Investing Authorship Pattern of SRELS Journal during 2016-2020: Scientometrics Mapping

Dheeraj Singh Negi[1*]

ABSTRACT

The paper is based on the Authorship and collaboration analysis of 30 issues of SRELS Journal of Information Management published during 2016 to 2020 five year. Each issue published 9.74% research output by and large. Of the total 248 were retrieved from 30 issues of five volumes with an average of 46.15 from SRELS journal in the period 2016-2020, in which year 2016 has got the highest number of publications i.e., 64 (22.02%) with an average article of 7.5 per issue, by two authors with 132 (47.65%), followed by single author with 81 (29.24%) and three authors with 44 (15.88%). volume number 53 has the highest contribution i.e., 64, in which most contributions was fewer than two authors 2020 (27). maximum contribution under two authorship pattern of articles with 132 (47.65%). 2020 (0.40) collaborative coefficient is highest than to other year. Modified collaborative coefficient was found 2020 (0.40) highest. Degree of Collaboration 2020 (0.76) was found highest Degree collaboration in the year 2016-2020.

Keywords : *Bibliometrics; Scientometrics; Content Analysis; SRELS Journal of Information Management; Indian LIS journal; Authorship pattern; Modified collaborative co-efficient: Co-authorship Index.*

1. Introduction

Bibliometrics is the use of statistical methods to Analyses books, articles and other publications. Bibliometric methods are frequently used in the field of library and information science. The sub-field of bibliometrics which concerns itself with the analysis of scientific publications is called scientometrics. Citation analysis is a commonly used bibliometric method which is based on constructing the citation graph, a network or graph representation of the citations between documents. Many research fields use bibliometric methods to explore the impact of their field, the impact of a set of researchers, the impact of a particular paper, or to identify particularly impactful papers within a specific field of research. Bibliometrics also has a wide range of other applications, such as in descriptive linguistics, the development of thesauri, and evaluation of reader usage. The SRELS Journal of Information Management was founded in 1964 by Dr. S. R. Ranganathan and was known as 'Library Science with a slant to Documentation'. The title of the journal was changed to Library Science with a slant to Documentation and Information Studies from Vol.25 in 1988 and then to 'SRELS Journal of Information Management' from Vol.37 in 2000.

The journal is peer reviewed and publishes scholarly as well as articles of practical use in the fields of library and information science and services.

2. Review of Literature

Mondal & Jana (2018)6 examined collaboration and authorship patterns in leading Indian LIS journals. In this study, the authors considered the articles the published in leading LIS journal during 2012-2017. It was found that two authored papers are in the lead position having 48% compared to others. But multi-authored papers received more citations. It observed that the highest collaboration arises in intra-institutional and inter-institutions inside state level and recommended that the library and information science departments are also considered inter departmental collaboration to bring out added excellence works for developing and advanced Research. Singh (2017)7 on a study authorship pattern and collaboration coefficient of Biotechnology research for sixteen years (2001-2016) in India using Scopus database, 18918 articles were considered for the study. He observed the mean author's article. He has used 5 scientometric tools to analyze the data and found that the collaboration coefficient was 0.63 for the study period in India. Multi-authored papers were dominating over the single-author paper. Maximum co-operative works were done rather than an individual. The average activity index of India was found to be 91.78 during the study and the year 2016 with 180.3 activity index was the highest and lowest with 42.38 in 2001. Naheem and Shibu (2015)8 investigated a study

1. *Assistant Librarian, Lingayas Vidyapeeth University, Faridabad.*
* *Corresponding Author* ✉ *dheerajnegi3@gmail.com*

on Authorship Patterns and Collaborative Research in the Journal of Knowledge and Communication Management from (2011-2014). In which an aggregate of 46 articles was distributed in the journal and the examination look at and tracked down that the most noteworthy 22 articles (47.83%) were distributed by single writers, the normal number of writers each article of the general commitment is 1.67 and normal profitability each creator is 0.60, and the normal level of creator coordinated effort is 0.52.

Deshmuk (2011)[10] conducted a study on annals of library and information studies and analyzed a total 326 articles and received a total number of 4141 citations during the period 1997 to 2010. Out of this, 4141 citations,54.34% from journals, 17.47% from books, 12.25% from web resources, 6.79% from conference proceedings 5.97% from institute publication,1.49% from theses or dissertations, and so on, He also reported that the journal half-life period was 9.

