped to nature the nascent discipline of scientometrics include: (1970), Nalimov and Mulchnko (1969 a) and Nalimov et at. (1971). Application of mathematical and statistical methods of scientific literature (Garfield, 2000).

The paper consists of five main parts: introduction, literature review, research design, results and discussions, and conclusions.

Bibliometrics:-

The terms bibliometrics consist of two words namely 'Biblio' and 'Metrics', biblio means book and metrics means simply measurement.

Bibliometric is the quantitative treatment of the properties of recorded as bibliometric is the study of use of document and pattern of publication in which mathematical and statistical method have been applied (Fair Thom, 1970).

Scientometrics:-

A complex of quantitative mathematical and statistical methods used to investigate such aspects as research staff, and to define evolutionary & prospectus of science (Bonitz, 1999). Scientometrics is a very recent term .It is often used synonymously

with the term bibliometrics.

Scientometric analysis:-

The main currency for an academician is his reputation just as that for the politician is the politician is the power the commands and that for the business person is the wealth he has accumulated (Becher, 1989).

Review of literature:-

Scientometric is complex of quantitative method which is used to investigate the process of science. According to Kademani and et al. (2005) the key scientometric concepts include: if scientist is renowned personality in this field these specializations will naturally attracts more number of collaborators. Mahapatra and Kaul (1992); Singh (2007); Kogamuramath, (2001); Deshpande (1997); indicates that the use of analysis of chrolonological distribution show that older documents are less cited than newer ones.

Le Minor, (1991), carried out study in Self-citation is part of the wider analysis of scientific and scholarly citation patterns. Nicolsion, (2002), indicates that the Journal self citation is an interesting bibliometric indicator that gives in indication about the popularity of the journal among its contributors as well as the reader community. Lehnus (1973); analyzed Authors enrich a subject by their contributions citation analysis studies identify the familiar and prominent in the field. Kademani and et al. (2005) the key Scientists are trying to write jointly than the single author; joint author and more than two authors is authorship patterns. Kulsrestha and Haridasan, (2007), analyzed Personalities in the subject, whose work is used by the authors to refine their ideas on the used by the authors to refine their ideas on the subject topic. Balasubramanian and Bhaskar, (1984), indicates that the Self citation refers to the number of times the previous papers published in the same journal, the rate of self citation is lower than other authors citations

Objectives :-

The main Objectives of the present study is:

1. To find out the Relative Growth Rates [R(C)] and Doubling Time [Dt(C)] for citations.
2. To find out the Productivity of authors in Journal of documentation.
3. To find out the Value of group Co-Efficient for collaborative authors of citation.
4. To find out the Citations per article (C/A) in individual journal.

Analysis and Result:

It is published quarterly between in 1945 year expending six issues per year, it is published bimonthly. It is current edited by David Bawden for city university London. The journal published by Emerald Group publishing. The data was collected from 5 volumes, 30 issues of Journal of Documentation during 2007-2011. In all 5521 citations appended to 528 articles were further analyzed.The objectives of the study, analysis and finding of the study are outlined below.

Relative Growth Rates [R(C)] and Doubling Time [Dt(C)] for citations is shown in table no. 1

Table no 1: Relative Growth Rates [R(C)] and Doubling Time [Dt(C)] for citations

Year	No. of citation	Cumulative no of citation	$Log_e 1^p$	$Log_e 2^p$	[R(C)]	Mean [R(C)]	[Dt(C)]	Mean [Dt(C)]
2007	1353	1353	--	7.21	--		--	
2008	905	2258	7.21	7.72	0.51		1.35	
2009	1192	3450	7.72	8.14	0.41	0.278	1.69	1.813
2010	1086	4536	8.14	8.41	0.27		2.56	
2011	985	5521	8.41	8.61	0.20		3.465	

The Relative Growth Rate [R(C)] and Doubling Time [Dt(C)] of citations are derived and presented in table no 1. It can be noticed that Relative Growth Rate of publication [R(C)] decreased from the rate 0.51 in 2008 to 0.20 in 2011. The mean Relative Growth for the five year (i.e. 2007 to 2011) showed a growth rate of 0.278 where as the corresponding Doubling Time for different year [Dt(C)] gradually increased from 1.35 in 2007 to 3.465 in 2011.

The mean Doubling Time for the five year (i.e. 2007 to 2011) was only 1.813 which was increased to the corresponding Doubling Time was increased.

1. **The Productivity of authors in Journal of documentation is shown in table no. 2.**

Table no 2: The Productivity of authors in Journal of documentation

Number of citation (n)	Observed authors with 'n' citation (a_n)	Observed % of authors ($100Xa_n/a_1$)	Expected number of authors ($a_n=a_1/n^2$)	Expected % authors predicted by Lotkas ($100/n^2$)
One	3155	100	3155	100.00
Two	1296	41.07	789	25.00
Three	797	25.26	350	11.11
More than three	276	8.75	--	--

The productivity of authors was measured in terms of the number of times a particular author was cited during 2007-2011. Out of the total 5521 citations, minimum numbers (276) of authors were cited for 4 times and maximum (3155) number of authors was cited only twice. The study revealed that few authors had been cited more number of times.

2. **Value of group Co-Efficient for collaborative authors of citation is shown in table no 3.**

   Table no 3: Value of group Co-Efficient for collaborative authors of citation.

