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Collaborative authorship pattern in top two leading Indian LIS Journals during the year 2014-2018: a comparative study

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The present study aims at finding the collaborative authorship pattern in top two leading Indian LIS journals during the year 2014-2018. The study focuses on the collaborative pattern under different parameters like year wise distribution of paper, authorship pattern during the year, degree of collaboration, collaborative index, author's productivity in terms of productivity per author and highly cited papers of the journals during the period of study. All the studies will be helpful for further development.

Keywords: Authorship pattern, LIS journals, Comparative study

1. Introduction

Collaboration means co-authoring and the formal acceptance of participation. Collaboration is an increasingly popular trend among the universities, organizations and institutions to share resources, ideas and experiences. It is also important to expand opportunities, increase productivity and improve work quality. Recent research shows that research results are much more engaged with co-authors than individual work. Scientific cooperation is one of the main features of the rapid increase in scientific research and research collaboration in paper writing is an indicator that credits for scientific articles. Due to the increase in the number of scientific articles, this makes joint authorship trend more dynamic. In the last few decades it became very common for many authors from various fields to work together for collaborative research. This study is an attempt to analyze the trends of authorship in top two leading Indian LIS journals comparatively.

2. Source Journal

DESIDOC Journal of Library & Information Technology (DJLIT) is a bi-monthly, open access peer-reviewed journal and published from DRDO, Delhi. The journal is currently indexed in Emerging Source Citation Index, Scopus, LISA, LISTA, EBSCO, Library Literature and Information Science Index/Full-text, The Informed Librarian Online, Open J-Gate, Indian Science Abstracts, Indian Citation Index, WorldCat, Google Scholar and Catalogued in the UGC approved list of journal for Indian Universities. The journal is available in print form and online.

The journal publishes the full length original research papers and reviews in the field of library science & IT applied to library activities, Information systems, Knowledge management,

Collection building & management, Information behaviour & retrieval, Librarianship/library management, Library & information services, Records management & preservation and related allied fields. Journal is useful for librarians, documentation and information professionals, researchers, students and others interested in related allied fields.

(Source: <https://publications.drdo.gov.in/ojs/index.php/djlit/about>)¹

Annals of Library and Information Studies (ALIS) is a quarterly open access and peer-reviewed journal published from NISCAIR, New Delhi. Earlier it was published in the name of Annals of Library Science and Documentation and renamed Annals of Library and Information Studies in 2001. The journal publishes the full length original research papers, survey reports, reviews, short communications and letters pertaining to library science, information science and computer applications in these fields. The journal is currently indexed in Emerging Source Citation Index, Scopus, LISA, LISTA, Google Scholar and Catalogued in the UGC approved list of journal for Indian Universities. The journal is also available in print form.

(Source: <http://op.niscair.res.in/index.php/ALIS>)²

3. Literature Review

A number of bibliometric & scientometric studies have been done during the last three decade to evaluate the LIS journals in terms of year wise distribution of papers, authorship pattern, author's productivity, degree of collaboration and collaborative index.

Uzun ³(2004) studied about the pattern of foreign authorship of articles in 5 leading journals in the field of information science. Singh, J. K⁴ (2014) also conducted a scientometric study of the journal "Indian Journal of Pure and Applied Physics" during the year 2006-2010. In his study, he showed that most of the papers were contributed jointly (93.46%). Only 6.54% papers were contributed by single authors. Elango, B & Rajendran, P⁵ (2012) analyzed scientometrically authorship and collaborative pattern in marine science literature. In their study they showed that co-authorship pattern is increasing now-a-days. Mondal, Dhiman & Jena, Sibsankar ⁶ (2018) studied the collaborative authorship pattern in leading LIS journals. In their study, they calculated collaborative index (CI) and collaborative coefficient (CC) for three leading LIS journals which shows the trend toward joint authorship pattern.

Mani, K. T⁷ (2014) studied about the authorship pattern and collaborative research for the journal "Malaysian Journal of Library and Information Science" during the year, 1996 – 2012. In his study, he found that majority (64.516%) of total papers indicates collaborative research. He found the highest number of author productivity (12.522%) in his study. Patra, S. K ⁸ (2014) conducted a study for some selected LIS journals. In his study, he analyzed that joint authored research papers got more citation than the single authored paper.

