

SCIENTOMETRIC ANALYSIS: LIBRARY QUARTERLY

Tayade Suraj M.

Research Student

**Dept .of Library & Information Science,
Dr. Babasaheb Ambedkar Marathwada University,
Aurangabad. Maharashtra, India.**

Dr. Khaparde Vaishali .S.

Professor and Head

**Dept .of Library & Information Science,
Dr. Babasaheb Ambedkar Marathwada
University,
Aurangabad. Maharashtra, India.**

Ambhore Sagar P.

Research Student

**Dept .of Library & Information
Science,
Dr. Babasaheb Ambedkar
Marathwada
University,
Aurangabad. Maharashtra, India.**

Abstract

The present study attempts on the Scientometric analysis of International Journal Library Quarterly. It is based on the references appended to International Journal of "Library Quarterly" during 2008-2012. The present study is based on 2844 references appended to 86 articles contributed by the authors in Library Quarterly. It was found that journals citations are more in number than the other citations. In authorship pattern it was found that solo research is predominant then collaborative research. The degree of collaboration was calculated & it was found that the single authorship trend is increasing

gradually in Library Quarterly. It was seen that researchers cite latest documents. The study shows the period of Library Quarterly is 10 years approximately.

Introduction

The aim of Scientometric is to provide quantitative characterization of scientific activity; Scientometric is branch of library and information sciences. Because of the particular importance of publication in scientific communities, it largely overlaps with Bibliometrics, which is quantitative analysis of media in any written form. 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). Scientometric is a very recent term .It is often used synonymously with the term Bibliometrics. In addition to disciplines of measurement, Scientometric has strong connection with information and library of science as well as science policy. In 1970 we saw the development of Scientometric as on operational activity. Applying Bibliometrics method to their own field, Scientometric confirm that their own domain, standing evolved as heterogeneous field in topics and practices. The research has been done on Scientometric analysis: The Library Quarterly journals. Whereas the studies on Scientometric analysis of journal were done by Balasubramanyam V. 1972; Shanmghan G. 1974; Chaudhari Maitreyi, 1980; Gupta Anita, 1981; Patnaik Hari Bhaskar, 1982; Manavatar R, 1982; Suseela M, 1983; Vijayan B. 1983; Kandalhen U.S. 1983; Mahindre, 1984; Mahindre Parkash Wamanrao, 1985; Kuchhadiya Devji Bhura, 1986; Om Prakash, 1995; James K N, 2009; Borah Basantha Kumar, 2009; In www.klibjilis.com

addition to this, a few books large number of research articles related to present study have been reviewed.

Citation Analysis

Citation analysis is one of the popular method explore for identification of core document and complex relation between citing and cited document for a particular scholarly community in geographical proximity (Kulshresta and Harridasan, 2007); It is based on the principle that : “The actual use of material is indicative of its relevance to current research”. There are two directions that citation analysis can proceed.

E- Journal

“A journal is publications in any medium issued in successive part’s bearing numerical or chronological designations and indented to be continued indefinitely (AACR2) - (WWW library.iitkgp.ernet. in.): E- journal is defined as the grouping of information that is sent out in electronic form with some regularity. It covers any serial or serial like publication available in electronic format, which is produced published and distributed electronically (Ramesh, yeranagula, 2003); A journal is academic in nature which is published using the world wide web; such a journal usually uses internet technology refereeing of papers. Many e- journals pride themselves on rapid refereeing and consequent repaid publication. (Gupta, 1998)

Selected E-Journal

Library Quarterly

The journal of Library Quarterly is a quarterly journal. The journal was first published in the year 1993. This journal is a member of and subscribes to the principles of the committee on publication Ethics e-access right include one going access to volume year subscribed and temporary access back to 1994 where available. Online access back to volume one issue one is also available via the EBSCO Back files product.

Objectives of the Study

The main objectives of the present study are:

- 1) To examine the distribution of the contribution Volume wise.
- 2) To find out authorship pattern of contributions.
- 3) To find out authorship pattern of contributions Volume wise.
- 4) To find out Degree of collaboration year wise.
- 5) To find out the contribution Institution wise.
- 6) To find out the Geographical distribution of contributors of articles.
- 7) To find out the types of publication cited volume wise.
- 8) To find out the average citation per contribution in each volume.
- 9) To find out the average pages per volume & per contribution.

Scope & Limitation

The present study is based on 5 volumes, 20 issues of the New Library world during 2008-2012.

The present study is based on over all 2844 citations appended to 86 articles.

