

AUTHORSHIP PATTERN AND DEGREE OF COLLABORATION IN KNOWLEDGE ORGANIZATION

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Abstract: - *The study presents the trends in authorship pattern and author's collaborative research in Knowledge organization with a sample of 908 articles collect from LISA during 1991-2000. English 796 (87.67 %) is most important language found during the study undertaken. the contribution of research articles highest number 153(16.85%) in the year 2000. Very less number of articles is written by multi author the study reveals that single authorship research in predominant as compare to Knowledge organization in LISA In the study the degree of collaboration (C) during the overall 10 years (1991-2000) is 0.27. 10 years of period the multi authored articles 62 (6.83%) are highest in the year 2000.*

Keywords : Bibliometrics, Scientometrics, Scientometrics Analysis, Authorship Pattern, Degree of Collaboration, Knowledge organization, LISA

Introduction

Scientometric is a quantitative evaluation of publication patterns of all macro and micro communication along with their authorship by mathematical and statistical calculation. According to Alan Pritchard the term "Bibliometrics" as the application of mathematical and statistical methods to books and other communication medium. The present study is based on the Library and Information science abstracts (LISA) during 1991-2000. The 908 articles on Knowledge Organization covered in LISA during 1991-2000 are taken into consideration.

LISA is an international abstracting and indexing service designed for library professionals and other information specialists. LISA provides bibliographic information about past and present

developments in librarianship, information science, online retrieval, and publishing and information technology. This database covers around five hundred periodicals from over sixty countries. It also includes unpublished academic and institutional research from the IRWI - Information Research Watch International database. LISA has an international perspective, and a diverse audience including researchers, students, library staff, and information professionals. LISA is established in the year 1969 published bi-monthly.

Review of Literature

Authorship is the important bibliometric measures reflecting contemporary communication patterns, productivity and collaboration among the researchers.

The number of authors contributing to scholarly publications in terms of authorship pattern is an instructing part of any bibliometric study. A count of number of authors contributing to articles offers some indication to degree of collaboration between authors. Collaboration research refers to a research in which any research project is being carried out by at least two people by engaging their efforts in mind and body. It is very common in the field of sciences as compare to humanities. As part of literature search, the author found various studies in different disciplines based on the authorship pattern and collaborative research. Some of the literatures are reviewed by the authors before conducting the current study.

Price (1963) on the basis of a sampling of Chemical Abstract for the period of 1910-1960 concludes that a detailed examination of the incidence of collaborative work in science shows that the trend towards multiple authorship is a phenomenon which has been increasing steadily and ever more since the beginning of the century. Maheshwarappa et al. (1984) studied the authorship pattern in Science and Technology (S&T) in India and found that two-authored papers are more in S&T as a whole. It indicates that the evident of high degree of collaboration in S&T research in India.

Nour (1985) analyzed research articles published during 1985 in 41 core LIS journals, and reported data for each source article based on variables such as: journal, research methodology, subject,

total number of references and number of references to journal articles. This study identified the research methodologies and classified them by subject.

Vimala and Pullreddy (1996) analyzed the doctoral theses in zoology of Venkateswara University, Tirupati and concluded that although multiple- authorship dominant, solo research also exists and degree of collaboration in zoology is 0.75 as a whole.

O'Neill (1998) examined the authorship pattern in two theory based journals; one is from *American Journal Educational Theory* (1955-1994) and author from Canadian journal *Journal of Education Though* (1970-1974) He found that majority of authorship were single in both the journals regardless of the data of publication against de Solla Price's prediction that coauthor would eventually increase and single- author paper will be extinct.

Objectives of the Study

The objectives of the present study are:

1. To identify Language wise Distribution of Articles
2. To measure the year wise distribution of publication Growth of Literature.
3. To find out the Relative Growth Rate and Double time of Publication.
4. To examine the nature of authorship patterns in Knowledge organization.
5. To determine degree of collaboration in Knowledge organization.