Velmuggan, C ⁹ (2013) studied for the journal of "Annals of Library and Information Studies" during the year 2007-2012. In his study, he found that 64.54% were contributed jointly. Only

35.46% papers were contributed by single author. Degree of collaboration found ranges from 0.57 to 0.82.

Mahesh, G and Wadhwa, N. K ¹⁰ (2013) studied about the ranking of Indian LIS Journals. Their study was based on Web of Science. On the basis of citation per paper they found DESIDOC Journal of Library & Information Technology (DJLIT), Annals of Library and Information Studies (ALIS) , SRELS Journal of Information Management etc were the top ranker Indian LIS journals.

4. Objectives of the study

The following objectives are set for our present study

- To find out year wise distribution of papers of LIS journals
- To analyze the authorship pattern
- To examine the Degree of Collaboration (DC) and Collaborative Index (CI)
- To know about the authors productivity in terms of productivity per author
- To find out the highly cited papers of the journals during the study period.

5. Scope and Methodology

The data has been collected from Vol. 34 to Vol. 38 of the DJLIT Journal published between year 2014 to 2018 containing total of 271 papers. Similarly, data has been collected from Vol. No.61 to Vol.65 of the ALIS Journal published between year 2014 to 2018 containing total of 164 papers. The data is collected from the archive of the DJLIT and ALIS journal website. The details of number of papers, number of authors, degree of collaboration, collaborative index, author's productivity in terms of productivity per author and highly cited papers of the journals are collected for present study. Google Scholar online database (www.scholar.google.co.in) has also been used for citation data

All the data has been manually recorded and put into MS-Excel. Analysis is also done by using MS-Excel for tabulation and calculation. The collecting data has been analyzed by using simple scientometric indicators.

6. Results and Discussion

Year wise distribution of papers:

Total 271 papers of DJLIT and 164 papers of ALIS were found during the study period. Editorials and short communications were removed because they were very less in numbers. Only 435 (for both DJLIT & ALIS) research papers were downloaded for our study purpose.

Table 1 shows year wise distribution of papers for both the journals by the year. For journal DJLIT, the maximum number of paper has been published in the year 2018 contributing 61 papers (22.51%) followed by 58 papers (21.40%) in the year 2017, 55 papers (20.30%) in 2014, 49 papers (18.08%) in 2015 and 48 papers (17.71%) in 2016.

Single Author	15	13	19	14	15	76	9	18	8	8	8	51
Two Authors	28	24	20	35	28	135	20	15	18	18	16	87
Three Authors	8	10	6	6	13	43	3	3	3	6	2	17
Four Authors	4	1	1	2	4	12	2	1	2	-	2	7
Five Authors	-	1	2	1	1	5	--	1	1	-	-	2
Six Authors	-	-	-	-	-	-	-	-	-	-	-	-
Total	55	49	48	58	61	271	34	38	32	32	28	164
%	20.30	18.08	17.71	21.40	22.51	100	20.73	23.17	19.51	19.51	17.07	100

Table 3 shows that out of 271 papers of DJLIT , 76 papers (28.04%) were contributed by single author and rest of 195 papers (71.96 %) were contributed by joint authors whereas in ALIS journal of 164 papers, 51 papers (31.10%) were contributed by single author and rest of 113 papers (68.90%) were contributed by joint authors.

Table-3
Authorship pattern in published papers by the year (2014-2018)

Year	Authorship pattern of DJLIT			Authorship Pattern of ALIS		
	Single	Joint	Total	Single	Joint	Total
2014	15	40	55	9	25	34
2015	13	36	49	18	20	38
2016	19	29	48	8	24	32
2017	14	44	58	8	24	32
2018	15	46	61	8	20	28
Total	76	195	271	51	113	164
%	28.04	71.96	100	31.10	68.90	100

The single authorship pattern for the journal DJLIT during the year 2016-2018 shows decreasing trends (from 19 single authored paper to 15 single authored paper) whereas for journal ALIS it is constant (8 single authored paper each year) from year 2016 to 2018. The joint authorship trend of DJLIT is increasing during the year 2014-2018 (40 to 46 papers with joint authors) while it shows decreasing (25 to 20 papers with joint authors) trend in the case of ALIS journal.