Data Collection

Data can be numerically expressed that is quantified quantifiable or objective (Fasibs off and Dely, 1990) the **Data was collected from 5 volumes, 20 issues of Library Quarterly during 2008-2012. In all 2844 citations appended to 86 articles were further analyzed.**

Data Analysis

Analysis of information or data is one of the important part of any study Data analysis is done for the purpose of huge volume of data is reduced into meaning full case report.

Analysis of total 2844 citations appended to 86 articles was done in the journal during 2008 to 2012. It was done by using various parameters like to identify the core journals to rank of cited journal to rank. The cited author to find out geographical distribution of citations to find out the types of cited documents, the data or information was presented in the form of table and graphs to show the result prominently and easily.

The library quarterly E-Journal is published Four times in a year. It is an online journal published in 1993.

The present study is based on 5 volumes 20 issues of E- Journal library quarterly during 2008-2012.

The present chapter deals with the Scientometric analysis of different E- journals as per the following parameters.

- 1) Distribution of contributions. (Volume-wise)
- 2) Authorship pattern of contributions.
- 3) Authorship pattern of contributions. (Volume-wise)
- 4) Year- wise Degree of collaboration.
- 5) Distribution of contributions. (institution- wise)
- 6) Geographical distributions of contributions at International level.
- 7) Type of publications cited. (Volume- wise)
- 8) Average citation per contributions in each volume.
- 9) Average pages. (per volume per contributions)

1. Distribution of contributions (Volume-wise)

The Volume wise Distribution of contributions is shown in Table No.1

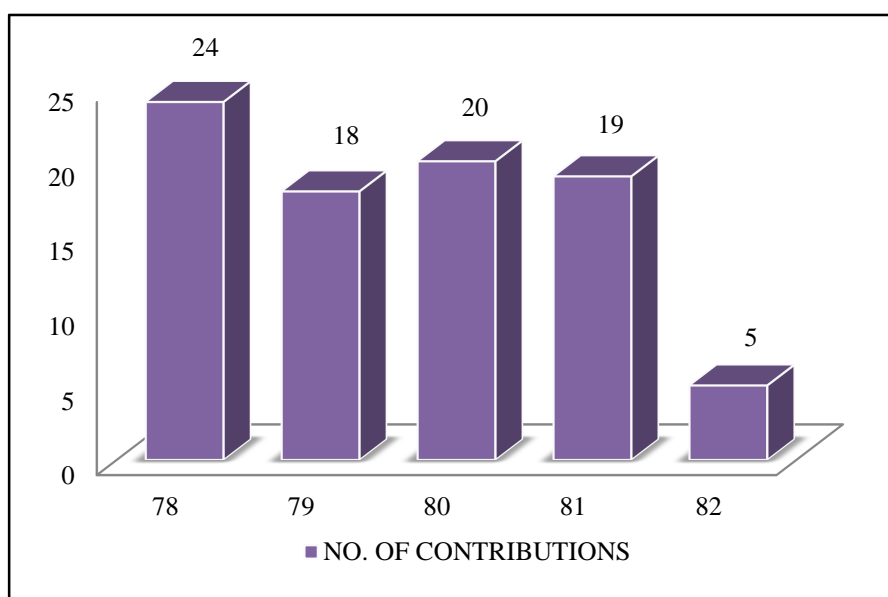
Table No. 1 Distribution of contributions (Volume-wise)

Distribution of Contribution's (Volume-Wise)				
Year	Volume No.	No. of Issue	No. of Contribution	Percentage
2008	78	4	24	27.91%
2009	79	4	18	20.93%
2010	80	4	20	23.26%
2011	81	4	19	22.09%
2012	82	4	5	5.81%
Total		20	86	100.00%

It was observed from Table No.1 and figure No. 1 that the Distribution of contributions (Volume- wise) is shown in Table No. 1 & Figure no. 1 out of the total 86 contributions majority of the contributions i.e. 24 contributions were contributed in 2008 were as minimum contributions i.e. 5 contributions were contributed in 2012.

