



Scientometric Analysis of Annals of Library and Information Studies on Scopus Database

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Abstract:

In the present study attempts on the Scientometric analysis of Annals of Library and Information Studies during 2007-2022. The present study is based on 246 articles contributed by the authors in Annals of Library and Information Studies on Scopus. The degree of collaboration was calculated & Author Productivity as well as Average article per author. It was seen that researchers cite latest documents.

Keyword: Scientometrics, Scopus Database, Journal, degree of collaboration, Authorship Pattern.

Introduction:

Scientometrics can be defined as the “quantitative study of science, communication in science, and science policy” (Hess, 1997, 75). What started as Eugene Garfield’s idea of an index to improve information retrieval in the 1960s and resulted in the creation of the Science Citation Index (SCI) (Garfield, 1979; Wouters, 1999) was soon recognized as a novel instrument in the empirical study of the sciences (e.g., Price, 1965; Cole & Cole, 1973). The availability of output indicators (such as databases of publications and patents) complemented ongoing efforts by the Organization of Economic Cooperation and Development (OECD) in Paris to standardize input statistics of the scientific enterprise (OECD, 1963, 1976). Based on these data, the National Science Board of the U.S.A. initiated the biannual series of Science Indicators in 1972.

Brief History of Annals of Library and Information Studies

Leading quarterly publication in the field of library and information studies, The Annals of Library and Information Studies publishes original papers, survey reports, reviews, brief communications, letters, and short communications on computer applications in library and information science. Launched in 1954, the Annals of Library Science was the first publication published by the former INSDOC, with Dr. S R Ranganathan serving as its founding editor. The journal was renamed Annals of Library and Information Studies in 2001 after changing its name to Annals of Library Science and Documentation in 1964. Annals of Library and Information Studies, now in its 70th volume, is the oldest English-language LIS Indian journal. It publishes original research papers that have undergone peer review on a range of topics pertaining to libraries, goods, and services. It is meant for professionals working in documentation and information science, researchers, students, librarians, and other related fields. ALIS is published by CSIR-NISCAIR publication.

Definitional Analysis:

Bibliometric:

The terms bibliometrics consist of two words namely 'Biblio' and 'Metrics', biblio means book and metrics means simply measurement. The terms was introduced and came into prominent with finding of journal named scientometric by T. Braunin in 1977. Originally published in Hungary and currently form Amesterdom scope of journal to publish all those studies of quantities aspect of science as discipline or economic activity. Bibliometrics is a relatively new metrics it is the application of mathematical and statistical analysis of graphical unit. The most basic bibliometric techniques which involve counting and categorizing publication by subject and by country. Oxford English Dictionary defines Bibliometrics as "The branch of library science concerned with the application of mathematical and statistical analysis to bibliography; the statistical analysis of books, articles, or other publications".

Definitions- Bibliometrics is a set of methods to quantitatively analyze scientific and technological literature. (Wikipedia.org)

Fairthorne (1969) defined as "quantitative treatment of properties of recorded discourse and behaviour appearing to it. Bibliometric is also explained as quantitative analysis of bibliographic features of body of literature."

(Khaparde, 2011) stated Bibliometrics is described essentially a quantitative analysis of publications for the purpose of ascertaining specific kinds of phenomena.

Scientometrics:

Scientometric is the field of study which concerns itself with measuring and analyzing scientific literature. Scientometric is a sub-field of Bibliometrics. Major research issues include the measurement of the impact of research papers and academic journals, the understanding of scientific citations, and the use of such measurements in policy and management contexts. In practice there is a significant overlap between Scientometric and other

scientific fields such as information systems, information science, science of science policy, sociology of science, and met science. Scientometrics has been traditionally convened with the analysis of the “information” parameters of science, such as of paper, patents, journals, laws of ageing and dissimilation of scientific information, citation process etc. Scientometrics aims at publishing original studies, short communications, preliminary report, and reviews, Scientometrics included the journal of research communication studies.

“Scientometrics is the investigation of science as development of information process”. Nalimov and Mulchenk (1969).

Scopus Database

Scopus is a database from Elsevier. It is a large abstract and citation database of peer-reviewed literature and quality web sources with smart tools to track analyse and visualize research. It's designed to find the information scientists need. Quick, easy and comprehensive, Scopus provides superior support of the literature research process Elsevier has approached the publisher of each journal to request whether they can source and index the abstract and references for each article. In most cases, Elsevier holds a subscription to the journal and publishers are aware that Elsevier is covering their titles. It is an Elsevier, rather than a multi-publisher initiative.

