



MAPPING THE RESEARCH OUTPUT OF 'e-LIBRARY SCIENCE RESEARCH JOURNAL': A SINGLE JOURNAL BIBLIOMETRIC STUDY

Padma, P¹ and Ramasamy, K²

¹Assistant Professor, Dept. of Library and Information Science,
Madurai Kamaraj University, Madurai.

²Librarian, M V Muthiah Government Arts College for Women, Dindigul .

ABSTRACT

Single journal bibliometric studies are mushrooming in the field of Library and Information Science research reaching greater heights in many dimensions. This is a bibliometric study of the journal – 'e-Library Science Research Journal' - covering 521 English articles published therein from 2013 to 2015 to identify the geographical and institutional affiliation and collaboration of the authors. The findings reveal that : 504(96.73%) articles are from India and a meager number of 17 (3.27%) articles are from the rest of the world. Out of 886 contributors, 857 (96.73%) are from India followed by Egypt with 12 (1.35%) contributors and Nigeria with 4 (0.45%) contributors. Karnataka tops the list with 205 (23.92%) contributors, followed



by Maharashtra with 141 (16.45%) contributors and Tamil Nadu with 139 (16.22%). Mysore University, Karnataka is in the first position with 90 articles followed by Dr. Babasaheb Ambedkar Marathwada University, Aurangabad in 2nd position with 50 articles. Karnataka tops in the total Indian share of research output of ELSRJ during 2013-2015 with a SPI of 20.2 followed by Maharashtra with a SPI of 17.2 and Tamilnadu with a SPI of 14.8. The highest number of authors per contribution is from Gujarat (2.20) and the highest number of contributions Per author is 0.86 for Rajasthan.

The degree of collaboration of Indian States ranges from 0.11 to 1.00.

KEYWORDS: Bibliometrics, e-library science research journal, geographical productivity, science production index, productive institutions, collaborative research

INTRODUCTION :

Bibliometrics is a set of research methods to quantitatively analyse scientific and technological literature. It utilizes quantitative analysis and statistics to describe patterns of publication within a given field or body of scientific literature

(Henderson, Shurville & Fenstrom, 2009). 'Bibliometrics' was introduced by Pritchard (1969). It is derived from Latin and Greek words 'biblio' and 'metrics', which etymologically stands for 'measuring the sources used in preparing a written work'.

Bibliometrics is the quantitative study of published literature. The published literature may be in a subject or in a journal or in / by an institution during a particular period of time. The present study is a bibliometric study of a single journal namely 'e-Library Science Research Journal'.

REVIEW OF LITERATURE

Chaurasia (2008) carried out a bibliometric analysis of the journal "Annals of Library and Information Studies (2002-2006)" and observed a trend of growth in contributions

and average number of contributions is 21.4 per volume. Majority of the library and information scientists prefer to do collaborative research and contribute their papers jointly. Majority of the library and information scientists have cited journals in large number (50.15%) while books comes on second with 273 (19.96%) citations.

Thanuskodi (2011) presented a bibliometric analysis of the journal titled Library Herald for the period between 2006 to 2010. The analysis cover mainly the number of articles, authorship pattern, subject wise distribution of articles, average number of references per articles, forms of documents cited, year wise distribution of cited journals etc. The result showed that out of 138 articles single author contributed 72 (52.17%) articles while the rest 66 (47.83%) articles were contributed by joint authors. Study reveals that most of the contributions are from India with 89.85 % and the rest 10.15 % only from foreign sources.

Swain (2011) conducted a bibliometric study of Library Philosophy and Practice (LPP) from 2004-2009 and found that major cited journals in LPP were from the core field of Library Science followed by Education, Medical Sciences, Sociology, Psychology, and Computer Science indicating a healthy trend of multidisciplinary research. The study observed that authorship productivity pattern of LPP partially complied with Lotka's Law.

Tsay (2011) vividly demonstrated the bibliometric characteristics of the Journal of Information Science and the subject relationship with other disciplines.

