

Authorship Pattern and Collaborative Research Trends in Journal of Systemics, Cybernetics and Informatics

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Abstract: *This research oriented paper relates to the bibliometric study of journal of systemics, cybernetics and informatics (JSCI) (ISSN: 1690-4524 -online), a peer-reviewed open access international journal in the field of systemic, cybernetics and informatics. The prime aims to explore the Authorship Pattern and Collaborative Research trends in between 2014-2018. During this 5 years from 2014-2018, there were 410 scholarly journal articles contributed by 1181 authors. The highest number of articles published i.e., 118(10%) in the year 2017. Out of 490 articles, 162 (33.06%) articles contributed by single author and it is the highest contribution from the Authorship Pattern in contrary of other collaborative articles during this study period. But multi- authored paper i.e., 328 (66.94%) is dominated over single author contribution. The degree of collaboration is determined as 0.66*

Keywords: *Authorship Pattern, Collaborative Research, Bibliometric Study, Degree of Collaboration, Journal of Systemics, Cybernetics and Informatics (JSCI), Research Trends.*

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Introduction

We live in an age, the age of information exploration. In our modern era, particularly after the World War-2, we noticed that there were so many multidisciplinary and interdisciplinary subjects crop up along with many new subjects. It is evidently needed for any research work to collaborate to each other and scientific collaboration is one of the key factors for any research assignment. Writing of any scholarly journal articles, collaborative work would lead to acquire more credit of its own academic value. The recent trends shows that the most of the scholarly articles are written by multi Authorship pattern and obviously it directs the indicators of reliability of scientific articles in our modern times.

About the Journal of Systemics, Cybernetics and Informatics (JSCI)

Journal of Systemics, Cybernetics and Informatics (JSCI) is an international peer-reviewed open access journal in the field of systems philosophy, system sciences and engineering (systemic), communication and control concepts, systems and technologies (cybernetics) and information systems and technologies (informatics) as well as relationships among these areas and their applications. The International Institute of Informatics and Systemics (www.iiis.org) is the sponsored of this journal and it is published by the International Institute of Informatics and Cybernetics. This prestigious journal is indexed in DOAJ, Google Scholars and Academic Journals Database etc. The main aim is to provide support in multidisciplinary information dissemination related to the discipline in the major area of Systemics, Cybernetics and Informatics with free of cost in the web. This journal published one volume each year with different issue numbers (issue number varies from 5 to 9 in a volume). Besides online issue, this journal publishes print version also. Since its appearance in the year 2003, all the volume and issue number are still available up to date in the web. This bibliometric study only considers 5 volumes with all the 33 issues of 5 years span from 2014-2018.

Literature review

It was found that various studies were conducted on bibliometric study of publications in various journals in different disciplines. Some of the literatures were reviewed and mentioned before the current study.

Garg, K.C., Anjana A.K. (2014) analyses 605 papers published in the Journal of Intellectual Property Rights during 1996-2012.

Amsaveni. N et al, (2013) conducted a study on Authorship Pattern and Collaborative Research in Bioinformatics. The study deal with the authorship collaboration research is a well-recognized feature of the modern science and there has been a reliable trend towards enlarged collaboration in all branches of science and technology during the present century.

Chandran, V. (2013) investigates the bibliometric analysis of Journal of Intellectual Property Rights (JIPR) for selected six years between 2007 and 2012.

Thavamani K. and Velmurugan C, (2013) explores the publication trends of scholarly papers in Annals of Library and Information Studies published from New Delhi.

Thanuskodi, S. (2011) conducted a bibliometric analysis of the journal titled “Library Herald” for the period between 2006 to 2010.

The review of the above few studies, it is shows that similar studies in the Journal of Systemics, Cybernetics and Informatics were not conducted. So, it is more meaningful to conduct this type of study to understand the research trends of publications in this field.

Objectives of the study

- To study contributions by year and volume
- To examine the growth of authors by year.
- To notice the authorship pattern by year and issue.
- To know the author's productivity
- To identify the degree of author collaboration.