There is overlapping between the DJLIT and ALIS single authored paper but no overlapping is found in the case of joint authored papers for the same journals. The pattern of single and joint authorship for journal ALIS is constant (8 single and 24 joint authored papers for each year respectively) for the year 2016 & 2017 whereas in DJLIT it shows decreasing trend for single authored paper (19 to 14 papers with single author) and increasing trend in joint authored paper

(29 to 44 papers with joint author) for the year 2016 and 2017. This can be also shown in figure.1

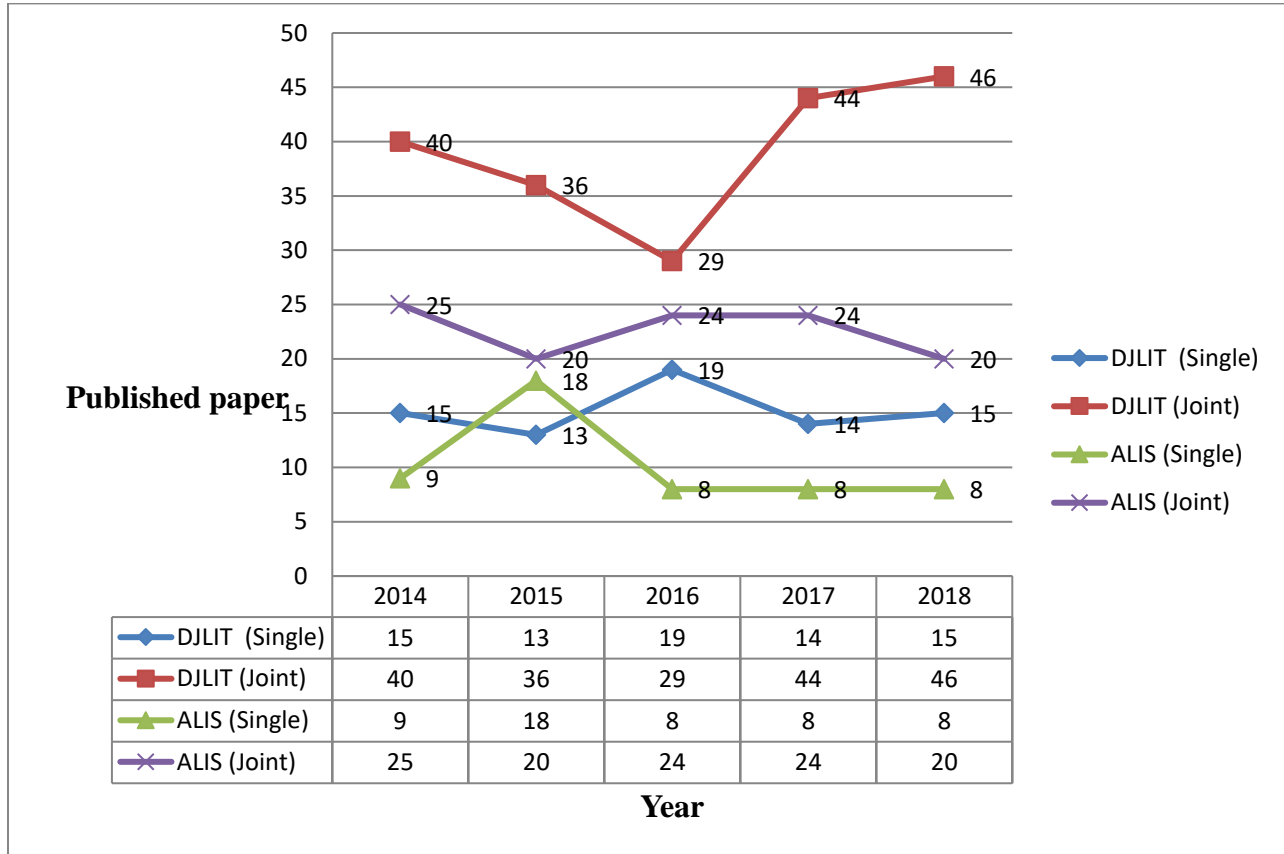


Figure-1
Authorship pattern in published papers by the year (2014-2018)

Degree of Collaboration (DC):

The degree of collaboration is calculated by K. Subramanyam formula

$$DC = \frac{NM}{NM+NS}$$

Where DC= Degree of Collaboration

NM= Number of multi authored papers

NS= Number of single authored papers

According to him, the productivity of authors is affected by the collaboration. He also described the six types of collaboration such as teacher- pupil collaboration, collaboration among colleagues, supervisor-assistant collaboration, researcher-consultant collaboration, organizational collaboration and international collaboration.