3. Purpose of Study

The study has been carried out with the following purpose :

1. To measure the quatitative output of the articles published in the source journal

2. To study the category wise distribution of papers

3. To find out quatitative distribution of citations SRELS

5. To study the subject facets of article published in the source journals

7. Identify the year wise publication distribution and authorship pattern of SRELS

8. Analyses the collaboration pattern, collaborative coefficient, modified collaborative coefficient of SRELS

9. Examine the co-authorship index value and visualize the co-authorship network of SRELS

4. Methodology

The scope of the present bibliometric study was limited to the journal SRELS Journal of Information Management. To accumulate the date all the ariticles within the timeframe were downloaded from main the website of source journal. The application data were arranged as per necessity for analysis. The data analysed by using MS-Excel software. The Data were scanned to study different aspects relating to collaboration index (CI), collaboration coefficient (CC), modified collaboration coefficient (MCC), degree of collaboration (DC).

5. Data Collection and Analysis

Formulae used for analysis

a. **Degree of Collaboration (DC) :** Subramanyam[11] in 1980 propounded the DC, a measure to calculate the proportion of single and multi-author papers and to interpret it as a degree. According to Subramanyam,

$$DC = Nm/(Ns+Nm)$$

Where,

Nm = the number of multi-authored papers

Ns = the number of single-author papers

DC varies from 0 when all the papers have a single author to 1 when all the papers have more than one author. It can be easily calculated and can also be easily interpreted.

b. **Collaboration Index (CI):** Collaboration Index has been calculated by using the formula given by Lawani (1980). The Collaboration Index (CI) is the simplest index presently used to explore the literature, which is to be interpreted as the mean number of authors per paper.

$$CI = \frac{\sum_{j=1}^{A} j f_j}{N}$$

Where,

f_j is the number of J authored papers published in the discipline during a certain period of time

N is the total number of research papers published in a discipline during a certain period of time

c. **Collaborative Coefficient :** Ajiferuke et. al. in 1988 put forward the formula for collaboration coefficient (CC) as :

$$CC = 1 - \frac{\sum_{j=1}^{A} \left(\frac{1}{f}\right) f_j}{N}$$

Where,

f_j denotes the number of j authored research papers

N denotes the total number of research papers published

k is the greatest number of authors per paper

It is detected by Ajiferuke, that the value of CC will be zero when single-authored papers dominant. This implication shows that the higher the value of CC, means the higher the probability of multi-authored papers.

d. **Modified collaborative coefficient (MCC) :** CC differentiates single and multiple authors. But it fails to yield 1 for maximal collaboration except when many authors are infinite. It was rectified by Savanur and Srikanth in 2010 by the factor (1 - 1/A) with CC and enunciated as :

$$MCC = (A/A-1) * \left\{ 1 - \frac{\sum_{j=1}^{A} \left(\frac{1}{j}\right) f_j}{N} \right\}$$

