A scientometric analysis of *DESIDOC Journal of Library & Information Technology* (2010-2014)

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Introduction

Scientometrics

According to Wikipedia[1], scientometrics is the study of measuring and analyzing science, technology and innovation. Major research issues include the measurement of impact, reference sets of articles to investigate the impact of journals and institutes, understanding of scientific citations, mapping scientific fields and the production of indicators for use in policy and management contexts. In practice, there is a significant overlap between scientometrics and other scientific fields such as bibliometrics and information science. The industrialization of science increased the quantity of publications and research outcomes, and the rise of the computers allowed effective analysis of these data. Although the sociology of science focused on the behavior of scientists, scientometrics focused on the analysis of publications.

The field of library and information science (LIS) has developed several quantitative methods to study the various aspects of subjects. The metrics of LIS are continuously increasing, starting from librametrics, bibliometrics, scientometrics, informetrics, webometrics, netometrics to cybermetrics. Wilson (1999), in his paper, points out that the origin of the term scientometrics goes back to the year 1969, when two Russian scientists Nalimov and Mulechenko coined the Russian term naukometriya, the Russian equivalent of scientometrics. However, the advent of scientometrics as a discipline was in 1978, when the journal *Scientometrics* was

Table I.
Year-wise distribution of contributions

Year	Volume no.	No. of issues	No. of contributions	(%)
2010	30	6	50	16.29
2011	31	6	58	18.89
2012	32	6	70	22.80
2013	33	6	66	21.50
2014	34	6	63	20.52
Total			307	100.00

Table II.
Distribution of contributions

	Volume no.					
Issue	30	31	32	33	34	Total
1	7	8	11	13	9	48
2	8	9	11	10	12	50
3	7	7	13	10	11	48
4	8	14	13	12	10	57
5	12	10	12	9	10	53
6	8	10	10	12	11	51
Total	50	58	70	66	63	307

Table III.
Types of contributions

			Type of contribution				
Year	Volume no.	Issue no.	Editorial	Research papers	Book review	Index/short communication	Total
2010	30	1	–	7	–	–	7
		2	–	7	1	–	8
		3	–	7	–	–	7
		4	–	7	1	–	8
		5	1	10	1	–	12
		6	–	4	2	2	8
2011	31	1	–	7	1	–	8
		2	1	7	1	–	9
		3	–	7	–	–	7
		4	1	10	2	1	14
		5	1	9	–	–	10
		6	–	10	–	–	10
2012	32	1	1	10	–	–	11
		2	1	9	–	1	11
		3	1	12	–	–	13
		4	1	12	–	–	13
		5	1	11	–	–	12
		6	–	10	–	–	10
2013	33	1	1	12	–	–	13
		2	1	9	–	–	10
		3	1	9	–	–	10
		4	1	11	–	–	12
		5	–	9	–	–	9
		6	–	11	–	1	12
2014	34	1	–	9	–	–	9
		2	1	11	–	–	12
		3	1	10	–	–	11
		4	–	10	–	–	10
		5	–	10	–	–	10
		6	1	10	–	–	11
Total			16 (5.21%)	277 (90.23%)	9 (2.93%)	5 (1.63%)	307

founded by Tibor Braun. Scientometrics defines its content to include all quantitative aspects of communication in science, and science policy.

The focus of scientometrics is the measurement of science and is therefore concerned with the growth, structure, interrelationship and productivity of scientific disciplines. According to Tague-Sutcliffe (1992):

> Scientometrics is the study of the quantitative aspects of science as a discipline or economic activity. It is part of the sociology of science that has application to science policy-making. It involves quantitative studies of scientific activities, including, among others, publication, and so overlaps bibliometrics to some extent.

DESIDOC Journal of Library & Information Technology[2],[3]

DESIDOC Journal of Library & Information Technology (*DJLIT*) is a peer-reviewed bimonthly open-access international journal that publishes original research and review papers related to IT applied to library activities, services and products. It is meant for librarians, documentation and information professionals, researchers, students and others interested in the LIS profession. It was formerly known as "DESIDOC Bulletin of Information Technology (DBIT)". *DJLIT* is published by Defence Research & Development Organization (DRDO), an organization working under the Department of Defence Research and Development of Ministry of Defence. DRDO has dedicatedly been working towards enhancing self-reliance in defense systems and undertakes design and development leading to production of world-class weapon systems and equipment in accordance with the expressed needs and the qualitative requirements laid down by the three services. DRDO is working in various areas of military technology, which include aeronautics, armaments, combat vehicles, electronics, instrumentation engineering systems, missiles, materials, naval systems, advanced computing, simulation and life sciences. DRDO, while striving to meet the cutting-edge weapons technology requirements, provides ample spinoff benefits to the society at large, thereby contributing to nation-building. The publication of *DJLIT* was started in the year 1981, and since then, it is continuously involved in publishing high-quality research papers related to application of new and emerging technologies in the LIS profession.