Swain and Panda (2012) in the bibliometric study on Journal of Intellectual Property Rights revealed that the visibility of collaborative contribution in the journal was found remarkably less. More than half of the journal articles carried just 1 citation, one fourth got 2 citations, and the rest received citations between 3 to 9 times and the average number of citations against all published articles was found to be 0.66 per article.

Jena, Swain, and Sahoo(2012) attempted to measure the publication traits of a premier Indian referred journal namely, Annals of Library and Information Studies (ALIS) from 2002 to 2010. Out of the total 247 articles the maximum numbers of articles are reported to have been published in the year 2010 (43 articles; 17.4%) while the least number of articles have been published in the year 2002 (18 articles; 7.29%). Moreover, it is found that the rate of citations of articles has witnessed an increasing trend. It is also studied that two authorship mode (47.4%) followed by individual authorship mode (32.4%) and three authorship mode (17.409%).

Swain, Jena and Mahapatra (2012) in the bibliometric study of the journal Interlending & Document Supply (ILDS) observed that majority of ILDS' journal citations belonged to the publishing year and the next year of publication; and the half life of journal citations was estimated to be 1 year which indicated that ILDS authors preferred to cite recent documents in their scholarly papers.

Isiakpona (2012) indicated low level of collaboration among authors of the articles published in the LIBRES Research Electronic Journal and the degree of collaboration was found to be 0.279.

Das (2012) in his Bibliometric study of Nelumbo (plant taxonomy journal) found that half of the papers published in the journal were contributed by two authors and just one fourth of articles were contributed by single authors.

Lokhande (2013) revealed the multi-authored characteristics of Annals of Library and Information Studies from 2002 to 2011 through a vivid content analysis. Regolini and Jannes-Ober (2013) revealed the high degree of transdisciplinarity of Informing Science. They considered the impact of 184 articles and found that the h index for those articles was 12.

Padma and Ramasamy (2013) carried out a bibliometric study of the journal "Journal of Information Literacy" (2007-2012) - a free online journal. The study focused on the authorship pattern, types of publications, citation study, no. of pages, institution-wise output, country-wise output, the degree of collaborative research, degree of collaboration, year-wise and volume-wise contributions etc. The findings reveal that : Single authors contributed 37 papers in Type I publication. The degree of collaboration is 0.51 indicating the domination of multiple authors over the single authors. On an average, 26.31% of the articles used 10-20 references. 63.30% of the articles were contributed by UK followed by 19.42 from USA. Loughborough University has contributed a maximum of 5 articles. 28 articles have 11-15 pages. There is an inter-institutional research to the extent of 23.07%.

Padma and Ramasamy (2015) undertook a bibliometric study of contributions found in the 'Malaysian

Journal of Library and information science' during the years 2007-2012. Findings indicate that year 2011 has the most number of articles i.e. 28 (23.73 %) and the year 2007 has the least number of articles i.e. 14 (11.86 %). Volume 15 Number 1, Volume 16 Numbers 1 and 2 have contributed 10 articles, the maximum for a number. The least number of articles i.e. 5 was published in Volume 14 Number 1. 27.5 % of the articles were single authored, 42.5% of the articles were two authored and 22% of them were three authored. The overall degree of collaboration for the period 2007-2012 is 0.725. 44 (36.67 %) articles were in the page range of 16-20 followed by 43 articles within the page range of 11-15. 45% (54) of the articles used 21-40 references and 37.5% of the articles used up to 20 references. 26 articles (21.67 %) were published in the subject statistical studies followed by 14 user studies (11.86 %) and 11 Scientometric studies (9.322 %). University of Malaysia tops with 28 articles constituting 23.33 % of articles published, followed by Bhabha Atomic Research Centre and Islamic Azad University with 6 articles each (5.0 %). Zainab A N has emerged as the most prolific author with 14 articles (11.86 %) followed by Abrizah A with 8 articles (6.78 %) as the second prolific author. There are 82 (34.75 %) authors from Malaysia followed by 34 authors from India with 14.4 %.