Data analysis and results

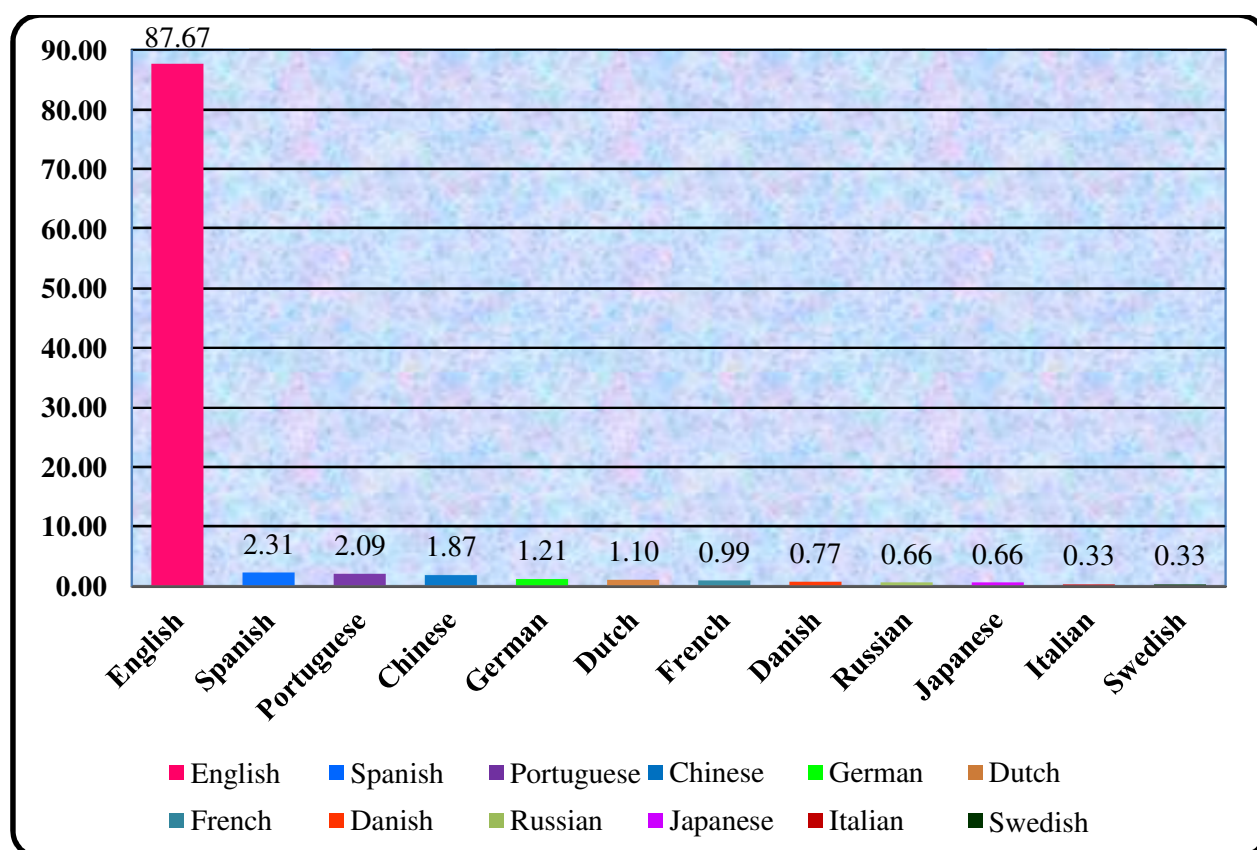
According to objective of the study, analysis and findings of the study are outlined below

Language wise distribution

Attempts were made to find out language of the articles published in Knowledge organization which is presented in Table No.1 and Fig No.1.

Table No. 1: Language wise distribution

Languages	No. of Articles	Percentage
English	796	87.67
Spanish	21	2.31
Portuguese	19	2.09
Chinese	17	1.87
German	11	1.21
Dutch	10	1.10
French	9	0.99
Danish	7	0.77
Russian	6	0.66
Japanese	6	0.66
Italian	3	0.33
Swedish	3	0.33
Total	908	100.00

**Figure No. 1: Language wise distribution**

The importance of language related to a specific field of knowledge change from time to time. English 796 (87.67 %) is most important language found during the study undertaken. The other languages Spanish , Swedish, Portuguese, Chinese , German, etc. are found to be 112 (12.33%). Attempts were made to analyze under the study according to their language of publication as shown in table since English speaking countries and maximum journals covering the articles on the subject under the study are published in

English language. It means that English language dominates the others language for article publication in the journals.