The study

Scientometric analysis of five volumes (from Volume No. 30 to 34) from the year 2010 to 2014 of *DJLIT* covering 30 issues containing 307 contributions was performed. All the bibliographic details were noted and recorded in tabular form for the purpose of in-depth analysis. Based on the analysis of the recorded data, findings have been presented.

All the bibliographic details related to volumes, issues, authors, contributions, title, year of publication, pagination, etc., were recorded for the purpose of performing bibliometric analysis as detailed below.

On average, the journal has published 61 research papers per year. Table I shows that maximum number of contributions/research papers (70) were published in the year 2012, followed by

Table IV.
Authorship pattern

Year	Volume no.	Issue no.	No. of authors contributed					
			Single	Two	Three	Four	≥Five	Total
2010	30	1	–	6	1	–	–	7
		2	2	4	–	–	2	8
		3	4	2	1	–	–	7
		4	1	5	1	1	–	8
		5	8	3	1	–	–	12
		6	2	4	2	–	–	8
2011	31	1	3	5	–	–	–	8
		2	4	2	2	1	–	9
		3	2	3	1	1	–	7
		4	5	9	–	–	–	14
		5	3	4	3	–	–	10
		6	5	3	1	–	1	10
2012	32	1	5	3	2	1	–	11
		2	8	3	–	–	–	11
		3	3	8	2	–	–	13
		4	6	6	1	–	–	13
		5	3	5	4	–	–	12
		6	3	5	1	–	1	10
2013	33	1	7	6	–	–	–	13
		2	7	3	–	–	–	10
		3	5	2	1	2	–	10
		4	4	6	2	–	–	12
		5	3	4	2	–	–	9
		6	5	3	–	–	–	12
2014	34	1	1	4	3	1	–	9
		2	4	8	–	–	–	12
		3	4	1	3	3	–	11
		4	2	5	2	1	–	10
		5	3	7	–	–	–	10
		6	7	2	2	–	–	11
Total			119 (38.76%)	132 (43%)	41 (13.36%)	11 (3.58)	4 (1.30%)	307

Table V.
Ranking of authors

Name of author	Contributions	Rank
B.M. Gupta	16	1
Chennupati K. Ramaiah	9	2
Adarsh Bala	8	3
B.S. Kademani	6	4
K. Bhanumurthy	6	4
K. Nageswara Rao	5	5
Pratibha A. Gokhale	5	5
Rajendra Kumbhar	5	5
Ritu Gupta	5	5
Avinash Kshitij	4	6
K.C. Garg	4	6
K.P. Singh	4	6
M.P. Satija	4	6
Mohamed Haneefa K.	4	6
Paramjeet Kaur Walia	4	6
S. Thanuskodi	4	6
Shalini R. Lihitkar	4	6
Shri Ram	4	6
Sunil Kumar Satpathy	4	6
V.G. Talwar	4	6

66 publications in the year 2013, whereas minimum (50) number were published in the year 2010. Table II-IV provide more specific details.

Table V presents rank list of authors who have contributed four or more articles/research papers in the different issues of *DJLIT* during the period of study. The ceiling of four contributions has been taken into account with a view to avoid a long list. The authors having same number of contributions have been given the same rank. Ranking of authors has great importance in scientometric research.

Table VI-VIII reveal that the coverage of *DJLIT* is not very broad and its scope is confined to the Indian continent only.

Another important area of scientometric research involves the study and use of various methods of citation analysis to establish relationships between authors and their work. Tables IX and X show that the majority of authors preferred journals as their prime source of information.