Impact Factor (IIFS) - 0.331

Figure No. 1 Distribution of contributions (Volume-wise)



2. Authorship pattern of contribution

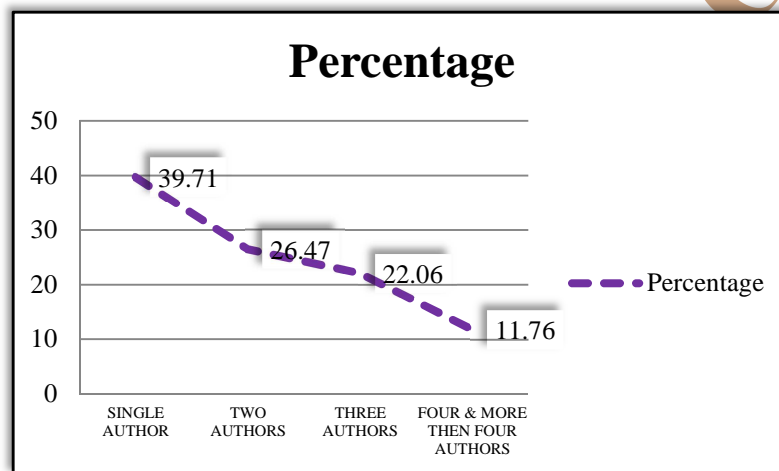
The Authorship pattern of contributions is shown in Table No. 2

Table No. 2 Authorship pattern of contributions

Authorship Pattern of Contribution's			
No. of Author	No. of Contribution	No. of Authorship	Percentage
Single Author	54	54	39.71%
Two Authors	18	36	26.47%
Three Authors	10	30	22.06%
Four & more then Four Authors	4	16	11.76%
Total	86	136	100.00%

The distribution of Authorship pattern is given in the Table No.2. The table shows the single authorship is predominant then four & more then Four Authors. Table No. 2 & Figure no. 2 indicatives the majority of the contributions are contributed by single author. In which hypotheses No. 1 is valid. **“Majority of the contributions are contributed by single author”**.

Figure No. 2 Authorship pattern of contributions



3. Authorship pattern of contribution (Volume- wise)

The authorship pattern of contributions is revealed shown in Table No. 3

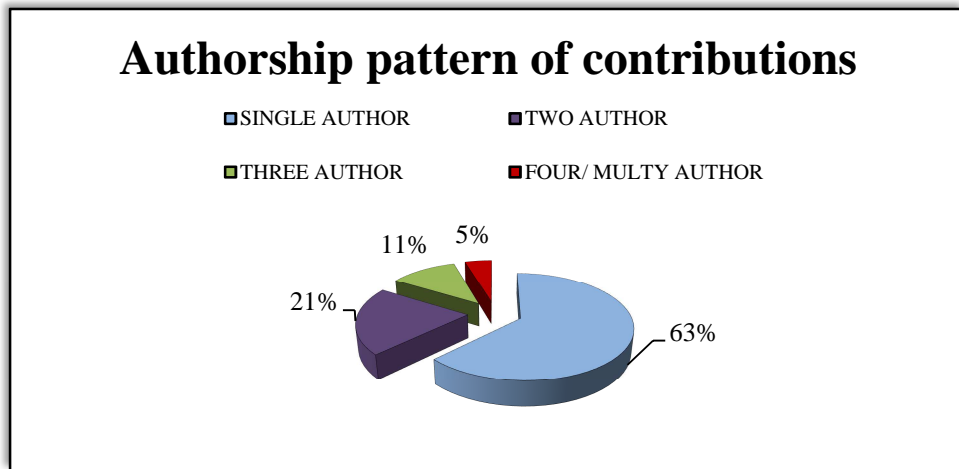
Table No. 3 Authorship pattern of contribution (Volume- wise)

Authorship Pattern of Contribution's (Volume- Wise)					
Volume No.	Single Author	Two Authors	Three Authors	Four & more than Four Authors	Total Articles
78	15	5	3	1	24
79	13	3	1	1	18
80	12	4	4	0	20
81	12	5	1	1	19
82	2	1	1	1	5
Total	54	18	10	4	86

Table No. 3 shows the authorship pattern of contributions (Volume- wise). Distributions of contribution by a single author in volume No. 78 indicate that the maximum percentage is of single author. Two authors' contributions in volume No. 78 & 81 show the highest percentage. Table No. 3 & figure No. 3 indicates the majority of the contributions are contributed by single author. Where hypotheses No. 1 is valid **“Majority of the contributions are contributed by single author”**.