Padma, Ramasamy and Seenivasan (2016) undertook a bibliometric study of e-library Science Research Journal covering 521 articles published in the journal from Jan. 2013-Dec. 2015. The study reveals that: Maximum numbers of 210 articles (40.31%) were published in the year 2014 and a minimum of 114 articles in the year 2013 (21.88%). The Average article per year is 173.67. Volume No. 2(9), 2014 has the highest number of total articles (31, 5.95%). The highest number of publications (112, 21.50%) was published in the 3rd half yearly period (January – June, 2014). The GR showed a positive trend in 2nd half (1), 3rd half (0.47) and 5th half (0.10). The GR showed a negative trend during 4th half (-0.12) and 6th half (-0.16). RoG witnessed an increasing trend of 1.44 in the 3rd half-yearly period from 1.0 in the 2nd half-yearly period. RoG for 12 quarters calculated for the journal exposes a fluctuating growth. The Dt has increased from 26.28 in 2014 to 28.73 in 2015. The RGR shows almost a declining trend over the period of time.

OBJECTIVES

The objectives of the present study are :

- To shows the geographical distribution of productivity
- To show the country-wise distribution of contributors
- To show the state-wise distribution of contributors
- To shows the most productive institutions
- To disclose state-wise Science Production Index
- To reveal state-wise contributions per author and Authors per contribution
- To identify state-wise collaborative research productivity

METHODOLOGY

The data required for the study is taken from the journal – 'e-Library Science Research Journal' – covering the period 2013-2015. Altogether 521 articles published in the above journal were browsed to jot down the required information. The data was fed into MS Excel programme and percentage analysis was done to get necessary inferences. Apart from this, Science Production Index – a bibliometric indicator – was also used.

LIMITATIONS OF THE STUDY

As this is a single journal bibliometric study, the findings of the study may not be generalized. This paper, in particular, focuses only on the affiliation and collaboration of the authors in terms of geographical productivity. Other aspects of bibliometrics like application of laws, authorship pattern, citation analysis and physical metrics were not covered under the present study.

Data Analysis and Interpretation

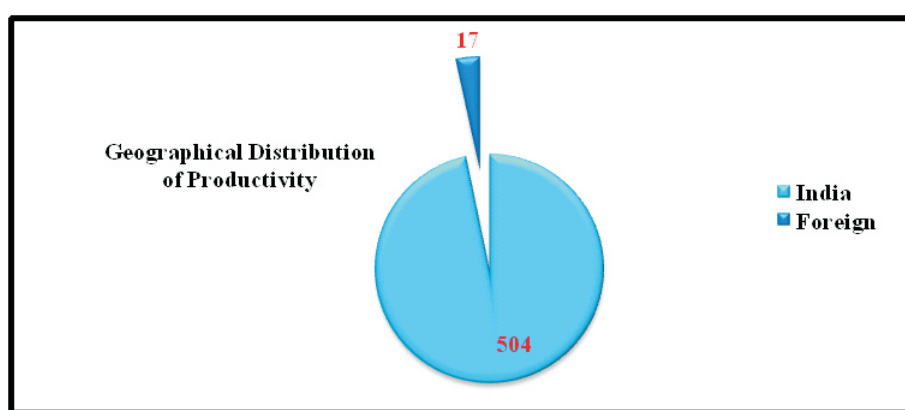
4.3.1 Geographical Distribution of Productivity

Table- 4.17: Geographical Distribution of Productivity

S:No	Geographical	No. of	Percentage
1	India	504	96.73 %
2	Foreign	17	3.27 %
Total		521	100

(Sources: Primary data)

Table 4.17 and Fig 4.17 show the geographical distribution of research productivity of ELSRJ. Out of 521 contributions, 504(96.73%) articles are from India and a meager number of 17 (3.27%) articles are from the rest of the world.