Number of authors per citation	Number of citations	(%) from total personal author citation	Value of per $g_{p=} \frac{N_m}{N_s + N_m}$
Total no of personal author citation	5524	--	--
Number of single authored citation	3155 (N_s)	57.11	--
Number of co-authored citation	2369 (N_m)	42.89	0.42
Two authored citations	1296	23.46	0.23
Three authored citations	797	14.43	0.14
More than three authored citations	276	5.0	0.049

The analysis of citations with regards to collaborative trend among the authors revealed that the majority of citations (57.11%) were contributed by single authors. The percentage of co-authored citations was only 42.89. The value of group co-efficient for citations (g_c) was 0.42, which was still less than the publications. Among the collaborated works in two authored citations, the value of g_c was minimum (0.14) in comparison to three and multiple authors citations 0.189.

4. Citations per article (C/A) in individual journal is shown in table no. 5

Table no 4: Citations per article (C/A) in individual journal

Sl. No.	Journals	Total No of Articles	Total No of Citation	C/A
1	Journal of Library and information Science	56	840	15
2	Annals of Library Science	34	325	9.56
3	Library Hi Tech	69	671	9.72
4	Libra	46	485	10.54
5	IASLIC Bulletin	58	610	10.51
6	ILA Bulletin	49	435	8.87
7	Library Herald	42	315	7.5
8	Library Hi Tech news	79	925	11.70
9	IJALIS	63	541	8.58
10	Herald of Library Science	36	374	10.38
Total		**532**	**5521**	**10.37**

The 10 journals selected for this study contains 532 articles and 5521 citations. The average rate of citation per articles (C/A) was 10.37. But the rate of citation varied from 15 to 10.38. The name of individual journals along with total articles published, total citation appended in articles and the rate of citation per articles are provided in table no. 5. Among

the journals the Library Hi Tech news contains higest number of citation per article (C/A) 11.70% and lowest rate was observed in IJALISC (C/A) 8.58%.

Conclusion:-

1. The mean of relative growth for the five year showed a growth rate of 0.278 where as the mean for Doubling Time for the five year was only 1.813.
2. The productivity of authors was measured in terms of the number of times a particular author was cited during 2007 to 2011.
3. The value of group co-efficient for citations (g_c) was 0.42.
4. The average rate of citation per articles (C/A) was 10.37.

Bibliography:

Aflobi, M. (1983). A citation study of literature of bibliographical classification to determine the core authors cited. *Lib Science*, 20, 228-234.

Alen, Prichard, (1969). Bibliometrics study in neurology from point of view of Indian scientist: *IASLICS Bulletin*, 9(2), 63-67.

Angel Morales, (1990): A study of learning and retention with a web-bases IR interface, *Journal of librarianship and Information Science*, 37(1); 7-16.

Balasubranamian, S. and Bhaskar, P. A. (1984). Citation analysis in Neurology from the point of view of Indian Scientists. *IASLIC Bulletin*, 29(2), 63-67.

Bonitz, A., (1999): Bradford's laws in different disciplines. *Annals of Library science and Documentation*, 46(4), 133-138.

Deshpande, M. (1997). Citation study of dissertation in library and information science. *Annals of Library Science and Documentation*, 44(2), 41-53.

Eva, Rodents.(2001),Advanced bibliometric methods as Quantitative care of peer review based evaluation and foresight exercises. *Scientomentrics* , 36(1) 397- 20.

Fairthom,(1970). Bridging the gaps: conceptual discussions on informatrics, *Scientometrics*, 36 (1), 397-420.

Feitelson, D. G. (2004). Predictive ranking of computer scientists using cite-seer data. *Journal of Documentation*, 60(1), 44-61.

Garfield, E. (1979). Citation Indexing Its Theory and Application in Science,Technology and Humanities. New York: John wily and Sons.

Haridasan, S (2007). Citation analysis of scholarly communication in the journal knowledge organization. *Library Review*, 56(4), 299-310.

Kademani and et al., (2005):Publication productivity of the Biorganic Division at bhabha Atomic Research Center. Scientometric study. *Annals of Library Information studies* 51(1), 39-41.

Kogamuramath, M. and Pothare (2001). Bibliometric analysis of Indian Journal of Social work: 1990-1999. Indian *Journal of Information and Library and Society*,14(3), 13-19.

Le Minor, (1991), Bibliometric Studies for the Evaluation of of Trans- National Research, *Scientometrics* 21: 223-244.

Lehnus, (1973). Milestones in cataloguing, 1835-1969: an attempt at an objective approach to the growth a subject literature Ph.D. Dissertation, case western reserve university.

Mahapatra,M. (1985). On the validity of the theory of exponential growth of scientific literature. In 15th IASLIC conference proceedings : Banglor, *IASLIC* ,P 61-70.

Mahapatra, G. and Kaul, R. (1992). Self-citation by Indian Botanists. *ILA Bulletin*, 27(4), 167-167.

Nalimov, V. and Mulchenko, Z. M. (1969). Naukometrija: Izuchenije razvitijanauki kak Informacinnege process.M: Nauka, 192.

Nicholas, D. and Ritche, M. (1896). Literature and bibliometrics (p.180). Clive Binley : London.

Singh, G. (2007). A bibliometric study of literature on digital libraries. *The Electronic Library*, 25(3), 342-348.

Tague et al., (1981). The law of exponential growth: idence implications and forecasts. *Library Trends*. 30, 125-145.

Wilson, I. (1998). Informetrics : an emerging subdiscipline in information science. *Asian Libraries*, 7(10), 257-268.