Impact Factor (IIFS) - 0.331

Figure No. 3 Authorship pattern of contributions



Degree of collaboration in the International journal of "Library Quarterly" the formula given by k. Subramanyam is useful for determining the collaboration in quantitative terms. The study followed the same formula which is mathematically put as;

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

Where,

C= Degree of collaboration

NM= Number of multi authored papers

NS= Number of single authored papers

In the present study

NM= 31

NS= 55

$$= \frac{31}{31 + 55} = \frac{31}{86} = 0.3604$$

Those, C= 0.3604

Thus the degree of collaboration if the international journal of “Library Quarterly” is 0.3604 which clearly indicates its dominance upon individual contribution. Where hypotheses No. 1 is valid **“Majority of the contributions are contributed by single author”** Table No. 3.2

4. Year wise Degree of Collaboration

The Degree of collaborations is shown in Table No. 3

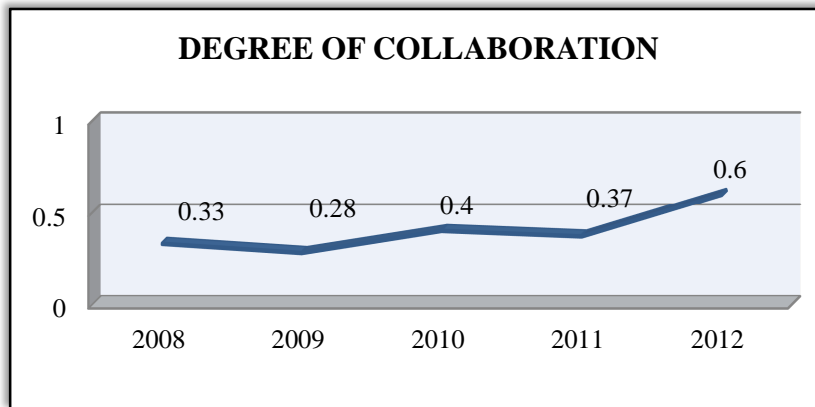
Table No. 4 shows the year is degree of collaboration.

Degree of Contribution's (Year- Wise)							
Year	Total No. of articles	Total No. of authors	No. of single authored articles	% of article	No. of Four & more then four authored articles	% of articles	Degree of collaboration
2008	24	24	16	18.60%	8	9.30%	0.33
2009	18	18	13	15.12%	5	5.81%	0.28
2010	20	20	12	13.95%	8	9.30%	0.40
2011	19	19	12	13.95%	7	8.14%	0.37
2012	5	5	2	2.33%	3	3.49%	0.60
Total	86	86	55	63.95%	31	36.05%	1.98

Table No. 4 shows that in the 5 years period, the single authorship articles are higher and predominant than multi author. The multi authored articles are which are highest in the year 2008 & 2010. It is the seen that the single authorship trend in increasing.

Impact Factor (IIFS) - 0.331

Figure No. 4 Year wise Degree of Collaboration



5. Contributors (Institution wise)

Distribution of institution wise contributors in shown in Table No. 5.

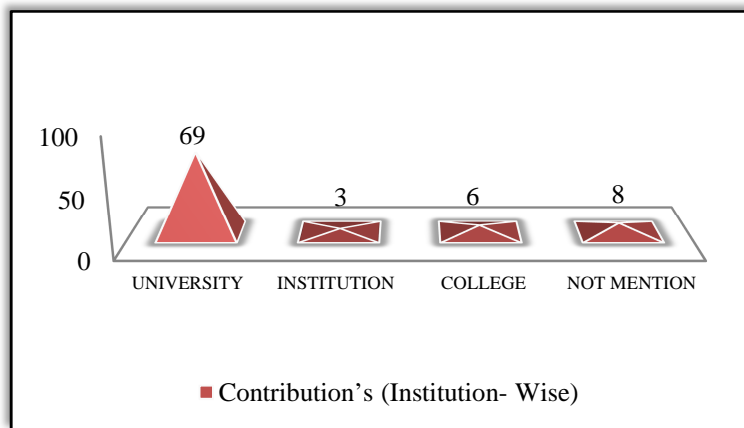
Table No. 5 shows the Contributions (Institution wise).

Contribution's (Institution- Wise)						
Volume No.	Year	University	Institution	College	Not Mention	Total
78	2008	15	0	3	6	24
79	2009	18	0	0	0	18
80	2010	13	3	3	1	20
81	2011	18	0	0	1	19
82	2012	5	0	0	0	5
Total		69	3	6	8	86

Table No. 5 shows distribution of institutions volume wise contributions. University wise at the national level followed by colleges. It was seen that university wise contribution

in maximum (69) than institution wise (3) and (6) contributions were contributed by the colleges. Table No. 5 shows that the highest number of contributions are of university level. Hypotheses No. 2 is valid **“The maximum numbers of contributions are of university level”**.