4.3.2 Country-wise Distribution of Contributors

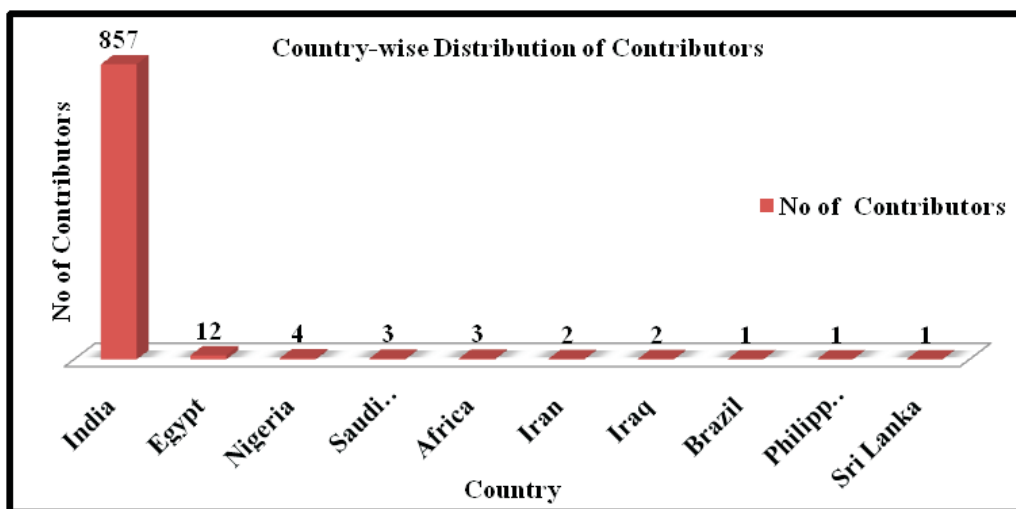
Table-4.18: Country-wise Distribution of Contributors

S:No	Country	No. of Contributors	Percentage
1	India	857	96.73 %
2	Egypt	12	1.35 %
3	Nigeria	04	0.45 %
4	Saudi Arabia	03	0.34 %
5	Africa	03	0.34 %
6	Iran	02	0.23 %
7	Iraq	02	0.23 %
8	Brazil	01	0.11 %
9	Philippines	01	0.11 %
10	Sri Lanka	01	0.11 %
Total		886	100

(Sources: Primary data)

Table 4.18 and Fig.4.18 show the Country-wise distribution of contributors of ELSRJ. Out of 886 contributors, 857 (96.73%) are from India followed by Egypt with 12 (1.35%) contributors and Nigeria with 4 (0.45%) contributors. Saudi Arabia and Africa have 3 (0.34%) contributors each and the countries like Iran, Iraq, Brazil, Philippines and Sri Lanka have given just two or one contributor(s).

Figure 4.18: Country-wise Distribution of Contributors



4.3.3: State-wise Distribution of Contributors

Table – 4.19: State-wise Distribution of Contributors

S:No	States	No. of	Cumulative	Percentage	Cum %
1	Karnataka	205	205	23.92 %	23.92 %
2	Maharashtra	141	346	16.45 %	40.37 %
3	Tamilnadu	139	485	16.22 %	56.59 %
4	Haryana	61	546	7.12 %	63.71 %
5	Andhra Pradesh	45	591	5.25 %	68.96 %
6	West Bengal	40	631	4.67 %	73.63 %
7	Uttar Pradesh	37	668	4.32 %	77.95 %
8	Gujarat	33	701	3.85 %	81.80 %
9	Chhattisgarh	27	728	3.15 %	84.95 %
10	Rajasthan	21	749	2.45 %	87.40 %
11	Punjab	19	768	2.22 %	89.61 %
12	Odisha	15	783	1.75 %	91.36 %
13	Kerala	14	797	1.63 %	93 %
14	Madhya Pradesh	12	809	1.40 %	94.40 %
15	Jammu &	10	819	1.17 %	95.56 %
16	Manipur	08	827	0.93 %	96.50 %
17	Kashmir	08	835	0.93 %	97.43 %
18	New Delhi	08	842	0.82 %	98.25 %
19	Telangana	07	848	0.70 %	98.95 %
20	Assam	06	852	0.47 %	99.45 %
21	Himachal	04	854	0.23 %	99.65 %
22	Meghalaya	02	856	0.23 %	99.88 %
23	Puduchery	02	857	0.12 %	100 %
	Goa	01			
	Total	857		100 %	