The table 4 shows that the degree of collaboration of the journal DJLIT and ALIS is highest in the year 2017 (0.76 and 0.75 respectively) while it is lowest (0.60) in 2016 for journal DJLIT and (0.53) in 2015 for the journal ALIS. The degree of collaboration of DJLIT is found same (0.73) for the year 2014 & 2015 whereas it is found same (0.75) for the year 2016 and 2017 in ALIS journal. The degree of collaboration for DJLIT journal during the year 2014-2018 is found 0.71 while it is 0.68 for journal ALIS during the same year. The maximum collaboration trend has been seen in the year 2017 for both the journals (0.76 for DJLIT and 0.75 for ALIS) which exhibit the dominancy of multiple authorship contributions. It shows that the trends of multiple authorship are increasing in both the journals now a day.

Table-4
Degree of Collaboration

Year	DJLIT				ALIS			
	No. of single authored papers (NS)	No. of multiple authored papers (NM)	Total Papers (NM+NS)	DC (=NM/NS+NM)	No. of single authored papers (NS)	No. of multiple authored papers (NM)	Total Papers (NM+NS)	DC (=NM/NS+NM)
2014	15	40	55	0.73	9	25	34	0.74
2015	13	36	49	0.73	18	20	38	0.53
2016	19	29	48	0.60	8	24	32	0.75
2017	14	44	58	0.76	8	24	32	0.75
2018	15	46	61	0.75	8	20	28	0.71
Total	76	195	271	0.71	51	113	164	0.68

Collaborative Index (CI):

Collaborative index is the mean number of authors per joint papers. Mathematically, it is can be represented as

$$CI = \frac{\text{Number of total authors of joint publications}}{\text{Total joint publication}}$$

Table 5 displays the collaborative index year wise. CI ranges from 2.30 (Year 2017) to 2.52 (Year 2018) for DJLIT while in the case of ALIS journal it ranges from 2.28 (year 2014) to 2.42 (year 2016). The mean of CI for the journal DJLIT is 2.42 whereas for journal ALIS it is found 2.32 during the 2014-2018. The value of CI for journal DJLIT is minimum (2.30) in the year 2017 while it is found maximum (2.52) in the year 2018. In the case of ALIS journal, the value of CI is found minimum (2.28) in the year 2014 while it is found maximum (2.42) in the year 2016. The collaborative index value of DJLIT journal for the year 2015 is found equal to the mean value of CI (2.42) during the year 2014-2018.

Table-5
Collaborative Index by the year 2014-2018.

Year	DJLIT			ALIS		
	Multi authored papers (A)	Total authors of multi authored papers (B)	Collaborative Index CI = (B)/(A)	Multi authored papers (A)	Total authors of multi authored papers (B)	Collaborative Index CI = (B)/(A)
2014	40	96	2.40	25	57	2.28
2015	36	87	2.42	20	48	2.40
2016	29	72	2.48	24	58	2.42
2017	44	101	2.30	24	54	2.25
2018	46	116	2.52	20	46	2.30
Total	195	472	2.42	113	263	2.32
Mean Collaborative Index			2.42	Mean Collaborative Index		2.32

Author Productivity:

Author productivity is calculated by this formula

$$\text{Productivity per author} = \text{Number of papers} / \text{Numbers of authors}$$

Table 6 display the author's productivity by the year 2014-2018. The average productivity per author is found 0.495 for DJLIT while it is 0.519 for ALIS during the year 2014-2018. The productivity per author (0.495) of DJLIT journal for the year 2014 is same the average productivity per author for the same journal.

Table -6
Author Productivity in terms of productivity per author

Year	DJLIT			ALIS		
	Total no. of authors (X)	Total papers (Y)	Productivity per author (Y/X)	Total no. of authors (X)	Total papers (Y)	Productivity per author (Y/X)
2014	111	55	0.495	66	34	0.515
2015	100	49	0.490	66	38	0.576
2016	91	48	0.527	66	32	0.485
2017	115	58	0.504	62	32	0.516
2018	131	61	0.466	56	28	0.500
Total	548	271	0.495	316	164	0.519

Relationship among the Degree of Collaboration (DC), Collaborative Index (CI) and Productivity per author (P_{Author}) for the journal DJLIT and ALIS can be shown in Figure 2