Figure No. 5 Contributors (Institution wise)



6. Geographical Distribution of contributions at international level

Geographical distribution of contributions at international level is shown in

Table No. 6

Table No. 6 Geographical Distribution of contributions at International level

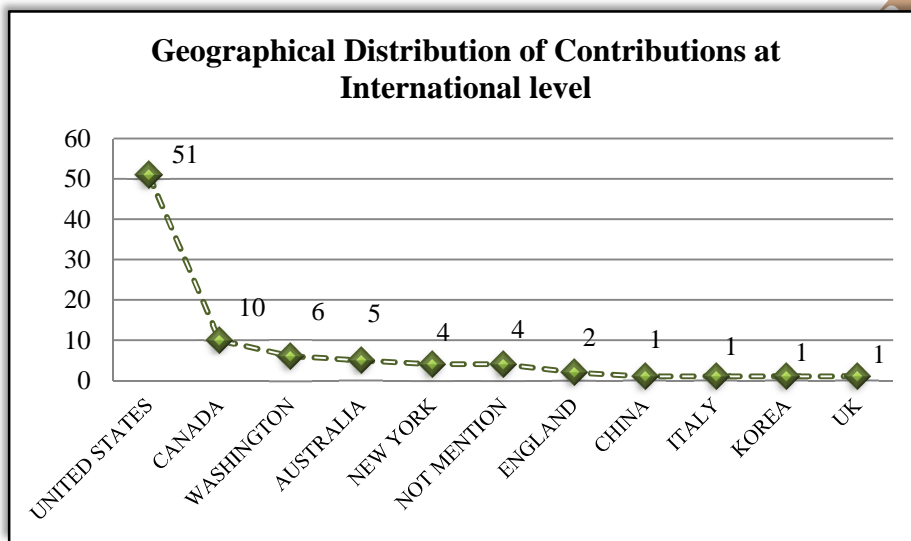
Geographical Distribution of Contributions at International Level			
Sr. No.	Name of country	No. of Contribution	Percentage
1	United States	51	59.30%
2	Canada	10	11.63%
3	Washington	6	6.98%
4	Australia	5	5.81%
5	New York	4	4.65%
6	Not Mention	4	4.65%
7	England	2	2.33%
8	China	1	1.16%
9	Italy	1	1.16%
10	Korea	1	1.16%
11	UK	1	1.16%
Total		86	100.00%

Impact Factor (IIFS) - 0.331

Table No. 6 shows the Geographical distribution of contributions at international level.

Table No. 6 indicates that the majority of the contributions were contributed by USA (59.30) were as the minimum contributions were contributed by (11.63) respectively.

Figure No. 6 Geographical Distribution of contributions at international level



7. Types of publication cited (Volume wise)

Types of publication cited Volume wise is displayed in Table No. 7

Table No. 7 Types of publication cited (Volume wise)

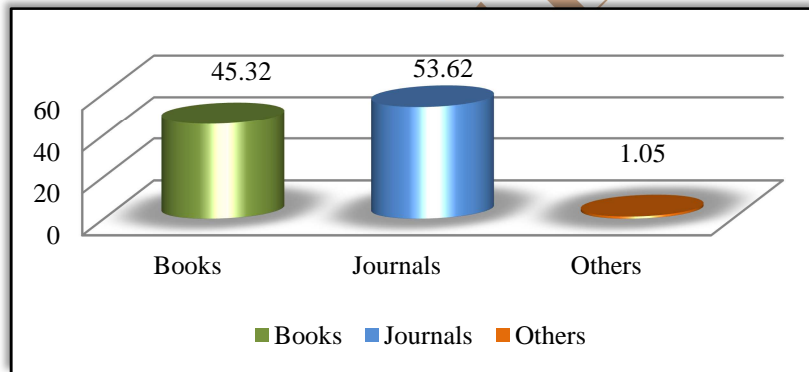
Types of Publication Cited (Volume- Wise)					
Volume No.	Year	Books	Journals	Others	Total
78	2008	321	347	9	677
79	2009	372	425	2	799
80	2010	270	244	6	520

Impact Factor (IIFS) - 0.331

81	2011	285	447	10	742
82	2012	41	62	3	106
Total		1289	1525	30	2844
Percentage		45.32%	53.62%	1.05%	

Table No. 7 shows the types of publication cited volume wise. Of the total 86 contributions majority (53.62) of the citations are the Journal citations and minimum (45.32) are book citations. In which hypotheses No. 3 is valid **“The LIS professional make use of the journal articles the most”**.