(Sources: Primary data)

Table 4.19 shows that out of 857 total contributors from various states of India, Karnataka tops the list with 205 (23.92%) contributors, followed by Maharashtra with 141 (16.45%) contributors, Tami Nadu with 139

(16.22%), Haryana with 61 (7.12%), and Andhra Pradesh with 45 (5.25%) contributors. These five states alone have 591 (68.96%) contributors. This shows the domination of contributors from southern states of India. While West Bengal has 40 (4.67%) contributors, Uttarpradesh and Gujarat have 37 (4.32%) and 33 (3.85%) contributors respectively.

4.3.4 Most Productive Institutions

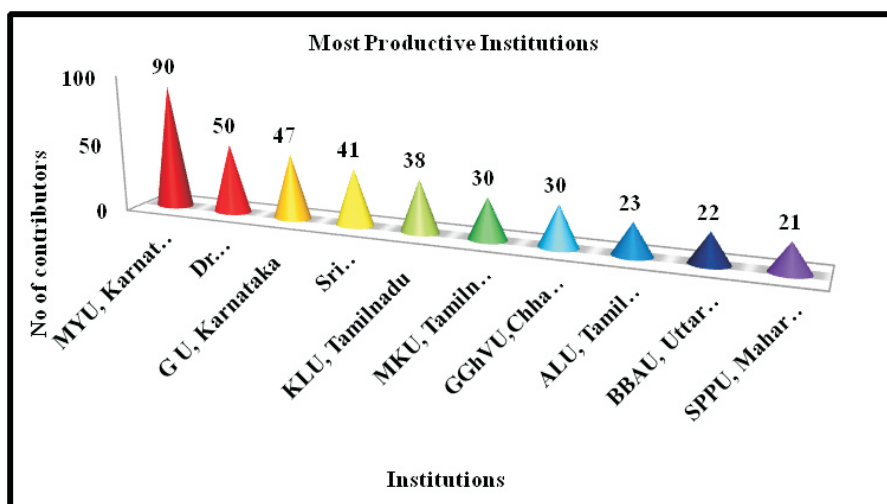
Table-4.20: Most Productive Institutions

S:No	Institutions	No. of	%	Cum.	Cum %	Rank
1	MYU, Karnataka	90	22.96 %	90	22.96 %	I
2	Dr. BAU, Aurangabad	50	12.75 %	140	35.71 %	II
3	G U, Karnataka	47	11.99 %	187	47.70 %	III
4	Sri VU, Andhra Pradesh	41	10.46 %	228	58.16 %	IV
5	KLU, Tamilnadu	38	9.69 %	266	67.86 %	V
6	MKU, Tamilnadu	30	7.65 %	296	75.51 %	VI
7	GGhVU, Chhattishgarh	30	7.65 %	326	83.16 %	VI
8	ALU, Tamil Nadu	23	5.87 %	349	89.03 %	VII
9	BBAU, Uttar Pradesh	22	5.61 %	371	94.64 %	VIII
10	SPPU, Maharashtra	21	5.36 %	392	100 %	IX
Total		392	100 %			

(Sources: Primary data)

Table 4.20 and Fig. 4.19 show the most productive institutions of articles published in ELSRJ. The Institutions with at least 10 contributions are listed in the table. Mysore University, Karnataka is in the first position with 90 articles followed by Dr. Babasaheb Ambedkar Marathwada University, Aurangabad in 2nd position with 50 articles, Gulbarga University, Karnataka in 3rd position with 47 articles and Sri Venkateswara University, Tirupati, Andhra Pradesh in 4th position with 41 articles. These four institutions alone have contributed 228 articles constituting 58.16% of total institutional productivity of 10 institutions.