Year wise Distribution of Publications

The year-wise distribution of publication is shown in Table No. 2

Table No. 2: Year wise Distribution of Publications

Sr.No.	Years	Research Articles	%
1	1991	64	7.05
2	1992	25	2.75
3	1993	56	6.17
4	1994	132	14.54
5	1995	79	8.70
6	1996	64	7.05
7	1997	88	9.69
8	1998	120	13.22
9	1999	127	13.99
10	2000	153	16.85
	Total	908	100%

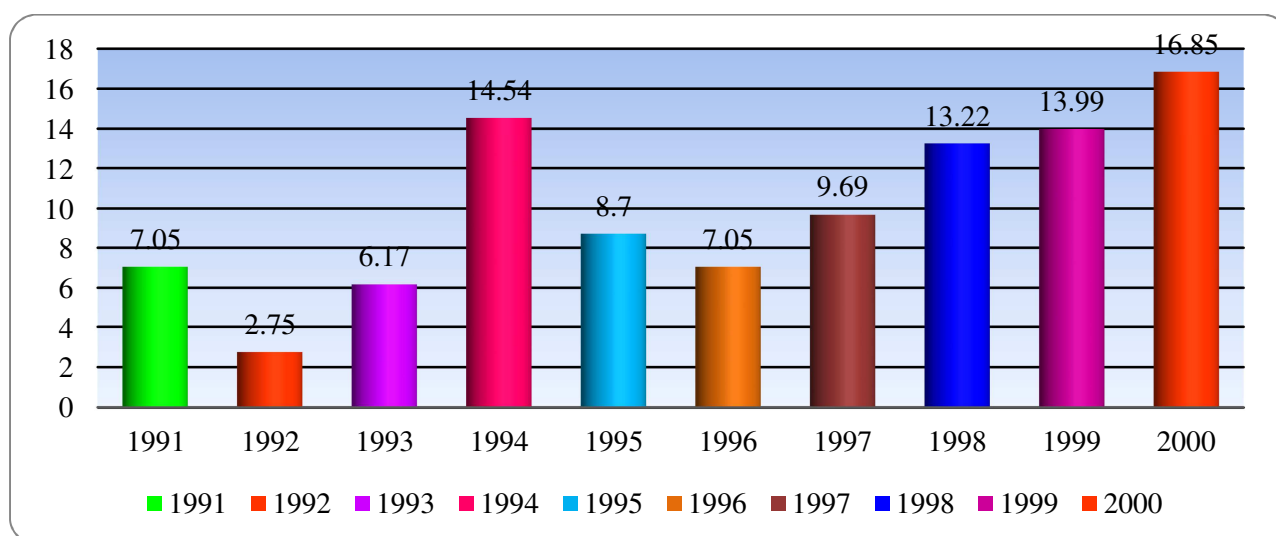


Figure No. 2: Year wise Distribution of Publications

The Table No. 2 Figure No. 2 Shows, the distribution of research articles on knowledge organization in year 1991-2000 in LISA-Library and Information Science Abstract. It is clear that the number of research articles has been increase of over the years. It also indicates that of the contribution of research articles highest number 153(16.85%) in the year 2000. while the research article lowest published in Year 1992 is 25 (2.5%) , In the Year 1991 total 64 (7.05%)article were published, in year 1993 total 56 (6.17%)were published, In the Year 1994 the second highest number of that decade articles were published i.e. 132 (14.054%), in Year 1995 total 79 (8.70%) article were published, in the year 1996 total 64 (7.05%) article were published, in the Year 1997 total 88(9.69%) article were published, in the Year 1998 total 120 (13.22%) article were published

Relative Growth Rate and Doubling Time of Publication

The Relative Growth Rate [R(P)] and Doubling Time [Dt(P)] of Publication in Table No.3. It is observed that the Relative Growth Rate of Publication [R(P)] increased from the rate of 0.33 in 1992 to 0.195 in 2000. The mean relative growth for the first five years (i.e. 1991-1995) showed a growth rate of 0.336, whereas the mean relative growth rate for the last five years (i.e. 1996-2000) increased to 0.197. The corresponding Doubling Time for different years [Dt(P)] gradually increased from 2.1 in 1992 to 3.553 in 2000. The mean Doubling Time for the first five years (i.e. 1991-1995) was only 1.446 which was increased to 3.549 during the last five years (i.e. 1996-2000). Thus as rate of growth of publication was increased the corresponding Doubling Time was also increased.