Figure No. 7 Types of publication cited Volume wise)



Impact Factor (IIFS) - 0.331

8. Average citation per contribution in each volume

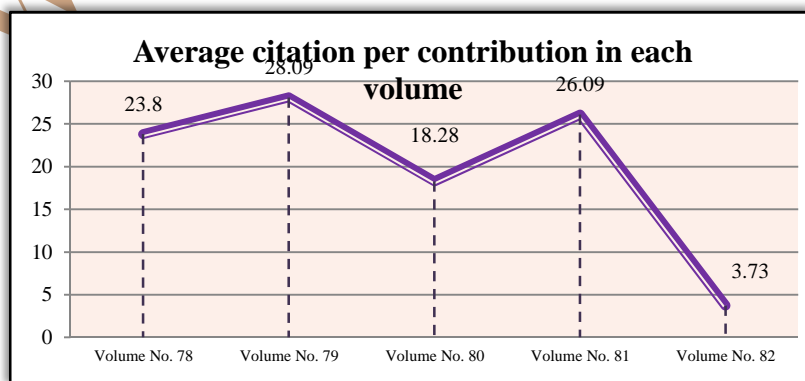
Average citation per contribution in each volume is shown in Table No.8

Table No. 8 Average citation per contribution in each volume

Average Citation Per Contribution In Each Volume			
Volume No.	No. Of Contribution	No. Of Citation	Percentage
78	24	677	23.80%
79	18	799	28.09%
80	20	520	18.28%
81	19	742	26.09%
82	5	106	3.73%
Total	86	2844	100.00%

Table No. 8 shows the average citation per contribution in each volume, total 86 contributions were contributed. Maximum numbers of citations were contributed by volume No. 79 (28.09) and the minimum (3.73) contributions were contributed by volume No. 82.

Table No. 8 Average citation per contribution in each volume



Impact Factor (IIFS) - 0.331

9. Average pages (per volume & per contributions)

Average pages (per volume & per contributions) in displayed in Table No. 9

Table No. 9 Average pages (per volume & per contributions)

Average Pages (Per Volume & Per Contribution)			
Volume No.	Total Pages	No. Of Article	Percentage
78	482	24	20.08%
79	493	18	27.39%
80	383	20	19.15%
81	469	19	24.68%
82	103	5	20.60%
Total	1930	86	

The Table No. 9 shows the average pages (per volume & per contributions). The maximum pages were covered in volume No. 78 (27.91) & minimum pages were covered in volume No. 82 (5.81).

Findings & Conclusion

The findings are based on the analysis of collected data appended in 86 articles and 2844 references in Library Quarterly e-journals.

1. Distribution of contribution (Volume-Wise)

The total 86 contribution majority of the contributions i.e. 20 contributions were contributed in 2012 were as minimum contributions i.e. 5 contributions were contributed in 2008 and 2012.

2. Authorship pattern of contributions

The Single author has contributed 54 (9.71%) percent of the total articles. 18 (26.47%) percent of the contributions were contributed with two author. Three authors has contributed 10 (22.06%) percent of the total articles and 4 (11.76%) percent of the contributions were contributed by four & more then four authors. It also indicates that majority of the contributions are contributed by single author. Where hypotheses No. 1 is valid **"Majority of the contributions are contributed by single author"** (Table No.2).

3. Authorship pattern of Contribution (Volume-wise)

Distribution of contribution by a single author in volume No.78 indicates the maximum percentage of single authorship. Two authors' contributions in volume No. 78 & 81 show the highest percentage. Three authors contributions in volume No. 80 show the

highest percentage and four & more then four authors contributions in volume No. 78, 79, 81, 82 shows the maximum percentage.

Table No.3 indicates the majority of the contributions are contributed by single author. Where hypotheses No.1 is valid **“Majority of the contributions are contributed by single author”** Table No.3, 2.

4. Year Wise Degree of Collaboration

The single authorship articles are higher and predominant than four & more then four authors. The four & more then four authored articles are almost same in all years. The single authored articles are 15 (39.71) which are highest in the year 2008. It is seen that the single authorship trend is increasing.

5. Contributors (Institution Wise)

The university wise contribution is maximum (69) contributions is contributed. 3 contributions were contributed by institution wise and 6 contributions were contributed by the colleges. 8 contributions are not mentioned. Above Table No.5 shows the highest number of contributions is university level. Hypotheses No.2 is valid **“The maximum numbers of contributions are of university level”** Table No.5.

