

Library and Information Science Research in India: A Scientometric Assessment of Publications Output during 2014-18

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ABSTRACT: *The paper explored the productivity of Indian authors output in the field of library and information science research; a total 1275 publications have been downloaded from the web of science from the period of 2014-18. The research output were assessed in the year wise, author wise, gender wise, document wise, state wise and international collaborative publications. The paper also examines the highly cited articles. Most productive journals, most productive authors, most productive organizations in library and information science research in India during 2014-18.*

Keywords: Library and Information Science, Productivity of Indian Authors, International Collaboration, Network Visualization, Vos Viewer, Scientometric Assessment

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1. Introduction

India is a second largest country in the world after china in terms of population. The Uttar Pradesh is the biggest populous state in India which is larger than most of the country in the world. It consist 29 states and seven union territories. The total educational institutions are 53,620 included 993 universities, 42901 colleges and 10726 stand alone institutions in India. Educational institutes consists 14.04 lakhs teachers and 3.50 cores students. Each education institution has a library which helps to fulfill the objectives of the parent organizations. Libraries are subscribing various information resources for the users to fulfill their information needs. Various studies have been conducted to assess the utilization of information resources and services of the libraries. These studies help to creation of new services and enhancement of existing library and information services. To run these library and information services various schools are functioning for creation of library and information professionals. To evaluate the growth of literature in the field of library and information science as well the productivity of the library professionals working in various institution may be evaluated through bibliometric or scientometrics. Several studies has been done of the bibliometric or scientometric study on the various subject in the various period to explore the trends of publication, core research papers and journals in the field, and growth of literature in the various subject filed. Various studies have been done for the assessment and evaluation of the individual research performance, journals, organization as well as nation. This is an attempt to explore the productivity of Indian authors in the field of library and information science through a comprehensive study.

2. Review of Literature

1. **Garg and Tripathi (2018)** this paper present the various aspects discussed about the bibliometric in terms of disciplines and sub-disciplines. During the year 1995-2014 the study analysis by Indian scholars of 902 papers, the study is mainly focused on the bibliometrics and scientometrics. The analysis of the study was that theoretical studies using mathematical and statistical techniques. The study finds that the highest attention was received in the field of medicine as a discipline as compared to the other disciplines.
2. **Bhardwaj (2017)** the study observed that research activities of library and information science professionals in India. There were 145 respondents out of 170 respondents read research literature regularly. Some respondent journals articles are not read. They preferred research literature regularly. There is a lack of funding support, problems in data collection, time constraints etc. the findings of the study were that funding agencies and universities want to approach encourage LIS professionals to follow research and publishing this will develop the research behavior in academic institutions.
3. **Murugan and Murugaiah (2016)** this article shows that the research is a primary function is to help instruct skills required for a librarian. The librarian aspiring to carry to apply so many techniques and principles will be needed for the library users.
4. **Verma, Sonker and Gupta (2016)** the study is based on the citation pattern of the articles published for the period 2005-2014. During his period 1180 articles were published in the Library Philosophy and Practice, E-Journal. In the year 2011 the highest numbers of articles were published i.e. 198 articles. Each article are published on the basis of documentary sources and non-documentary citations.
5. **Jabeen, Yun (et.al.) (2015)** the study highlighted that research productivity and scholarly communication of library science professionals during 2003-2012. The data were received from the web of science database from 40 library and information science core journals. Mostly publications were carried out by universities relatively non-academic institutions.
6. **Narender Kumar (2014)** the study states that the current trends in library and information science. it is establish that the security of libraries is gradually increasing by means of the programmers and group literacy programmers etc. this study is very useful for students, researchers and staff for the knowledge.
7. **Mittal (2011)** this study is mainly discussed about the research trends in library and information science in India during the period 1990–2010 as replicate to the scholarly journals. The study is based on the LISA (Library and Information Science Abstracts) database. The study focused on the university libraries, public libraries, user services, user studies, library education, library practice, cataloguing etc. The findings of the study were that internet, www, web 2.0 and open access are some areas that LIS researchers are concerned in it.
8. **Gupta and Bala (2011)** this study states that the research activities of India in medicine during 1999-2008, stands on the growth rate, total publication output, rank and quality of papers published of India in the international background. The SCOPUS database has been used to retrieve the publication data on medicine. The results of the study were consisting of 65,745 papers with a international publication allocate of 1.59%. The development rates of records were 76.68% for the papers published during 1999-2003 to 2004-2008.
9. **Chandrashekara and Ramasesh (2009)** the findings of the study was that quantity of research output in the form of university-wise, state-wise, supervisor-wise and topic-wise. It also shows that universities and states which have contribute moderately more to field of LIS research in India.
10. **Patra And Chand (2006)** the study observed that the bibliometric Study of library and information science Research in India based on the data abstracted in Library and Information Science Abstracts (LISA). To identify the Core Journals of library and information science Bradford's law of scattering is used. Lotka's Law has been applied to recognize the productivity Pattern of authors. The author's productivity outline is in consistency to Lotka's law.