Kalasalingam University, Krishnakovil, Tamilnadu is with 38 articles and Madurai Kamaraj University, Madurai, Tamilnadu is with 30 articles occupying V and VI positions respectively. All the top 10 institutions are universities. Out of them, three universities belong to Tamilnadu and two universities belong to Karnataka. It is evident that universities play a predominant role in contributing research articles in ELSRJ.



4.3.5 Science Production Index

Science Production Index (SPI) defines the percentage share of world output. It is calculated by dividing the total number of articles published in a given country, in a given period of time and in a specific field with the total number of articles published in the world in the same field over the same period of time.

$$SPI = \frac{\text{Number of articles of Country A}}{\text{Number of articles of the World}} \times 100$$

Here, the researcher has used the same formula with the principle of local variation as follows:

$$SPI = \frac{\text{Number of articles of State A}}{\text{Number of articles of the Country}} \times 100$$

Table- 4.21: Science Production Index

S.No	States	No. of Contributions	SPI
1	Karnataka	101	20.2
2	Maharashtra	86	17.2
3	Tamilnadu	74	14.8
4	Haryana	38	7.6
5	Andhra Pradesh	26	5.2
6	West Bengal	27	5.4
7	Uttar Pradesh	24	4.8
8	Gujarat	15	3.0
9	Chhattisgarh	17	3.4
10	Rajasthan	18	3.6
11	Punjab	15	3.0
12	Odisha	10	2.0
13	Kerala	08	1.6
14	Madhya Pradesh	06	1.2
15	Jammu & Kashmir	09	1.8
16	Manipur	05	1.0
17	New Delhi	05	1.0
18	Telangana	05	1.0
19	Assam	04	0.8
20	Himachal Pradesh	03	0.6
21	Meghalaya	01	0.2
22	Puduchery	02	0.4
23	Goa	01	0.2
Total		500	100

(Sources: Primary data)

Out of 504 articles contributed by Indian authors, only 500 articles have information about the geographical affiliation (Indian State) of the authors. Hence, only 500 records are taken into account for measuring SPI.

Table 4. 21 shows that Karnataka tops in the total Indian share of research output of ELSRJ during 2013-2015 with a SPI of 20.2 followed by Maharashtra with a SPI of 17.2 and Tamilnadu with a SPI of 14.8. These three states have a SPI of 10+. The SPI of Andhra Pradesh, West Bengal, Uttar Pradesh, Gujarat, Chhattisgarh, Rajasthan and Punjab range from 7.6 to 3.0. States like Odisha, Madhya Pradesh, Jammu & Kashmir, Manipur, New Delhi

and Telangana have SPI which lie between 1.0 and 2.0.

4.3.6 State-wise Distribution of Contributions Per Author and Authors Per Contribution

Table 4.22 Contributions Per Author and Authors Per Contribution

S.No	States	No. of Contributors	Contributions	Authors Per Contribution	Contributions Per Author
1	Karnataka	205	101	2.03	0.49
2	Maharashtra	141	86	1.64	0.61
3	Tamilnadu	139	74	1.88	0.53
4	Haryana	61	38	1.60	0.62
5	Andhra	45	26	1.73	0.58
6	West Bengal	40	27	1.48	0.67
7	Uttar Pradesh	37	24	1.54	0.65
8	Gujarat	33	15	2.20	0.45
9	Chhattisgarh	27	17	1.59	0.62
10	Rajasthan	21	18	1.66	0.86
11	Punjab	19	15	1.26	0.79
12	Odisha	15	10	1.50	0.66
13	Kerala	14	08	1.75	0.57
14	M P	12	06	2.00	5.00
15	J & K	10	09	1.11	0.90
16	Manipur	08	05	1.60	0.62
17	New Delhi	08	05	1.60	0.62
18	Telangana	07	05	1.40	0.71
19	Assam	06	04	1.50	0.67
20	H P	04	03	1.33	0.75
21	Meghalaya	02	01	2.00	0.50
22	Puduchery	02	02	1.00	1.00
23	Goa	01	01	1.00	1.00
Total		857	500	1.71	0.58