Table 1 : Volume wise Distribution of articles in SRELS

Year	Volume no	Issue wise	1	2	3	4	5	6	Total Publication %	Average Article per issue
2016	53	1-6	9	11	12	12	11	9	64(25.80)	10.66
2017	54	1-6	7	8	8	8	8	8	47 (18.95)	7.83
2018	55	1-6	8	8	8	8	8	8	48 (19.35)	8.00
2019	56	1-6	8	8	8	8	8	7	46 (18.54)	7.66
2020	57	1-6	8	7	7	7	7	7	43 (17.33)	7.16
		30	40	42	43	43	41	39	248	41.31
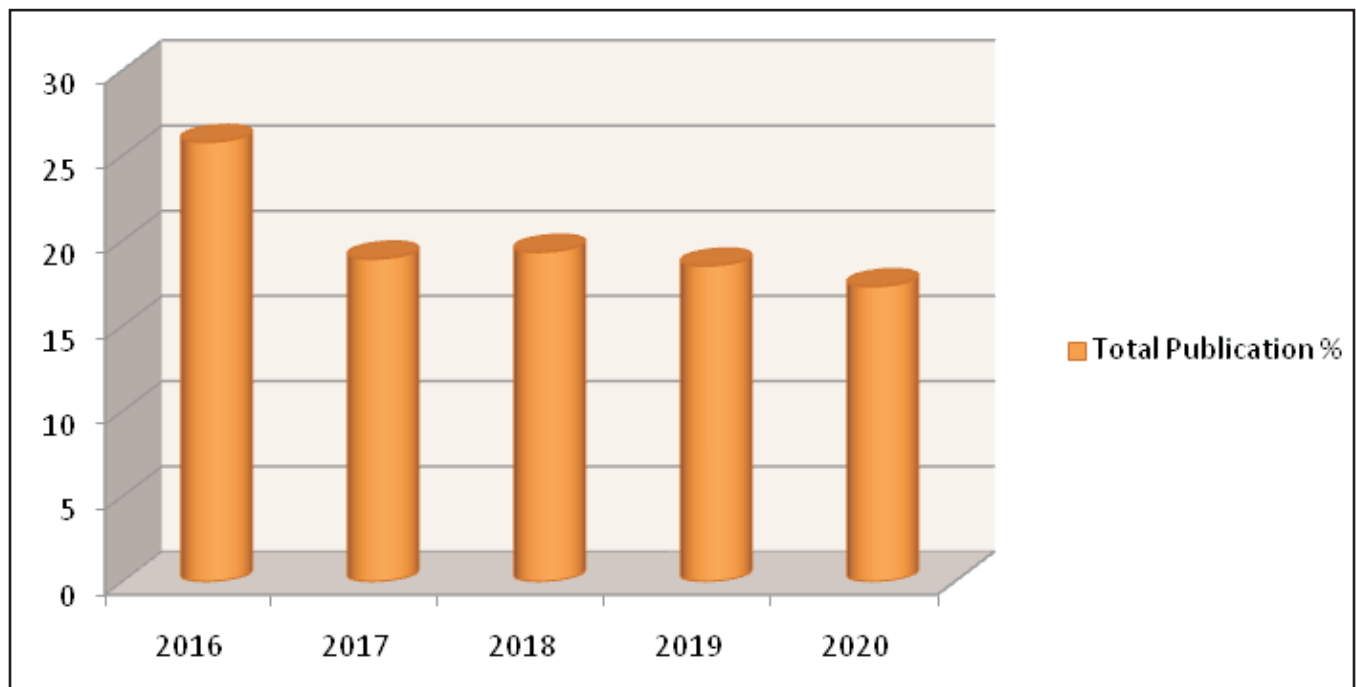
Figure 1 : 2016-2020 (Total Publications)

Table 2 : Volume wise Authorship pattern of Article in SRELS

Year wise	Vol no wise	One Author	Double Authors	Three Authors	Four Author	Five Author	Total
2016	53	25	25	8	6	-	64
2017	54	18	22	6	1	-	47
2018	55	15	24	8	-	1	48
2019	56	14	23	8	1	-	46
2020	57	10	27	5	1	-	43
		81	132	44	11		248

Table 3 : Issue wise article distribution pattern of authors of SRELS

Sl No	Author Type	Issue1	Issue 2	Issue 3	Issue 4	Issue 5	Issue 6	Total Articles and %	Cumulative Article and %
1	Single	16	8	17	15	13	13	82 (33.06 0	82(33.06)
2	Two	17	23	21	2	24	15	121(48.79	203 (81.85)
3	Three	5	8	5	16	1	10	35(14.11)	238 (95.96)
4	Four	1	3	-	1	3	1	9(3.62)	247 (99.59)
5	Five	1	-	-	-			1(0.40)	248 (100)
		40	42	43	43	41	39	248	

Table 4 : Degree of Collaboration

Year	Single authored Publications (Ns)	Multiple authored publication (Nm)	(Ns+Nm)	Degree of Collaboration
2016	25	39	64	0.60
2017	18	29	47	0.61
2018	15	33	48	0.68
2019	14	32	46	0.69
2020	10	33	43	0.76
Total	82	166	248	3.34

Table 5 : Collaboration Index

Year	Vol. No	Single Author	Two Authors	ThreeAuthors	Four	Five	Total	Collaboration Index (CI)
2016	53	25	25	8	6	-	64	1.92
2017	54	18	22	6	1	-	47	1.78
2018	55	15	24	8	-	1	48	1.91
2019	56	14	23	8	1	-	46	1.87
2020	57	10	27	5	1	-	43	1.86
		81	132	44	11		248	9.34

Table 1 shows that a total of 248 articles were retrieved from 30 issues of five volumes with an average of 46.15 from SRELS journal in the period 2016-2020, in which year 2016 has got the highest number of publications i.e., 64 (22.02%) with an average article of 7.5 per issue, followed by 2016 and 2020 .