Methodology

For this research article, the required data collected from JSCI website (<http://www.iiisci.org>) pertaining to period 2014-2018. 33 issues of 5 volumes from 2014-2018 have been selected for the study. For each article, year wise distribution of contribution, number of authorship, volume wise authorship, author's productivity and the single and multi authored paper were noted and downloaded in my personal computer. These collected data are examined and analyzed with the help of Ms-Excel software. Thereafter all these data are organized, calculated, tabulated, analyzed and presented by using simple arithmetic and statistical methods in order to arrive for the desired result.

Limitations

The broader view of collaborative work in writings of a journal article is not considered, only collaborative work of joint authorship is considered here. Moreover this paper is solely relying on the data available on the website of JSCI (<http://www.iiisci.org>). So the conclusive outcomes of this study is fully depends on the secondary sources of information, i.e., website of JSCI. Though all the volumes of JSCI are available in the web since 2003, but in order to simplify the calculation, analyzing the data here study period is considered only latest 5 years (i.e., 2014-2018). Hence the result which will come obviously not to throws the comprehensive matter but the desired result which will be obtained, gives us a correct direction about the trends of Authorship pattern and collaborative research of this scholarly JSCI in future.

Result and Discussion

Table 1: Year wise Distribution

Sl. no	Year	Volume No.	Issue No.	No. of Articles	% of Records
1	2014	12	1-7	99	20.20
2	2015	13	1-6	92	18.77
3	2016	14	1-7	99	20.20
4	2017	15	1-7	112	22.85
5	2018	16	1-6	88	17.95
Total				490	100

The year wise distribution of paper has shown in table-1, which shows the number of scholarly journal articles corresponding to volume number and issue number of the JSCI. There are 5 volumes (12-16) with in total 33 issues are considered of this study. The highest number of contributions i.e., 112 (22.85%) were published in the year 2017. The minimum numbers of 88 (17.95%) articles were published in the year 2018.

Table 2: Author Pattern

Sl. no	No. of Authors	Total No. of Contributions	% of Records
1	Single Author	162	33.06
2	Two Authors	141	28.77

3	Three Authors	87	17.75
4	Four Authors	53	10.81
5	Five Authors	29	5.91
6	Six Authors	9	1.83
7	Seven Authors	7	1.42
8	Eight Authors	2	0.40
Total		490	100

Table-2 depicts the details about the authorship pattern. The total number of 162 (33.06%) out of 490 scholarly articles have been contributed by single author. It is the highest contribution as compared to other joint authored papers. Among the joint authored contributions, two authored papers is the highest i.e., 141(28.77%) in this study period of 2014-2018. The lowest number of contribution i.e., 2 (0.40%) contributed by 8 authors.

Table 3: Period/ Volume wise Authorship Pattern

Sl. no	Year	Vol. No.	Issue No.	Number of Author/Authors								Total	% of Records
				1	2	3	4	5	6	7	8		
1	2014	12	1-7	32	30	19	9	6	1	2	-	99	20.20
2	2015	13	1-6	33	25	19	4	6	4	1	-	92	18.77
3	2016	14	1-7	36	23	17	15	4	3	-	1	99	20.20
4	2017	15	1-7	32	35	22	14	8	-	1	-	112	22.85
5	2018	16	1-6	29	28	10	11	5	1	3	1	88	17.95
Total				162	141	87	53	29	9	7	2	490	100
Percentage (%)				33.06	28.77	17.75	10.81	5.91	1.83	1.42	0.40		

Table -3 represents the volume and year wise authorship pattern of contributions. It indicates that out of 162 contributions of single author, volume number-14 (issue number1-7) has the highest number i.e., 36 (22.22%) and volume number 16 (issue number 1-6) is the lowest i.e., 29 (17.90%) in the year 2016 and 2018 respectively. Out of the 141 contributions

by two authors, volume number 15 (issue number 1-7) has the highest i.e., 35 (24.82%) contributions and in the volume number 14 (issue number 1-7) is the lowest i.e., 23 (16.31%) contributions in the year 2017 and 2016 respectively. Only 1 contribution in each year i.e., 2016 and 2018 is published by 8 authors' collaborative works. It is also noticed from this table that single author papers are the highest one i.e., 162 (33.06%) than separately joint authors works. But on the other hand, total joint author collaborative contributions i.e., 328 (66.94%) is the about more than double as compared to the single authored papers i.e., 162 (33.06%).