Table No. 3: Relative Growth Rate and Doubling Time of Publication

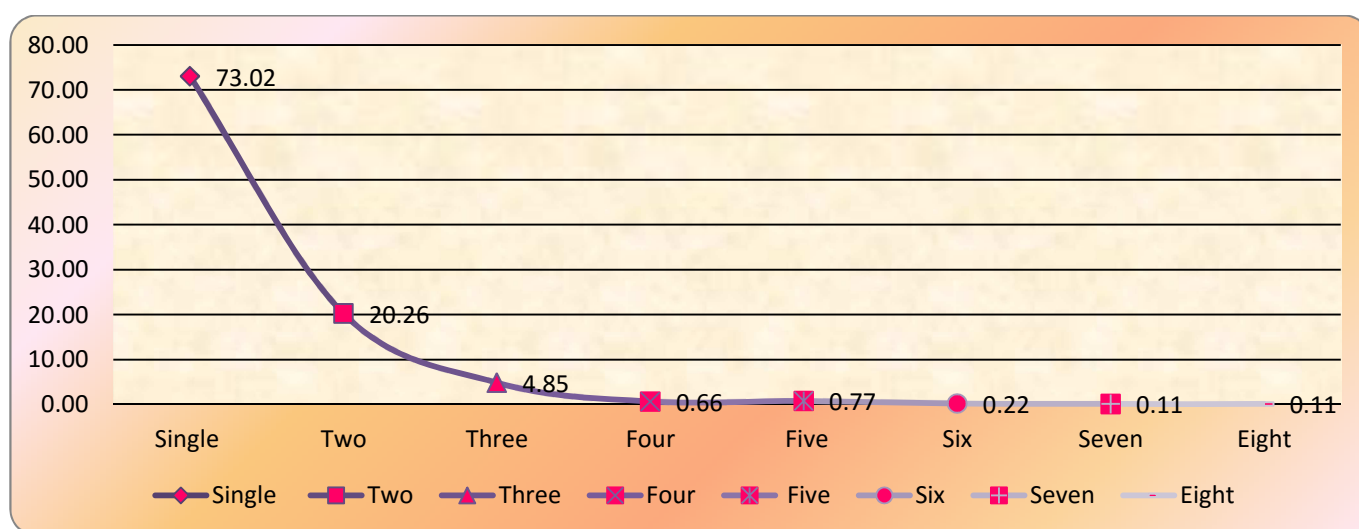
Sr.No.	year	No.of Articles	Cumulative No.of Articles	Log 1	Log 2	[R(P)]	Mean [R(p)]	[Dt(P)]	Mean [Dt(P)]
1	1991	64	64	-	4.158		0.336		1.446
2	1992	25	89	4.158	4.488	0.33		2.1	
3	1993	56	145	4.488	4.976	0.488		1.42	
4	1994	112	257	4.976	5.549	0.573		1.209	
5	1995	79	336	5.549	5.826	0.277		2.501	
6	1996	64	400	5.826	5.991	0.165	0.197	4.2	3.549
7	1997	88	488	5.991	6.19	0.199		3.482	
8	1998	120	608	6.19	6.41	0.22		3.15	
9	1999	139	747	6.41	6.616	0.206		3.364	
10	2000	161	908	6.616	6.811	0.195		3.553	

Authorship Patterns

Authorship pattern of the articles is presented in the Table No.4 the study reveals that of the total 32,264 authors have contributed 908 articles having the different frequencies of authors. Table No.4 shows the authorship pattern of articles. Among 908 articles, 663 (73.02 %) articles are written by single author, 184 (20.26 %) articles are written by two authors, 44 (4.85%) articles are written by three authors, 6 (0.66%) articles are written by four and 7 (0.77%) articles are by five authors, Seven and Eight authors wrote each 1 (0.11%) of Article. It can be seen that single authors are predominant, than multi authors. The authorship pattern reveals a remarkable different between the number of single author and multiple authors. Very less number of articles is written by multi author the study reveals that single authorship research is predominant as compare to Knowledge organization in LISA. The study opined that team research is favored in Knowledge organization in LISA.