Table 2 shows that year wise and volume wise authorship pattern of articles during the period of study. The table show that from SRELS journal, the articles for the whole five years were also contributed by two authors with 132 (47.65%), followed by single author with 81 (29.24%) and three authors with 44 (15.88%). Volume number 53 has the highest contribution i.e., 64, in which most contributions was fewer than two authors 2020 (27). maximum contribution under two authorship pattern of articles with 132 (47.65%).

***Table 6 :** Collaborative Coefficient*

Year	Vol. No	Single Author	Two Authors	Three Authors	Four	Five	Total	Collaboration Index (CI)
2016	53	25	25	8	6	-	64	0.34
2017	54	18	22	6	1	-	47	0.25
2018	55	15	24	8	-	1	48	0.37
2019	56	14	23	8	1	-	46	0.38
2020	57	10	27	5	1	-	43	0.40
		81	**132**	**44**	**11**		**248**	**1.74**

Table 7 : Modified Collaborative Coefficient

Year	Vol. No	Single Author	Two Authors	Three Authors	Four	Five	Total	Collaboration Index (CI)
2016	53	25	25	8	6	-	64	0.34
2017	54	18	22	6	1	-	47	0.25
2018	55	15	24	8	-	1	48	0.37
2019	56	14	23	8	1	-	46	0.38
2020	57	10	27	5	1	-	43	0.40
		81	**132**	**44**	**11**		**248**	**1.74**

Table 3 clearly shows that out of 248 articles, 166 are joint author publications that means 70.75% articles are published in the were on co-authorship pattern during the study period (2016-2020).

Table 4 Shows the degree of collaboration of publications published during 2016-2020 in the journal of SRELS. In the degree of collaboration total of 80 article are singled authored and 166 article are multiple-authored. In the year 2020 there is highest (0.76) Degree of collaborations. The Degree of Collaborations in lowest (0.60) in the year 2016. Form the study, it was found that average degree of collaboration is 0.70. Which means multiple authors are dominating over the single author publications during the period of study. The value the degree of collaboration increases means the domination of joint author papers increases.

Table 5 shows the collaboration index of publications which are published during the study period. The average collaboration index of 1.95 has been recorded during the study period 2016-2020. The highest CI 1.92 was observed in the year 2016 and the lowest CI 1.78 was found in the year 2017. Form the table, the study tells that the average collaboration index is 1.91, which

mean the average author per paper is more than 1 but less than 2.

Table 6 shows the collaborative coefficient during the period of study, The average collaborative coefficient of 0.36 was found during the year 2016-2020. The highest collaborative coefficient of 0.45 was counted in the year 2020, followed by the years 20016,2017, 2018 with 0.34,0.25,0.37 respectively, and the lowest collaborative coefficient was found in the year 2017 with 0.25, as the result shows that the value of the collaborative coefficient lies between 0 and 1, and it is tending the 1, which clearly shows that multi-author papers are more dominating over the single-author paper.

Table 7 shows the average modified collaborative coefficient of 0.37 was counted during the year 2016-2020. The highest modified collaborative coefficient was found in the year 2020 with 0.40 followed by the year 2016 and 2018 with respectively, the lowest modified collaborative coefficient was in the year 2017 with 0.25

Table 8 shows the major contributors and pattern of article distribution of the journal during the period of 2016-2020. Table discloses that Bidyathi Dutta (7) contributed the highest number of publications in SRELS. After second is