Table 4.22 depicts the State-wise Distribution of Contributions Per Author and Authors Per Contribution. The highest number of authors per contribution is from Gujarat (2.20) followed by Karnataka (2.03). The number of contributions Per author is 0.86 for Rajasthan, 0.49 for Karnataka, 0.61 for Maharashtra and 0.53 for Tamilnadu.

4.4.7 State-wise Collaborative Research Productivity

Table- 4.28: State-wise Collaborative Research Productivity

	States	SP	%	CP	%	SP + CP	DC
1	Karnataka	21	10.45	80	26.75 %	101	0.79
2	Maharashtra	45	22.39	41	13.72 %	86	0.48
3	Tamilnadu	17	8.46 %	57	19.06 %	74	0.77
4	Haryana	20	9.95 %	18	6.02 %	38	0.47
5	Andhra Pradesh	14	6.97 %	12	4.01 %	26	0.46
6	West Bengal	14	6.97 %	13	4.36 %	27	0.48
7	Uttar Pradesh	10	4.98 %	14	4.68 %	24	0.58
8	Gujarat	04	1.99 %	11	3.69 %	15	0.73
9	Chhattisgarh	09	4.48 %	08	2.67 %	17	0.47
10	Rajasthan	07	3.48 %	11	3.69 %	18	0.61
11	Punjab	08	3.99 %	07	2.34 %	15	0.47
12	Odisha	05	2.49 %	05	1.68 %	10	0.50
13	Kerala	04	1.99 %	04	1.33 %	08	0.50
14	Madhya Pradesh	01	0.49 %	05	1.68 %	06	0.83
15	J & K	08	3.99 %	01	0.33 %	09	0.11
16	Manipur	02	0.99 %	03	1.00 %	05	0.60
17	New Delhi	04	1.99 %	01	0.33 %	05	0.20
18	Telangana	02	0.99 %	03	1.00 %	05	0.60
19	Assam	01	0.49 %	03	1.00 %	04	0.75
20	Himachal Pradesh	02	0.99 %	01	0.33 %	03	0.33
21	Meghalaya	0	0	01	0.33 %	01	1.00
22	Puduchery	02	0.99 %	0	0	02	0.00
23	Goa	01	0.49 %	0	0	01	0.00
	Total	201	100	299	100	500	0.60

(Sources: Primary data)

Table 4.28 depicts the collaborative trend of Indian States in their research output as disclosed in ELSRJ. The degree of collaboration of Indian States ranges from 0.11 to 1.00. The degree of collaboration of most productive Indian states range from 0.46 for Andhra Pradesh to 0.83 for Madyapradesh. The DC is Zero for Puduchery and Goa and it is 1 for Meghalaya. Out of 23, only nine states have DC less than 0.50.

CONCLUSION

In the light of inferences drawn from the study, the authors suggest that : The LIS professionals or students of various foreign countries may be given some special columns / space for publishing their articles. The authors from India may collaborate with the authors of other countries to produce productive articles. As the performance of most of the south Indian states are better in terms of number of publications, the authors of other states also need to step in publishing their articles in this journal. Inter-state collaborative research work may be boosted up to promote publications in LIS arena. The most productive institutions may be motivated further either in terms of money or in terms of congenial working atmosphere or in terms of availability of ICT infrastructure to further their research career. Separate chairs may be established in the most productive universities / institutes to promote research programmes in LIS and related areas. The Indian states which do not have the required degree of collaboration may be encouraged to engage themselves in collaborative research projects – conferences, seminars, books, webinars, journals etc.

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