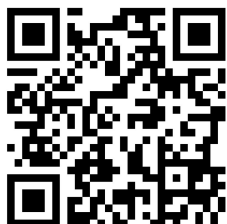


RESEARCH PRODUCTIVITY OF LIBRARY AND INFORMATION SCIENCE RESEARCH (LISR) : A SCIENTOMETRIC APPROACH

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Abstract: *This study describes the research output of Library and Information Science Research (LISR) journal between the years 2007-2016. The study is based on the data retrieved from largest indexing and abstracting secondary database 'Scopus'. The study explored that 'LISR' articles have positive but inconsistent growth trends during the study period. The year wise contribution revealed that the year 2015 was most productive year in terms of papers. An average of 32 publications appeared per year. The authorship pattern revealed that multi-authorship is dominating over the single-authorship. The pagination pattern showed that the majority of research articles of 'LISR' consists 1-20 page range. The United States is observed as the most prolific country. Florida State University contributed the highest number of papers. The study highlights the latest trends in terms of publications, authorship pattern, pagination pattern, countries, and institutions which provides a blue-print of the journal.*

Key words: Research output; Research productivity; Scientometric, 'LISR'

Introduction

Journals are the scientific publications and the measurement of these publications acts as the field's blueprint. The discipline of Library & Information Science is enriched with various kinds of metrics like- librmetrics, bibliometrics, scientometrics, informetrics, webometrics to cyber metrics to quantify the various aspects of subjects. Scientometrics approaches are some of the most essential metrics for the measurement of scientific publications. These studies focus on emerging trends, disadvantages, and other perspectives in specific fields of study. In this

study, a scientometric analysis of one journal of Library and Information Science entitled Library and Information Science Research (LISR) is carried out to evaluate the quantitative measurement of the LIS discipline as journals of a specific field are considered sensitive indicators to know the recent trends of that discipline.

Scientometric

The term 'Scientometric' was coined in 1969 as a translation of the Russian word 'naukometriya' (originally translated as scientific metrics) used by V.V. Nalimov and

Z.M. Mulchenko in their book titled “Scientometric: Study of the development of Science as an Information Process” as a “complex of quantitative methods, which are used to investigate the process of science”. T. Braun popularized the term with the founding of the journal 'Scientometric'. In the first issue of 'Scientometric', Beck (1978) defined Scientometric as “the study of measurement of scientific and technological progress”.

Scientometrics is an approach for assessing the production, dissemination, and use of scientific knowledge.

1.2 Source Journal

Library and Information Science Research (LISR) is a quarterly publication of Elsevier. It is a cross-disciplinary and refereed journal that encourages various methods and frameworks in the LIS discipline. June Abbas from the USA is working as editor-in-chief in this journal nowadays. It has abstracting and indexing in many reputed databases like ASLIB, Academic abstract, OCLC, INSPEC, SSCI, Scopus, Science Direct, etc. The ISSN number of this journal is 0740-8188. It is indexed in Scopus from 1994 onwards.

2 Objectives

The objectives of the study are as under:-

- to assess the total output of ‘LISR’ journal from 2007 to 2016;
- to identify the growth patterns of ‘LISR’ publications;

- to identify the degree of collaboration of ‘LISR’ authors;
- to find out the most productive countries and institutions of ‘LISR’ publications.

3 Review of Related Literature

During the last few years, many studies have been published addressing the scientometric aspects of journals. **Krishan and Baskaran (2018)** in their research paper entitled “Scientometric analysis of the journal Green Chemistry” examined the research productivity of the journal from 1999 to 2017. They explored the year-wise distribution of articles, authorship pattern, form-wise distribution of articles, authorship pattern, and growth pattern of the publications of the journal for the study period. **Regolini and Jannes-ober (2013)** in their work “A bibliometric study of Informing Science: The international journal of an emerging transdiscipline” explored the influence of the journals among institutions, countries, researchers, and subject areas through citation analysis. Some other studies by Abdi et.al (2018); Dinesh Kumari & Swain (2018); Hajam (2017); Suradkar and Vaishali Khaparde (2012) and Tsay (2011) have explored the same aspects of scientometrics.