Table 8 : Major contributors and pattern of article distribution in SRELS

| Sl. No.	Author Name	Single Author	Two Authors	Three Authors	Four Authors	Five Authors	Total contribution and (%)	Rank
1	Bidyathi Dutta	2	5	-	-	-	7	1
2	Sukumar Mondal	4	1	-	-	-	5	2
3	N. S. Harinarayana	2	2	-	-	-	4	3
4	M. Krishnamurthy	1	3	-	-	-	4	4
5	Arijit Das	2	2	-	-	-	4	5
6	Chamani Gunasekera	4	-	-	-	-	4	6
7	B. M. Gupta	1	1	1	-	-	3	7
8	S. M. Dhawan	1	2	-	-	-	3	8
9	Raymond Ongus	2	1	-	-	-	3	9
10	B. B. Chand	3	-	-	-	-	3	10
11	Soumen Tali	3	-	-	-	-	3	11
12	Ratna Bandyopadhyay	-	3	-	-	-	3	12
13	PijushkantiPanigrahi	-	1	2	-	-	3	13
14	Akhilesh K. S.	3	-	-	-	-	3	14
15	Shiv Shakti Ghosh	2	-	-	-	-	2	45
16	B. Subhash Reddy	-	1	1	-	-	2	46
17	Dinesh K. Gupta	1	1	-	-	-	2	47
18	Neelam Kabra	1	1	-	-	-	2	48
19	K. P. Singh	1	1	-	-	-	2	49
	Total	**68**	**51**	**10**	**-**	**-**	**129**	
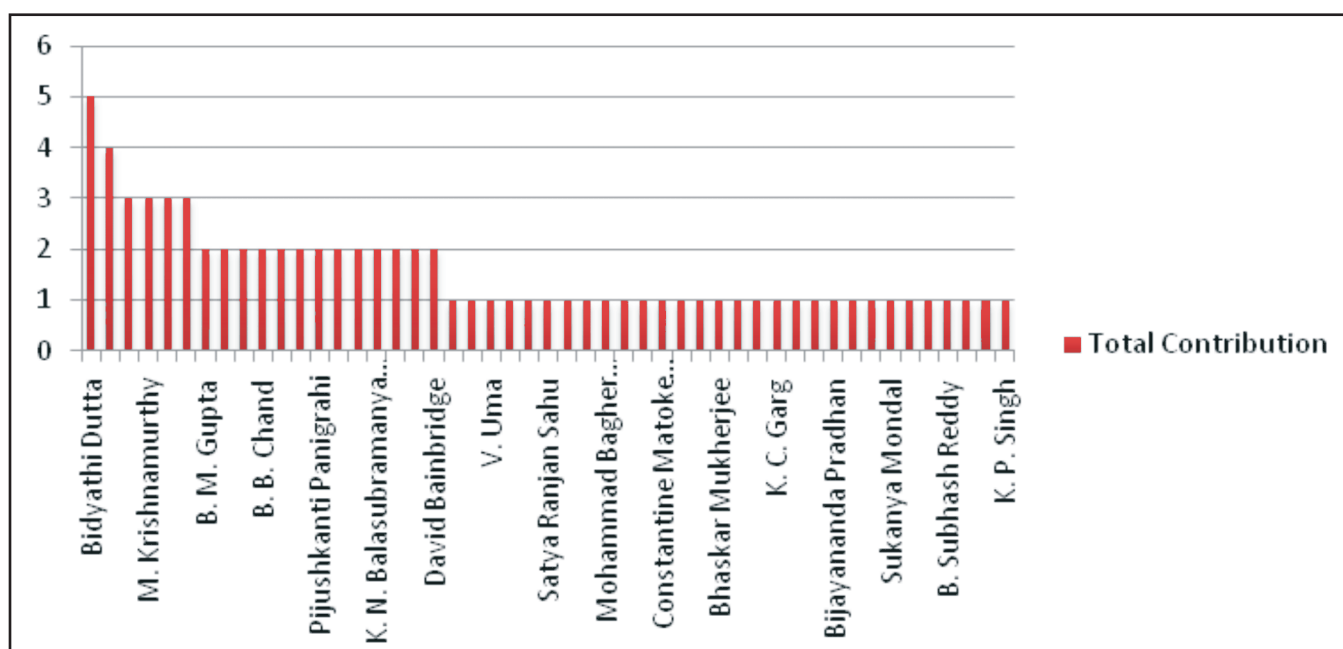
Figure 2 : Authorwise Total Contribution

Table 9 : Reference distribution pattern in SRELS

Year wise	Vol No	Number of Articles	1	2	3	4	5	6	Total No. Reference	Comulative Reference and %	Average
2016	53	64	179	117	249	193	181	195	1114(28.05)	1114(28.05)	17.40
2017	54	47	121	164	147	93	102	121	748(18.82)	1862 (46.85)	15.91
2018	55	48	109	111	92	110	137	157	716(18.01)	2578(64.87)	14.91
2019	56	46	85	142	127	149	79	72	654(16.45)	3232(81.32)	14.21
2020	57	43	95	123	192	120	84	128	742 (18.67)	3974 (100)	17.25
	Total	248 (6.24)	589 (14.82)	657 (16.53)	807 (20.30)	665 (16.73)	583 (14.67)	673 (16.93)	3974		108.51

Sukumar Mondal contributed (5) Article submission and third rank is N. S. Harinarayana Number of article (4) and fouth rank is Arijit Das total number of article (4) .