Methodology

Methodology means study of method or a system of methods and rule applicant to research or work. It is connected basically with what principles and technique to be follow for collecting data information and material for a given research project. (Kothari, 1990). For the present study quantitative research method is used. It is also used as a way to research in different aspects of education.

Literature Review

Gaikwad Deepa N. and Khaparde Vaishali .S. (2019) were studied in scientometric analysis on mapping of plagiarism research output in India. The Study analysed the plagiarism research performance of India in national as well as global Context, Focused on geographical distribution that the most of the publication are from USA with 19.32% the study explained that the solo Research is predominant than the collaborative research and the degree of collaboration is 0.87 also shows that the Relative growth rate [R (A) is (0.346) while the Doubling time DT (A) gradually increased from (1.548) that shows rate of publication was Decreased, the Doubling time was increased.

Khaparde (2013) conducted the Bibliometric Analysis of Research Publication of Department of Chemistry, Dr. Babasaheb Ambedkar Marathwada University, from 1975 to 2012. 774research publications were analyzed from 144 journals. The study examines year-wise distribution of papers, authorship pattern, journal in which author publish. Results revealed that the number of publications was increasing consistently from 1975 to

2012. Out of 774, there are 25% of publications made in 2009, 2010, and 2011. The majority of the publications are made with 4 authors. And also the majority of the research paper published in journal of heterocyclic chemistry.

Objectives of the Study: - According to the specific field Like Year, Authorship, Journal wise distribution etc. objectives of the study categorized are as follows-

1. To study the Number of journals wise distribution of publication.
2. To study the number of year wise distribution of publication.
3. To study the Authorship Pattern.
4. To find out the type of document.
5. To find out the author's degree of collaboration pattern in the publication.
6. To distributing Authorship Productivity (AAPP)

Scope and Limitation of the Study

The present study is based on Scientometric study. The scope of the present study is limited to the 246 articles during the years 2007-2022 on Scopus Database.

Data Collection

The relevant data was collected from the published on Scopus Database. The data was collected from 246 articles, from 2007-2022. Analysis of 246 articles were further analysed.

Data Analysis

Analysis of data 246 articles will be done of the database of Scopus during 2007-2022 The analysis will be done as per the parameters laid down in the objectives of the study & using various parameters like authorship pattern, the Degree of Collaboration and also AAPP, etc.. The data collection & analysis is done a Scientometric study of total 246 articles was collected & analysed as per the objective laid down as well as by using various statistical tools.

According to the objective of the study, analysis & findings of the study are outline below:

1. The Number of journals wise distribution of publication

In the present era, journals play an important role in scientific communication of current information. Articles published in journals provide nascent micro thoughts to the researchers. The present study is therefore meant to identify the most important journals, constituting the most of the literature of research value in the field of "Research analytics & programming tools". In order to determine the ranking of journals the Articles were grouped according to the name of journals. The ranking of journals is essentially a practical tool designed to help

the librarian and research scientist to select the journals of maximum utility in relation to their coverage of new and important literature in particular subject area .The ranking of journals is shown in the table no.1

Table No - 1 Journal -Wise Distribution of contributions

Sr. No.	Name of the Journal	Frequency	Percentage
1	Scientometrics	213	86.59
2	Synthese Library	1	0.41
3	Synthesis Lectures on Emerging Trends in Librarianship	1	0.41
4	The Scientific Article in the Age of Digitization	1	0.41
5	Transferring Information Literacy Practices	1	0.41
6	Turning Points	1	0.41
7	Archival Science	7	2.85
8	Computational Discovery of Scientific Knowledge	3	1.22
9	Digital Convergence – Libraries of the Future	2	0.81
10	E-Science and Information Management	1	0.41
11	Ethics and Information Technology	4	1.63
12	Exploring New Roles for Librarians	1	0.41
13	Heidelberger Gelehrtenlexikon 1803–1932	1	0.41
14	Publishing Research Quarterly	7	2.85
15	Rethinking Knowledge Management	2	0.81
	Total	246	100

The journals are most preferred publication used by the researcher in their Study. It may be revealed that the authors are more than likely to publish their work in different journals with their respective subject areas/disciplines. In the collected data, Observed that the “Scientometrics” & scores the top position with 213 (86.59 %) & second rank goes to “Archival Science & Publishing Research Quarterly” journal with 7 (2.85%) and third rank gose to “Ethics and Information Technology” with 4 (1.63) Journals respectively.