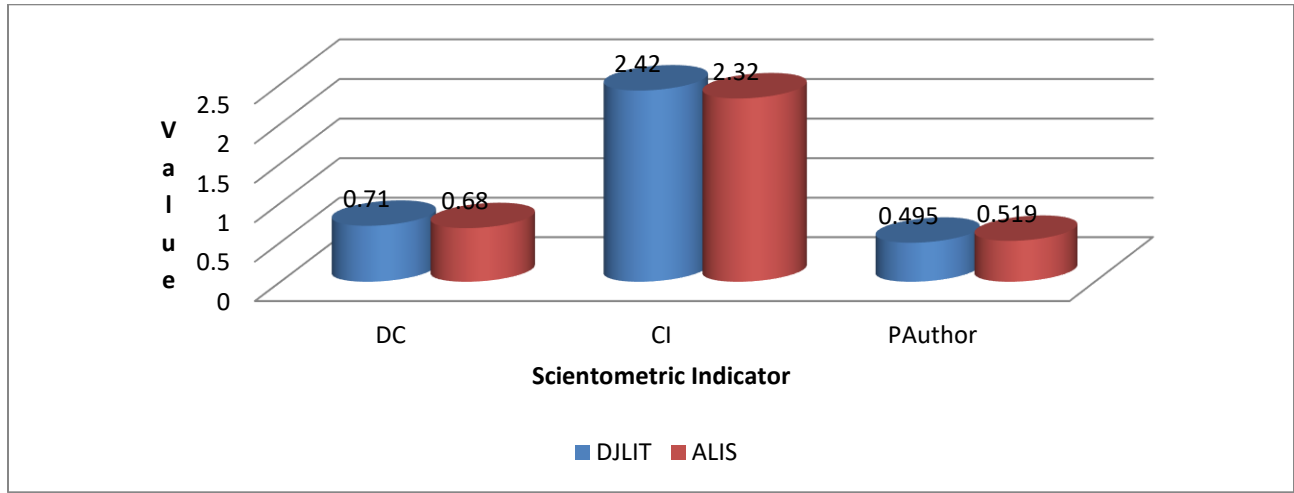


Figure-2
Scientometric Indicator during the year 2014-2018

Citation Analysis:

As indicated in Table 7, Total 435 papers were published in DJLIT and ALIS Journal received total 603 citations. DJLIT received 374 citations (62.32%) while ALIS received 229 citations (37.70%) during the year 2014-2018. Overall, the average number of citation per paper is 1.38. This can be also shown in Figure 3.

Table-7
Citation impact of the journals

Journal	Total papers	Times Cited	Average Citation per Paper	%
DJLIT	271	374	1.38	62.30
ALIS	164	229	1.39	37.70
Total	435	603	1.38	100

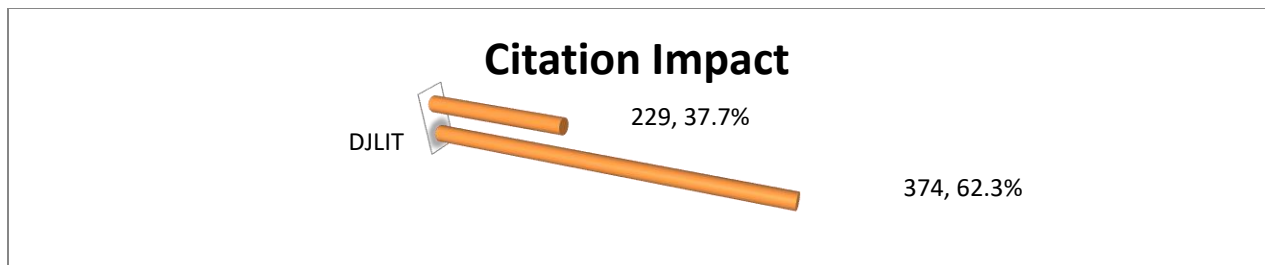


Figure- 3
Citation Impact during the year 2014-2018

Highly Cited Papers:

Table 8 shows the list of highly cited paper of each journal during the year 2014-2018.