Table 9 shows the reference distribution pattern published in SRELS in the period of 2016-2020. The table is illustrates that total number of 3974 references were cited from 248 articles during the period of 2016-2020 which makes an average reference of 14.51 in SRELS and volume no. 53 from the year 2016 has recorded highest average of 28.05 reference per article, reference distribution issue wise pattern, issue 3 has recorded total number of 807 references constituting 20.30%, followed by issue 6 with 673 (16.93%) references.

6. Conclusion and Discussion

This journal published a total 526 paper during the 2016-2020. We found that each volume published 43 article. The average of publication 7.74 of this journal. In the year 2020 (0.40) collaborative coefficient is highest than to other year. Modified collaborative coefficient was found 2020 (0.40) highest. Degree of Collaboration 2020 (0.76) was found higest Degree collaboration in the year 2016-2020.The highest Single , Double, three Authors, Volume wise authorship pattern of articles Vol. 53 year 2016. Bidyathi Dutta is top author of SRELS journals during the 2016-2020 . Author was published a total (7) article in single author with (2) and two authors with (5) article published in 2016-2020. After second rank is Sukumar Modal with (5) article contribution , Third is N S hrinarayana with (4) Article contribuation in SRELS journal. Total Number References are 3974 and average 14.50, The Volume 53 year 2016 the highest Number of references 1114(28.05) % total number of References.

References

1. Pitchard, A. (1969). Statistical bibliography or bibliometrics. Journal of Documentation, 24, 348-349.

2. Tague-Sutcliffe, J. M. (1992). An introduction to informetrics, Information Processing and Management, 28:1-3.

3. Hood, W. W. and Wilson, C. S. (2001). The literature of bibliometrics, scientometrics, and informetrics, Scientometrics, 52(2) 291-314.

4. NOPR, Available at: http://nopr.niscair.res.in/handle/123456789/66 (Accessed on 10th December, 2020).

5. Das, Saumen Mr and Verma, Manoj Kumar Dr., "Authorship and Collaboration Pattern of Annals of Library and Information Studies Journal during 2009-2018: Scientometrics Mapping" (2021). Library Philosophy and Practice (e-journal). 5605

6. Mondal, D. and Jana, S. (2018). Collaborative authorship trend in leading Indian LIS journals. DESIDOC Journal of Library & Information Technology, 38(5), 320

7. Singh, M. K. (2017). Authorship pattern and collaboration coefficient of India in biotechnology research during 2001-2016: based on Scopus database. Library Philosophy and Practice (e-journal). 1549.

8. Naheem, K. and Shibu, K. M. (2015). Authorship Patterns and Collaborative Research in the 'Journal of Knowledge and Communication', 2011-2014. Journal of Knowledge & Communication Management, 5(2), 203-211.

9. Jeyasekar J. and Saravanan, P. (2014). A Scientometric portrait of the Journal Digital Investigation. Journal of Advances in Library and Information Science, 3(2), 155-162.)

10. Deshmukh, P. P. (2011). Citations in Annals of Library and Information Studies during 1997 to 2010: A study. Annals of Library and Information Studies, 58(4), 355-361.

11. Subramanyam, K. (1983). Bibliometric studies of research collaboration: A review, Journal of Information Science, 6(1), 33-38.

12. Lawani, S. M. (1980). Quality collaboration and citations in cancer research: A bibliometric study, Ph.D. dissertation, Florida State University,

13. Ajiferuke I, Burell Q and Tague J. (1988). Collaborative coefficient: A single measure of the collaboration in research, Scientometrics, 14 , 421-433.

14. Savanur K. and Srikanth R. (2010). Modified Collaborative Coefficient: a new measure for quantifying the degree of research collaboration, Scientometrics, 84 (2) 365-371.

15. Schubert, A. and Braun, T. (1986). Relative indicators and relational charts for comparative assessment of publication output and citation impact, Scientometrics, 9(5-6), 281-29

16. http://www.srels.org/

17. https://en.wikipedia.org/wiki/Bibliometrics

❖ ❖ ❖