3. Methodology

For the assessment of the research productivity of the Indian authors. The web of science database was selected to find out relevant data related to library and information science research in India during 20014-18. The data were find out from the web of science core collection using Library and information science keywords and it was limited to the year of the publications. The data were retrieved in the form of the text and it was transfer to the excel file for the analysis. Manually data were clean, organize and tabulated for the analysis. Based on the data analysis the findings were drowned.

Sl.no.	Year	No. of publication
1	2018	352
2	2017	324
3	2016	268
4	2015	241
5	2014	90
	Total	1275

Table 1. Year wise distribution articles published in LIS

The above table shows the continuous growth of publication in the field of library and information science. It can be observed for the table that most of the articles published in the year 2018 out of 1275 articles. The very less number of the articles appeared in the year 2014.

Year	Single author	Two author	Three authors	More than three	Total
2018	78	143	73	58	352
2017	71	135	74	44	324
2016	81	106	55	26	268
2015	75	102	48	16	241
2014	21	33	24	12	90
					1274

Table 2. Author wise destruction of articles published in LIS

4. Gender-wise Productivity

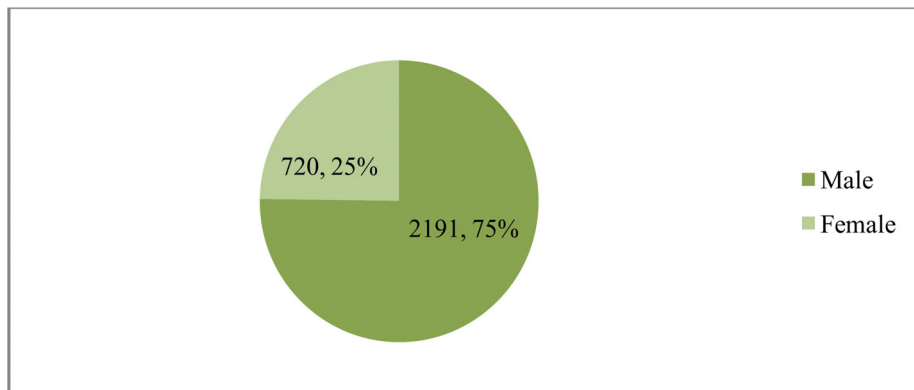


Figure 1. Gender-wise productivity of articles

The above figure shows that Gender-wise Productivity of articles. Majority of the respondents were male i.e. 75% and female respondents were 25%. The Figure 1, clearly indicated that male authors were more productive compare to female.

Sl. No.	Document type	No. of articles
1	Article	1123
2	Article proceeding paper	7
3	Bibliography	1
4	Biographical-item	4
5	Book review	53
6	Correction	3
7	Editorial materials	41
8	Letter	11
9	Review	32

Table 3. Document wise distribution of articles published in LIS

The table 3, indicates the contributions of Indian authors in the form of various documents like article, proceeding, bibliography, editorial materials, reviews etc. it is found that majority of the authors have contributed in the form of research articles followed by book reviews, editorials materials, reviews, letters etc.