Table-8
Highly Cited paper and authorship pattern

(Source: Google Scholar as on Feb 2020)^{11&12}

DJLIT				ALIS					
Highly Cited Papers	Times Cited	Affiliation	Authorship Single/Joint	Rank	Highly Cited Papers	Times Cited	Affiliation	Authorship Single/Joint	Rank
Use of E-resources by Faculty Members and Students of Sher-E-Kashmir Institute of Medical Science (SKIMS)	38	Mangalore University, Mangalore	Joint (2 Authors) I Bhat, MV Mudhol	1	MOOCs and LIS education: A massive opportunity or challenge	34	IGIDR, Mumbai and University of Pune, Pune	Joint (2 Authors) SM Pujar, SY Bansode	2
Scientometric Analysis of Global Publication Output in Mobile Technology	30	SRK Engineering College and Chennai University of Madras, Chennai	Joint (2 Authors) RS Kumar, K Kaliyaperumal	4	A study of ICT skills among library professionals in the Kerala University Library System	32	University of Kerala	Joint (2 Authors) ST Seena, S KG Pillai	3
Publication Productivity of University of Kerala: A Scientometric View	25	University of Kerala, Trivandrum and ISRO, Trivandrum	Joint (2 Authors) A Gopikuttan, S Aswathy	5	Internet of Things and libraries	24	IGIDR, Mumbai and TCS, Hyderabad	Joint (2 Authors) SM Pujar, KV Satyanarayana	6
DJLIT				ALIS					
Highly Cited Papers	Times Cited	Affiliation	Authorship Single/Joint	Rank	Highly Cited Papers	Times Cited	Affiliation	Authorship Single/Joint	Rank
A Bibliometrics Profile of Gujarat University, Ahmedabad during 2004-2013	23	IIM, Ahmedabad	Joint (3 Authors) A Hanumappa, A Desai, M Dora	7	Trends in acquisition and usage of electronic resources at Indian Institutes of Technology Libraries	21	IIT, Bombay	Single D Jotwani	9
User Satisfaction Regarding Quality of Library Services of A.C. Joshi Library, Panjab University, Chandigarh	22	Panjab University Chandigarh	Joint (2 Authors) R Mohindra, A Kumar	8	Open access journals in library and information science: a study	20	IGIDR, Mumbai	Single SM Pujar	10

The paper of DJLIT journal “Use of E-resources by Faculty Members and Students of Sher-E-Kashmir Institute of Medical Science (SKIMS)” has received the maximum citations (38 citations and 1st rank) during the period of study. The ALIS journal papers “MOOCs and LIS education: A massive opportunity or challenge” with 34 citations and “A study of ICT skills among library professionals in the Kerala University Library System” with 32 citations ranked at 2nd & 3rd position respectively. The DJLIS journal papers “Scientometric Analysis of Global Publication Output in Mobile Technology” with 30 citations and “Publication Productivity of University of Kerala: A Scientometric View” with 25 citations ranked at 4th & 5th Position respectively.

The ALIS paper “Internet of Things and libraries” followed by DJLIT paper “A Bibliometrics Profile of Gujarat University, Ahmedabad during 2004-2013”, DJLIT paper “User Satisfaction Regarding Quality of Library Services of A.C. Joshi Library, Panjab University, Chandigarh” and ALIS paper “Trends in acquisition and usage of electronic resources at Indian Institutes of Technology Libraries” ranked at 6th, 7th, 8th and 9th position with their 24 citations, 23 citations, 22 citations and 21 citations respectively. The ALIS paper “Open access journals in library and information science: a study” ranked at bottom position with 20 citations.

Conclusion:

Over the past 5 years, the top two leading Indian LIS journals (DJLIT and ALIS) published a total of 435 research papers with an average paper per year of 54.2 and 32.8 respectively. These two journals are quite old and have made a name for them in the Indian LIS industry. However, the joint authorship pattern of DJLIT papers (71.96%) is more than ALIS papers (68.90%). One of the important findings of this study is that joint authorship pattern is the most common for these journals. The Degree of collaboration (DC) and Mean Collaborative Index (CI) for DJLIT papers (0.71 & 2.42 respectively) gets more citations over the year. It also indicates the trend of participation in collaboration and co-authoring in LIS publications.

Collaborations are more productive and better than what we can do individually. A Collaborative research paper is more cited and perhaps more relevant than individual author's research paper. Indian LIS authors should focus on collaborative work at various levels, instead of freelance authors, to get work that is more quality and interdisciplinary in nature. Therefore, LIS schools may increase LIS discipline by producing more quality work in emerging areas and other innovative research areas. It is even more important to increase research collaboration with LIS scientists from different countries. The move is intended to increase research collaboration in the international arena. Indian LIS researchers should focus more on collaborative research for better clarity, visibility, quality and relevance.

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