Table VI.
Geographical distribution of contributions

Year	Volume no.	Issue no.	Indian	Foreign
2010	30	1	7	–
		2	8	–
		3	7	–
		4	8	–
		5	12	–
		6	8	–
2011	31	1	6	2
		2	8	1
		3	7	–
		4	13	1
		5	7	3
		6	9	1
2012	32	1	11	–
		2	9	2
		3	13	–
		4	9	4
		5	12	–
		6	9	1
2013	33	1	13	–
		2	9	1
		3	3	7
		4	11	1
		5	9	–
		6	12	–
2014	34	1	9	–
		2	7	5
		3	11	–
		4	9	1
		5	9	1
		6	8	3
Total			273 (88.93%)	34 (11.07%)

Findings and conclusion

An observation of the scientometric analysis of the publication of 307 contributions in the five volumes (from Volume No. 30 to 34) from the year 2010 to 2014 of *DJLIT* covering 30 issues has been presented in the study. The study shows a trend of gradual growth in contributions, with an average number of 61 contributions per volume of the journal. Maximum number of contributions/research papers (70) were found to be published in the year 2012, whereas the minimum (50) in the year 2010. Maximum number of contributions during the period of study are from joint authors, with a total of 188 (61.24 per cent). A maximum number of contributions are from India, with a total of 273 (88.93 per cent). It appears that the coverage of *DJLIT*, even being an international journal in the field of LIS, is not very broad and its scope is confined primarily to India. Majority of the authors preferred journals as their major source of information, providing the highest number of citations totaling 2,447 (51.89 per cent), while websites attained the second position with 1,015 (21.52 per cent) citations, followed by books with 613 (13 per cent) citations. The study further reveals that maximum number of citations totaling 1,109 (23.52 per cent) out of 4,716 were received in the year 2013, whereas least citations totaling 700 (14.84 per cent) were recorded in the year 2010 (Table XI).

One of the most important qualities of *DJLIT* is that it has great concern for emerging and new tools, techniques and technologies in the LIS profession and their impact and application in the field. The journal regularly publishes special issues in every volume (Table XII). *DJLIT*, having free online access through the internet, is the highly preferred journal for communication, knowledge acquisition and reference by the LIS professional in India. The journal has great potential of attaining new heights of popularity and impact all over the world in the LIS profession. It is suggested that the journal should try to get high-quality papers from foreign authors too, which may be

Table VII.
Geographical distribution of contributions (country-wise)

Country	No. of contributions	(%)
India	273	88.93
Nigeria	5	1.62
Singapore	4	1.30
UK	2	0.64
KSA	2	0.64
Spain	2	0.64
Greece	2	0.64
USA	2	0.64
Australia	1	0.33
Belgium	1	0.33
Bangladesh	1	0.33
UAE	1	0.33
Germany	1	0.33
South Africa	1	0.33
Argentina	1	0.33
Thailand	1	0.33
Turkey	1	0.33
Malaysia	1	0.33
Portugal	1	0.33
Swaziland	1	0.33
Oman	1	0.33
Slovenia	1	0.33
Fiji	1	0.33
Total	307	100.00

Table VIII.
Geographical distribution of contributions (India-state-wise)

State	No. of contributions	(%)
New Delhi	68	24.91
Maharashtra	39	14.29
Karnataka	30	10.99
Andhra Pradesh	23	8.42
Uttar Pradesh	15	5.49
Punjab	15	5.49
Kerala	13	4.76
Tamil Nadu	13	4.76
West Bengal	9	3.29
Odisha	9	3.30
Jammu & Kashmir	8	2.93
Gujarat	7	2.56
Puducherry	6	2.20
Rajasthan	3	1.10
Himachal Pradesh	3	1.10
Jharkhand	3	1.10
Haryana	2	0.73
Chhattisgarh	2	0.73
Madhya Pradesh	1	0.37
Manipur	1	0.37
Assam	1	0.37
Uttarakhand	1	0.37
Sikkim	1	0.37
Total	273	100.00