6. Geographical Distribution of Contributions at international level

The majority of the Contributions contributed by USA which are 51 (59.30%) percent of the total Contributions were as the minimum Contributions were contributed by 4 countries which are percentage each 0.90%.

7. Types of publication cited (Volume-Wise)

20 issues of five volumes of the electronic journal constrained 2844 citations. The total 86 contributions majority of the citations cited by the journal and minimum citations are cited by other sources. In which hypotheses No.3 is valid **"The LIS professional make use of the journal articles the most"** Table 7.

8. Average citation per contribution in each volume

The out of total 86 contributions were contributed. Maximum No. of citations were contributed in volume No. 79 (28.09%) and the minimum 5 (3.73%) percent contributions were contributed by volume No. 25.

9. Average pages (Per volume and per contributions)

The table No. 9 shows the average pages (per volume and per contributions). The maximum pages were covered in volume No. 79 (20.08%). And minimum pages were covered in volume No. 103 (20.60%) out of the Total contributions.

Conclusion

Scientometric analysis is the major techniques of Bibliometrics which is used in the further study. Considering published literature present study has used quantitative method. Scientometric is relatively new subject of information. It helps to evaluate information & to handle the information in libraries and information centers by the quantitative analyzed information. It deals with the mathematical and statistical analysis. This is an umbrella term used for many studies where quantitative method or techniques are used to investigate various aspect of written document.

The Library Quarterly is quarterly journal published in the year 1993. It was founded EBSCO. A Scientometric analysis is the technique of Bibliometrics used to measure the impact of individual online journal.

References

- Agrawal, Aruna, (1982): The reference frequency relation IPhysical science. *Scientometrics*, 49(3).443-451
- Alan, Prichard, (1969):Bibliometrics study in neurology from point of view of Indian scientists. *IASLICS, Bulletin*, 9(2),63-67.
- Anuradha and Ramya, (2008): Scientific collaboration in academic institutions: A case study with Indian Institute of Science publications. *SRELS Journal of Information management*, 45(2), 181-196.

- Bankapur, M.B. and Kumabar (1993): Job satisfaction and publication output among librarians in Nigerian Universities. *Library Management*. 20(1), 39-48.
- Basanatha Kumar, (2009), *Research Method in Librarianship*. London, Academic Press, 179-185.
- Beaver, Rosen, (1978): Are obsolescence and scattering related. *Journal of Documentation*, 28(3); 242-250.
- Bocher, (1989): *Information science*. Sterling publication, New Delhi, 90-98.
- Borher chen, (2005): Citation behavior and place of publication periphery: a matter of quality. *Information Processing and Management*. 30(1); 33-42.
- Bozeman and Lee, (2003): The impact of research Collaboration on scientific productivity. *Annual meeting of the American Association for the advancement of science*, Colorado. 1-57.
- Bulter, (2001): Modern method and new techniques. *Handbook of research Methodology*, 159-166.
- Chen, (2004): The construction of the Taiwan Humanities citation index. *Online Information Review*. 28 (6), 410-419.
- *Companazio. M*, (1998), [Arizoma.edu/pubs/crscemec/ AZ.1113. pdf](http://Arizoma.edu/pubs/crscemec/AZ.1113.pdf).
- David Wilson, (2001): Creating a care Journal collection for agriculture research in Tanzania: Scientometric analysis and user opinion techniques. *Library Review*, 53(5), 207-278.

- Derek, De.Solla. (2000). A study of learning and retention with a web-based IR interface *journal of librarianship and information science* 37(1), pp.7-16.
- Derek, J.(1995), Scientometric analysis of nature. The journal *scientometric*, 46 (1), 51-72.
- Eugene, Garfield.(2002),Scientometric indicator data files. A multidimensional machine readable database for evaluative purposes. *Scientometrics*, 28(1993)137-150.
- Eugene,Garfield.(1995),Scientometric indicator data files. A multidimensional machine readable database for evaluative purposes. *Scientometrics*, 28(1993)137-150.
- Eva, Rodents.(2001), Advanced bibliometrics method as quantitative core of peer review based evaluation and foresight exercises, *Scientometrics*, 36(1)397-20.
- Fair Thom, (1970), Bridging the gaps: Conceptual discussions on informetrics, *Scientometrics*, 30(4)35-48.
- Fairthorne, R.A. (1969). Empirical hyperbolic distribution (*Bradfor, Zipf's Mandelbrot*) for bibliometric description and predictions.
- Fasibs off and Dely (1990), Federal research impact assessment : Axioms, approaches, applications, *Scientometrics*, 34(1)163-206.
- Garfield and Trumpiene, (1972), Authorship and citation pattern in management science in comparison with operational research, *Scientometrics*, 53:337-340.
- Gorg, Padhi, (1999), Synthetizing scientometrics patterns in Spanish educational research, *Scientometrics*, 46:349-367.