2. The number of year wise Growth of publication

Table No. 2 Year wise Growth of Articles

Sr. No.	Year	No. of articles	Percentage
1	2007	21	8.54
2	2008	13	5.28
3	2009	23	9.35
4	2010	8	3.25
5	2011	10	4.07
6	2012	12	4.88
7	2013	9	3.66
8	2014	10	4.07
9	2015	21	8.54
10	2016	12	4.88
11	2017	21	8.54
12	2018	14	5.69
13	2019	20	8.13
14	2020	19	7.72
15	2021	23	9.35
16	2022	10	4.07
	Total	246	100.00

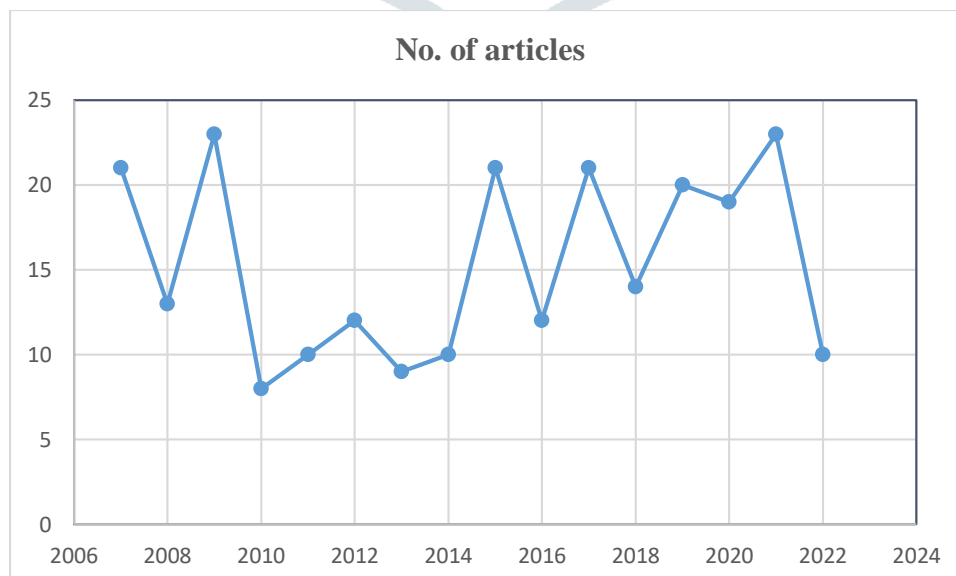


Table no. 2 presents year wise growth of publication of articles Scopus database over a period of 11 years that is during 2007 to 2022. The year 2009 & 2021 is the highest productive year in with 23 (9.35%) of articles published in the Scopus database. The year 2010 is the lowest productive Year in with 8 (4.07%) articles published.

3. Most Productive Author

Table No. 3 Most Productive Author

Sr. No.	Author Name	Frequency	Percentage
1	Wolfgang Glänzel	6	2.44
2	Henk F. Moed	5	2.03
3	András Schubert	4	1.63
4	Francisco Collazo-Reyes	4	1.63
5	Loet Leydesdorff	4	1.63
6	Domenico Maisano	3	1.22
7	Bart Thijs	3	1.22
8	Felix de Moya-Anegon	3	1.22
9	Fiorenzo Franceschini	3	1.22
10	Juan Carlos Valderrama Zurián	3	1.22
11	Rafael Aleixandre-Benavent	3	1.22
12	2 Time Authour [2*45=90]	90	36.59
	1 Time Authour [1*115=115]	115	46.75
	Total	246	100.00

It can be observed from Table No.3 that, the most productive authors are Wolfgang Glänzel who had contributed 6 Articles (2.44%). Then followed by Henk F. Moed Contributed 5 articles (2.03%). The One time published Author is 90 (36.59 %) And Teo time Author is 115 (46.75%) and all other Authors are shown in table likewise contributed their work in this study.

4. The type of document

Table No. 4 The type of document

Sr. No.	Type of Document	Frequency	Percentage
1	Article	231	93.90
2	Book	2	0.81
3	Chapter	13	5.28
	Total	246	100.00