4 Data Selection and Methodology

The publications of ‘LISR’ from 2007 to 2016 have been analyzed. The data has been extracted from the largest indexing and abstracting database

named ‘SCOPUS’. The data was extracted using the strings “*SRCTITLE ("Library and Information Science Research") AND PUBYEAR > 2006 AND PUBYEAR < 2017 AND (EXCLUDE (SRCTYPE , "b")) AND (LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014) OR LIMIT-TO (PUBYEAR , 2013) OR LIMIT-TO (PUBYEAR , 2012) OR LIMIT-TO (PUBYEAR , 2011) OR LIMIT-TO (PUBYEAR , 2010) OR LIMIT-TO (PUBYEAR , 2009) OR LIMIT-TO (PUBYEAR , 2008) OR LIMIT-TO (PUBYEAR , 2007)*”.

Table I: Data-selection

SCOPUS data	Selected data for the study
Article	321
Total	374

A selected data set of 321 articles was exported in .csv and BibTeX file including all bibliographical information. All analysis was done on this data set.

4.1 Arithmetic Mean

In this study, the mean value gives the average number of publications per year.

$$\text{Arithmetic Mean} = \frac{\text{Total no.of Publications}}{\text{total no.of Years}}$$

4.2 Degree of Collaboration (DC)

To derive the strength of the author’s collaboration in any discipline the following formula suggested by K. Subramanyam (1983) has been used;

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

Where,

DC= Degree of collaboration

N_m = Number of multiple authors' articles

N_s = Number of single author's articles

In this study, it is used as;

$$\text{Degree of Collaboration} = \frac{\text{Number of multiple authors articles}}{\text{Number of multiple authors articles} + \text{Number of single authors articles}}$$

5 Data Analysis

5.1 Data Details

The table describes basic information of the data retrieved from the Scopus database.

Table II: Basic data information of 'LISR' during 2007 to 2016

S.No.	Details about Data	Observed Value
1.	Study-Period	2007-2016
2.	Time-Span	10 years
3.	Total No. of Publications	321
4.	References	15183
5.	Author Appearances	659
6.	Unique Authors	503
7.	Multi-authored documents	201
8.	Single-authored documents	120

5.2 Year wise distribution of "LISR" publications

Table III shows the yearly distribution of articles of 'LISR' from 2007 to 2016. A total of 321 articles were published during the study. The inconsistent growth trend is observed among the 'LISR' publications in this period. The total output of publications for the study time remained between 7.79 per cent to 12.46 per cent. During the study, year 2015 produced highest number of publications with 40 (12.46%) share and the minimum publications were appeared in 2007 and 2014 with 25 (7.79%) share each.

Table III: Yearly distribution of 'LISR' publications

S.No.	Year	NP	%	Cumulative Total	Cumulative %
1	2007	25	7.79	25	7.79
2	2008	30	9.35	55	17.13
3	2009	28	8.72	83	25.86
4	2010	28	8.72	111	34.58
5	2011	35	10.90	146	45.48
6	2012	36	11.21	182	56.70
7	2013	36	11.21	218	67.91
8	2014	25	7.79	243	75.70
9	2015	40	12.46	283	88.16
10	2016	38	11.84	321	100.00
	Total	321	100.00		

NP: No. of publications

5.3 Arithmetic Mean

The arithmetic mean of all publications for the time span 2007-2016 has been calculated to be 32.1.

It observed that during this period an average 32 publications were published per year.

Table IV: Arithmetic Mean

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total	Avg.
Publications	25	30	28	28	35	36	36	25	40	38	321	32.1

*Avg: Average

5.4 Year-wise distribution of authorship pattern

Table V depicts that a maximum of 122 publications are contributed by two author's joint authorship followed by 120 publications by single authors. It is observed that in the year 2016 maximum of 89 authors contributed and in the years 2007 and 2009 minimum of 48 authors contributed each. A total of 659 authors appeared during the study period. The author's growth rate fluctuates during this period.