Table-4: Author Productivity

Sl. no	Year	Total no of Articles	No. of Authors	AAPP*	Productivity per Year
1	2014	99	235	2.37	0.42
2	2015	92	217	2.35	0.42
3	2016	99	239	2.41	0.41
4	2017	112	271	2.41	0.41
5	2018	88	219	2.48	0.40
Total		490	1181	2.40	0.41

*average authors per paper (AAPP) = number of authors/number of papers.

Productivity per author = number of papers/number of authors.

It is observed from the data related to author productivity, the average number of authors per paper is 2.40 and the average productivity per author is 0.41. The total number of articles is 490 with the contributions made by 1181 authors in total. The highest number of author productivity i.e., 271 (2.41) was published in the year 2017.

Table 5: Year wise single and Multiple Authored papers

Sl. no	Year	Single Authored		Multi Authored		Total	% of Records
		Papers	%	Papers	%		
1	2014	32	19.75	67	20.42	99	20.20

2	2015	33	20.37	59	17.98	92	18.77
3	2016	36	22.22	63	19.20	99	20.20
4	2017	32	19.75	80	24.39	112	22.85
5	2018	29	17.90	59	17.98	88	17.95
Total		162	100	328	100	490	100

This table presents about the details of single and joint- authorship contributions. It is noticed that out of 490 articles, 162 (33.06%) contributions were written by single author and the rest i.e., 328 (66.94%) contributions are made from the joint authored papers.

Table 6: Degree of Collaboration

Sl no	Year	Single Authored Paper (N_s)	Multiple Authored Papers (N_m)	Total ($N_s + N_m$)	Degree of Collaboration
1	2014	32	67	99	0.67
2	2015	33	59	92	0.64
3	2016	36	63	99	0.63
4	2017	32	80	112	0.71
5	2018	29	59	88	0.67
Total		162	328	490	0.66

The table number-6 depicts the details of the degree of collaboration. Any bibliometric study is the core area in any research oriented work. In this paper, the degree of collaboration indicates the trends in single and multi-authorship during the period 2014-2018 as shown in table no-6. Here, the degree of collaboration ranges from 0.63 to 0.71 and the average degree of collaboration is 0.66. The degree of collaboration is calculated by using the following equation (K. Subramanyam, 1982).

The formula is where

C = Degree of Collaboration

$$C = \frac{N_m}{N_m + N_s}$$

N_m = Number of multiple authors

N_s = Number of Single authors

$$C = \frac{328}{328 + 162}$$

In the present study, the value of C is

$$C = 0.66$$

So the desired degree of collaboration in JSCI is 0.66 which clearly disseminates that multi authors' papers is dominated over the single author contributions in this study.

Conclusion

This bibliometric study shows the trends towards the collaborative research work for writing the articles in JSCI during the period 2014-2018. There were 410 articles which were written by 1181 authors in 33 issues in 5 volumes (vol. No. 12-16) published in this period. The maximum number of articles published i.e., 112 (22.85%) and the minimum number of articles published i.e., 88 (17.95%) in the year 2017 and 2018 respectively. In case of authorship pattern, out of 490 articles, only 162 (33.06%) contributions were written by the single author and the rest i.e., 328 (66.94%) articles came from joint authorship collaboration. It shows that in between these 5 years (2014-2018) of study, multi authored (328) papers are doubled than single author (162) contribution. The degree of collaboration ranges from 0.63 to 0.71 and the average degree of collaboration is 0.66. All of these results comes from the bibliometric study, it focuses on the scientific collaboration is rapidly increasing in writing the scholarly articles in JSCI.

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