Table No. 4 Authorship Patterns

Sr.No.	No.of Authors	No.of Articles	No.of Author	% of Article	% of Author	Cumulative % of Articles
1	Single	663	663	73.02	53.08	73.02
2	Two	184	368	20.26	29.46	93.28
3	Three	44	132	4.85	10.57	98.13
4	Four	6	24	0.66	1.92	98.79
5	Five	7	35	0.77	2.80	99.56
6	Six	2	12	0.22	0.96	99.78
7	Seven	1	7	0.11	0.56	99.89
8	Eight	1	8	0.11	0.64	100
	Total	908	1249	100	100	

**Figure No. 4 Authorship Patterns****Degree of Collaboration**

The degree of collaboration (Subraminiyam, 1983) in a discipline was defined as the ratio of the number of collaborative research papers to the total number of research papers published in the discipline during certain period of time. Degree of collaboration in respect of a discipline or an organization is the ratio of multi-authored papers published during a year and the total number of papers published during the year.

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

Where as- DC= Degree of Collaboration
 Nm= No. of multi authors papers
 Ns= No. of Single author paper.

Here Nm= 245
 Ns=663

$$DC = \frac{586}{586+663} = 0.47$$

Thus the degree of collaboration(C) during the overall 10 years (1991-2000) is 0.27 But when we calculate the year wise degree of collaboration for 10 years the results arise different.

Table No. 5 Degree of Collaboration

Sr.No.	Year	No.of Articles	Total No. of Authors	No.of Single Author Article	Percentage of Articles	No.of Multi Authored Articles	Percentage of Article	Degree of Collaboration
1	1991	64	74	54	5.95	10	1.10	0.16
2	1992	25	33	18	1.98	7	0.77	0.28
3	1993	56	66	47	5.18	9	0.99	0.16
4	1994	112	170	96	10.57	16	1.76	0.14
5	1995	79	105	58	6.39	21	2.31	0.27
6	1996	64	77	54	5.95	10	1.10	0.16
7	1997	88	129	60	6.61	28	3.08	0.32
8	1998	120	160	86	9.47	34	3.74	0.28
9	1999	139	162	91	10.02	48	5.29	0.35
10	2000	161	219	99	10.90	62	6.83	0.39
	Total	908	1249	663	73.02	245	26.98	0.27(Mean)

The Table No.5 represents the year wise number of multi-authored articles and their degree of collaboration. In the study, the degree of collaboration of all years is almost same of the mean value as 0.27. Table shows that in the 10 years of period the multi authored articles 62 (6.83%) are highest in the year 2000.

Conclusion:

The conclusion of the study knowledge organization of ten years from 1991-2000 of 908 articles in Library and Information Science Abstract in a manner of corresponding to objective of the study. Language English 796 (87.67 %) is most important language found during the study undertaken. The other languages Spanish ,Swedish, Portuguese, Chinese ,German, etc. are found to be 112 (12.33%). In year wise publications of distribution 908 articles were published during the 1991-2000 LISA. Contribution of research articles highest number 153(16.85%) in the year 2000. while the research article lowest published in Year 1992 is 25 (2.5%). The mean relative growth for the first five years (i.e. 1991-1995) showed a growth rate of 0.336, whereas the mean relative growth rate for

the last five years (i.e. 1996-2000) increased to 0.195. The mean Doubling Time for the first five years (i.e. 1991-1995) was only 1.446 which was increased to 3.549 during the last five years (i.e. 1996-2000). The authorship pattern of articles. Among 908 articles, 663 (73.02 %) articles are written by single author and 245 (26.98%) articles are written by multi authors. The degree of collaboration of all years form 1991-2000 is almost same of the mean value as 0.27. whereas the degree of collaboration overall 10 years is 0.47.

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