Table V: Year-wise distribution of authorship pattern in ‘LISR’ research output

Authors/ Years		1	2	3	4	5	6	7 & above	Total (%)
2007	TP	11	8	4	1	1	-	-	25 (7.79)
	TA	11	16	12	4	5	-	-	48 (7.28)
2008	TP	12	14	3	1	-	-	-	30 (9.35)
	TA	12	28	9	4	-	-	-	53 (8.04)
2009	TP	13	11	3	1	-	-	-	28 (8.72)
	TA	13	22	9	4	-	-	-	48 (7.28)
2010	TP	9	14	3	2	-	-	-	28 (8.72)
	TA	9	28	9	8	-	-	-	54 (8.19)
2011	TP	17	6	8	3	1	-	-	35 (10.9)
	TA	17	12	24	12	5	-	-	70 (10.62)
2012	TP	10	13	7	3	2	-	1	36 (11.21)
	TA	10	26	21	12	10	-	8	87 (13.20)
2013	TP	13	15	5	2	1	-	-	36 (11.21)
	TA	13	30	15	8	5	-	-	71 (10.77)
2014	TP	11	7	2	3	1	-	1	25 (7.79)
	TA	11	14	6	12	5	-	11	59 (8.95)
2015	TP	13	18	5	4	0	-	-	40 (12.46)
	TA	13	36	15	16	-	-	-	80 (12.14)
2016	TP	11	16	6	2	0	1	2	38 (11.84)
	TA	11	32	18	8	0	6	14	89 (13.51)
Total	TP	120	122	46	22	6	1	4	321 (100)
	TA	120	244	138	88	30	6	33	659 (100)

5.5 Degree of Collaboration (DC)

Table VI shows that the degree of collaboration remains between 0.51 to 0.72 during the research. The average DC was observed as 0.63 which shows that authors of ‘LISR’ are more interested in joint contribution rather than single contribution.

Table VI: Degree of Collaboration

Year	Single	Multiple	N_m+N_s	DC
2007	11	14	25	0.56
2008	12	18	30	0.60
2009	13	15	28	0.54
2010	9	19	28	0.68
2011	17	18	35	0.51
2012	10	26	36	0.72
2013	13	23	36	0.64
2014	11	14	25	0.56
2015	13	27	40	0.68
2016	11	27	38	0.71
Total	120	201	321	0.63

5.6 Yearly pagination pattern

Table VII demonstrates the length of articles that appeared in 'LISR' during the study. It is found that more than half of the articles which is 71.96 % were published in the page range from 1-to 10, followed by 23.68% of articles with 11-20 pages. Only 4.36% of articles published in the page range 21-30. It is observed that 95.64 % of 'LISR' publications preferred 1-20 pages.

Table VII :Year-wise pagination pattern of 'LISR' publications

Pages	1-10	11-20	21-30	31-40	Above 40	Total
2007	0	11	14	0	0	25
2008	24	6	0	0	0	30
2009	23	5	0	0	0	28
2010	19	9	0	0	0	28
2011	27	8	0	0	0	35
2012	30	6	0	0	0	36
2013	30	6	0	0	0	36
2014	18	7	0	0	0	25
2015	30	10	0	0	0	40
2016	30	8	0	0	0	38
Total	231	76	14	0	0	321
%	71.96	23.68	4.36	0	0	100

5.7 Most productive countries in 'LISR' publications

Table VIII demonstrates the contribution of the top five countries based on the corresponding address in 'LISR' during the study. This table highlighted that more than half of the total publications that is 221 (68.84%) were produced by the top five countries in all. The United States contributed the highest number of publications which is 150 (46.73%), followed by Australia with 24 (7.48%), Canada with 18 (5.61%), the United Kingdom with 16 (4.98%), and Finland with 13 (4.05%) share.

Table VIII: Top five countries in 'LISR' publications

Sr.No.	Country	TP	% of TP (321)
1	USA	150	46.73
2	AUSTRALIA	24	7.48
3	CANADA	18	5.61
4	UNITED KINGDOM	16	4.98
5	FINLAND	13	4.05
Total		221	68.84

5.8 Most productive institutions

Table IX depicts the top five institutions that produced 64 (19.93%) papers in all. The Florida State University produced the maximum number of papers (27) which is 8.41 % share of the total output, followed by 11 publications with 3.43 % share by Tampereen Yliopisto. Bar-Ilan University and Charles Sturt University, Wagga have an equal share of 9 (2.80 %) each, and the University of Western Ontario is in fifth position with 8(2.49) share.

Table IX: Research contribution of top ten institutions

Sr. No.	Institutions	TP	% of TP (321)
1	Florida State University	27	8.41
2	Tampereen Yliopisto	11	3.43
3	Bar-Ilan University	9	2.8
4	Charles Sturt University, Wagga	9	2.8
5	The University of Western Ontario	8	2.49
Total		64	19.93

Conclusion

The present study maps the research output of 'LISR' publications that appeared from 2007 to 2016. It describes the various growth trends of the journal. The study demonstrates that the joint authorship is preferred by the contributors and a maximum (71.96%) of publications have appeared under the page range of 1-10. The study also highlights the top five contributing institutions and countries. It is revealed that developed countries are dominating in terms of contribution in this journal.

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