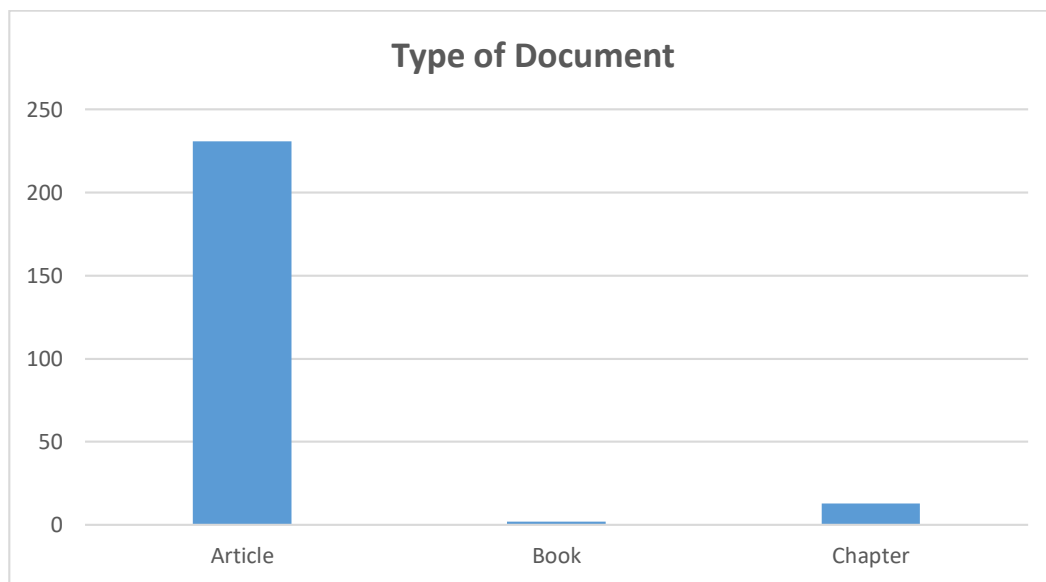


Table No. 4 & figure no. 2 indicates that the total number of articles is 231(93.90%), total number of chapter is 13(5.28%) and total number of book is only 2(0.81) respectively.

5. Degree of Collaboration

Degree of collaboration in the international journal of “Computer Mediated Communication” the formula given by k. Subramanyam is useful for determining the collaboration in quantitative terms. The study followed the formula which is mathematically put as;

$$C = \frac{NM}{NM+NS} \quad \text{i.e. } C = \frac{NM}{NM+NS}$$

Where,

C = Degree of collaboration

NM = Number of multi authored papers

NS = Number of single authored papers

In the present study

NM =710

NS=55

$$= \frac{710}{710 + 55}$$

$$\frac{710}{765} = 0.96$$

Those, C = 0.96

So, in the study the degree of collaboration during the overall 10 years (2009 – 2018) is = 0.99

Table No. - 5 Degree of Collaboration

Year	Frequency	Total No. of Authors	No. of single Author Articles	Percentage of Articles	No. of multiauthors Article	% of Article	Degree of Collaborati on
2007	21	49	8	14.55	41	6.01	0.84
2008	13	36	2	3.64	34	4.99	0.94
2009	23	66	8	14.55	85	12.46	1.29
2010	8	24	0	0.00	24	3.52	1.00
2011	10	28	1	1.82	27	3.96	0.96
2012	12	32	3	5.45	29	4.25	0.91
2013	9	15	5	9.09	10	1.47	0.67
2014	10	28	3	5.45	25	3.67	0.89
2015	21	67	4	7.27	63	9.24	0.94
2016	12	32	2	3.64	30	4.40	0.94
2017	21	64	3	5.45	61	8.94	0.95
2018	14	41	2	3.64	39	5.72	0.95
2019	20	61	5	9.09	56	8.21	0.92
2020	19	69	2	3.64	67	9.82	0.97
2021	23	64	5	9.09	59	8.65	0.92
2022	10	34	2	3.64	32	4.69	0.94
Total	246	710	55	100	682	100	0.96

Table No. 5 shows that in the 11 years period, i.e. 2007-2022 the single authorship articles are lower than multi author so, multi author are predominant than single authors. The multi authored articles are highest in the year 2009. Total no of Multi Authors are 710 & total of single authors are 55 contributions respectively.

6. To study the Author's Productivity

Table No – 6 Author Productivity

Year	Frequency	Total No of Authors	AAPP	PPA
2007	21	49	2.33	0.43
2008	13	36	2.77	0.36
2009	23	66	2.87	0.35
2010	8	24	3.00	0.33
2011	10	28	2.80	0.36
2012	12	32	2.67	0.38
2013	9	15	1.67	0.60
2014	10	28	2.80	0.36
2015	21	67	3.19	0.31
2016	12	32	2.67	0.38
2017	21	64	3.05	0.33
2018	14	41	2.93	0.34
2019	20	61	3.05	0.33
2020	19	69	3.63	0.28
2021	23	64	2.78	0.36
2022	10	34	3.40	0.29
Total	246	710	45.6	5.78

The data pertaining to author productivity has presented in the Table No. 6 shows that the total average number of authors per paper is 45.6 for the relatively equal average number of authors per article when compared the total average number of authors per article. The average productivity per author is 5.78 during the year 2007 – 2022. Productivity has been calculated with the following formula.

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

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

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