Table IX.
Distribution of citations

Year	Volume no.	Issue no.	Types of citations/references JR	S/CP	BK	WS	RP	D/TH	Total
2010	30	1	26	2	3	22	1	–	54
		2	79	40	16	11	5	–	151
		3	46	15	22	10	1	2	96
		4	51	11	12	25	3	–	102
		5	53	30	50	71	22	1	227
		6	33	5	13	16	3	–	70
Total			288	103	116	155	35	3	700
2011	31	1	44	12	20	20	2	–	98
		2	145	14	25	18	2	1	205
		3	59	41	18	16	–	2	136
		4	122	33	18	55	–	1	229
		5	135	2	7	22	5	–	171
		6	88	19	26	14	–	2	149
Total			593	121	114	145	9	6	988
2012	32	1	28	9	17	40	1	2	97
		2	102	8	13	41	–	1	165
		3	80	17	41	74	17	2	231
		4	57	18	22	63	5	–	165
		5	61	11	10	76	1	1	160
		6	94	17	12	40	–	2	165
Total			422	80	115	334	24	8	983
2013	33	1	38	2	29	23	2	2	96
		2	78	5	13	33	1	2	132
		3	96	79	27	39	3	2	246
		4	50	7	57	13	6	–	133
		5	89	8	14	23	3	4	141
		6	267	20	27	37	5	5	361
Total			618	121	167	168	20	15	1,109
2014	34	1	81	4	12	18	1	2	118
		2	92	15	39	63	4	2	215
		3	125	2	8	15	4	3	157
		4	67	17	19	31	–	3	137
		5	72	16	11	35	4	2	140
		6	89	14	12	51	2	1	169
Total			526	68	101	213	15	13	936
Grand total			2,447 (51.89%)	493 (10.45%)	613 (13%)	1,015 (21.52%)	103 (2.18%)	45 (0.96%)	4,716

Notes: JR: journals; S/CP: seminar/workshop/conference proceedings; BK: books; WS: websites; RP: reports; D/TH: dissertations/theses

Table X.
Distribution of citations

Year	Volume no.	Types of citations/references JR	S/CP	BK	WS	RP	D/TH	Total	(%) age
2010	30	288	103	116	155	35	3	700	14.84
2011	31	593	121	114	145	9	6	988	20.95
2012	32	422	80	115	334	24	8	983	20.84
2013	33	618	121	167	168	20	15	1,109	23.52
2014	34	526	68	101	213	15	13	936	19.85
Total		2,447 (51.89%)	493 (10.45%)	613 (13%)	1,015 (21.52%)	103 (2.18%)	45 (0.96%)	4,716	100.00

Notes: JR: journals; S/CP: seminar/workshop/conference proceedings; BK: books; WS: websites; RP: reports; D/TH: dissertations/theses

Table XI.
Length of contributions

Year	Volume no.	Issue no.	Length of contributions (no. of pages) 1-5	6-10	11-15	16-20	>20	Total
2010	30	1	2	4	1	–	–	7
		2	1	1	5	1	–	8
		3	2	4	1	–	–	7
		4	1	6	1	–	–	8
		5	2	8	1	1	–	12
		6	–	6	1	1	–	8
2011	31	1	1	5	1	1	–	8
		2	2	4	3	–	–	9
		3	2	4	1	–	–	7
		4	3	9	1	1	–	14
		5	3	6	1	–	–	10
		6	2	6	1	1	–	10
2012	32	1	2	9	–	–	–	11
		2	3	7	–	–	1	11
		3	3	9	1	–	–	13
		4	4	9	–	–	–	13
		5	5	7	–	–	–	12
		6	1	7	2	–	–	10
2013	33	1	7	5	1	–	–	13
		2	6	4	–	–	–	10
		3	1	6	2	1	–	10
		4	3	7	2	–	–	12
		5	1	7	1	–	–	9
		6	3	8	1	–	–	12
2014	34	1	2	5	2	–	–	9
		2	2	8	2	–	–	12
		3	1	9	–	1	–	11
		4	2	8	–	–	–	10
		5	2	8	–	–	–	10
		6	4	7	–	–	–	11
Total			73 (23.78%)	193 (62.87%)	32 (10.42%)	8 (2.60%)	1 (0.33%)	307

Table XII.
Special issues

Year	Volume no.	Issue no.	Special issue theme
2010	30	5	100 years of LIS Education in India
2011	31	2	Ontology
		4	Semantic Web
		5	Scientometrics
2012	32	1	Agricultural Information Systems and Services in India
		2	E-Books
		3	Intellectual Property Rights
		4	Digital Preservation
		5	Open Source Software for Libraries
2013	33	1	Corporate Social Responsibility and Public Libraries
		2	Health Information Systems and Services
		3	Applications of Online Exhibitions
		4	Knowledge Organization
2014	34	2	Trends in Online Exhibitions
		3	Indian Contribution in Scientometrics
		6	Embedded Librarianship: Changing Role of Librarian in Digital Age

useful in enhancing its global impact and reputation. It would be interesting to see scientometric studies of other journals and comparison of journals in a field.

NOTES

1 Available at: https://en.wikipedia.org/wiki/Scientometrics
2 Available at: www.desidoc.drdo.in/
3 Available at: http://dx.doi.org/10.14429/djlit

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FURTHER READING

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