- Glanjel, Janeirao, (2008), Scientometrics of prolific and non prolific author in laser science and technology, *Scientometrics*, 49:359-371.
- Gray, (2005), on the origin of bibliometrics, *scientometrics*, 68: 109-133.
- Gupta, (1998): Citation Analysis; Acase study of a most cited Author and his Most cited Articles on sea flour spreading. *IASLIC Bulletin*.28(1),1-2.
- Gustav, (1966), The international visibility and citation impact of Scandinavian research articles in delected social science fields: The decay of a myth, *Scientometrics*, 49:39-61.
- Hansan, (1971), The Nobel prize in physics – Regularities and tendencies, *Scientometrics*, 61:191-205.
- Hargens, L, (1988), The literature of bibliometrics, *Scientometrics*, and information. *Scientometrics*, 52, 291-314.
- Jofuesediffe, (1990), The concept of entropy in Scientometrics and innovation research. *Scientometrics*, 18, 219-239.
- Katz and Marhin, (1997). User Studies in library planning. *Library Trends*, 24 (3).
- Kessler & Small, (1995), Measuring the meaning of words in contexts: An automated analysis of controversies about ‘Monarch butterflies’, ‘Frankenfood’, and ‘stem cell’. *Scientometrics*. 67(2), 231-285.
- Kodemani and et al., (2005) : Publication productivity of the Bio-organic Division at Bhabha Atomic Research center : A Scientometric study. *Annals of Library*

Information Studies. 51 (1), 39-41.

- Kumar, (2004): Research methodology and statistical Techniques. *B.R Publishing Corporation*. A Division of BARC (India) Ltd. Delhi. Pp.272.
- Leydesdory, (2000).Bibliometric studies for the Evaluation of Trans –National Research, *Scientometrics* 21: 223-244.
- Mahapatra, (2000): Scientific Research productivity on Orrisa; bibliometrics analysis. *Annals of library and Information studies*. 53(1), 18-22.
- Manavalan,R.,(1982),Why author think their papers are highly cited. *Scientometrics*, 60(3), 305-316.
- Nichalas.D and Ritche, M (1978) *Literature and bibliometrics* (p.180) cliving Binley: London.
- Nicolsions, (2002), Scientometrics study of laser patent literature, *Scientometrics*, 43 (1998)443-454.
- Ocholla, (2008): The Current status and challenge collaboration in library and Information studies education and training in Africa New library word. (9-10), 466-472.
- Potter, W.H., (1981), Cross-national comparison of frontierarea of research in Physics using bibliometrics indicators, *Scientometrics*, 40 (2)385-405.
- Ramesh, Yeranagula,(2003), Relative indicators and relational charts for comparati assessment of publication output and citation impact, *Scientometrics*, 9 (1) 281-291.

- Rawlands, 1. (2005): *Journal diffusion factors* ; A new approach to measuring research influence, *Aslib Proceeding*.52(2),77-84.
- Reed, (2009) Citation analysis of faulty publication, beyond science citation Index and social science citation index. *Index.htm.vcm*.
- Sarajvady, (2001): Information forum on information and documentation. Pp. 3-21.
- Sengupta, I.N, (1990). Bibliometric and identification of care periodicals. *Hearld of Library science*. 29 (2-3), 226-245.
- Singh, G (2007). A Bibliometrics study of literature an digital libries. *The Electronic Library*. 25(3), 342-348.
- Serman, (1985).Encyclopedia of Educational Research, *A division of Macmillan Publication Company,New York. Vol.3, p. 1458.*
- Wasudevan, K.T., (1995).Data sources for performing citation Analysis; an overview. *Journal of Documentation*. 64(20),193-210.
- Wouters,(2006).Scientometrics Analysis. *Journal of Library and Information Technology*. 1(1), 5-9.
- www.library.iitkgp.ernet.in. Access on 30/4/2011
- Yadav, Jaisi Ram,(1984): The J-shaped distribution of citednes.*Journal of Documentation*; 58(4),383-395.