Sl. no.	Title	Citation
1	What motivates customers to participate in social commerce? The impact of technological environments and virtual customer experiences	105
2	Contextual semantics for sentiment analysis of Twitter	74
3	Understanding determinants of cloud computing adoption using an integrated TAM-TOE model	68
4	Mapping the intellectual structure of scientometrics: a co-word analysis of the journal Scientometrics (2005-2010)	35
5	The impact of IT outsourcing on information systems success	33
6	A multi-analytical approach to understand and predict the mobile commerce adoption	31
7	Classifying, Measuring, and Predicting Users' Overall Active Behavior on Social Networking Sites	26
8	Bridging the Service divide through Digitally enabled service innovations : Evidence from Indian Health Care Service Providers	22
9	Twitter sentiment analysis using hybrid cuckoo search method	22
10	Economic growth and the development of telecommunications infrastructure in the G-20 countries: A panel-VAR approach	21

Table 4. Top ten highly cited articles published in LIS

The table 4, indicates that top ten highly cited articles there were the most highly cited articles is what motivates customers

to participate in social commerce? The impact of technological environments and virtual customer experiences i.e. 105 citation followed by Contextual semantics for sentiment analysis of Twitter with 74 citations and the least citation were Economic growth and the development of telecommunications infrastructure in the G-20 countries: A panel-VAR approach with 21 citations.

Sl. No.	Title	2014	2015	2016	2017	2018	Total
1	DESIDOC Journal of Library & Information Technology	-	51	46	49	52	198
2	Journal of Information & Optimization Sciences	-	13	26	53	65	167
3	Annals of Library and Information Studies	-	30	27	30	21	108
4	Journal of Scientometric Research	-	16	25	21	24	86
5	Scientometrics	11	17	11	89	17	65
6	Collnet Journal of Scientometrics And Information Management	-	09	11	10	10	40
7	Journal of Enterprise Information Management	-	08	10	11	84	33
8	Electronic Library	08	06	05	03	09	31
9	Journal of Global Information Management	01	-	-	16	13	30
10	Journal of Information & Knowledge Management	-	01	03	06	11	21

Table 5. Top ten most productive journals in LIS research in India during 2014-18

The table 5, reveals that top ten Most productive journals in Library and Information science Research in India during 2014-18 it displays that most productive journal is Desidoc Journal of Library & Information Technology and the least productive Journal is the Journal of Information & Knowledge Management.

Sl.No.	Name of Author	No of articles	Affiliated Institute
1	Gupta, BM	21	NISTADS, CSIR, New Delhi
2	Prathap, Gangan	18	APJ Abdul Kalam Technol Univ, Thiruvananthapuram 695016, Kerala, India
3	Dhawan, SM	18	Natl Phys Lab, New Delhi, India
4	Bhardwaj, Raj Kumar	16	St Stephens Coll, Delhi 110007
5	Sen, BK	16	Govt India, Dept Sci & Technol, Expert Comm Bibliometr, 80 Shivalik Apartments, New Delhi 110019, India
6	Das, Anup Kumar	15	Jawaharlal Nehru Univ, Ctr Studies Sci Policy, New Delhi, India.
7	Gupta, Ritu	15	Sri Venkateshwara Univ, Tirupati 517502, Andhra Pradesh, India
8	Gupta, S	14	Indian Inst Management Raipur, Dept Operat & Syst, GEC Campus, Raipur 492015, Madhya Pradesh, India
9	Pandita, Ramesh	12	Baba Ghulam Shah Badshah Univ, Jammu, India
10	Saxena, Stuti	12	Cent Univ Haryana, Mahendragarh, India

Table 6. Top ten most productive authors in LIS research in India during 2014-18

The table 6, describes those Top 10 most productive authors in Library and Information science research in India during 2014-18. It displays that B. M. Gupta was highly productive author (21 articles) followed by Gangan Prathap and S. M. Dhawan were (18 articles), Raj Kumar Bhardwaj and B. K Sen were (16 articles), Anup Kumar Das and Ritu Gupta were (15 articles), S. Gupta was (14 articles), Ramesh Pandit and Stuti Saxena were (12 articles) during the year 2014-18.

5. Co-authorship Organizational Collaboration

The organizational collaborative network represents the Institutions of the author which has co-authorship. Total 1016 organizations have contributed 1275 articles. The Authors associated with 1096 organizations in library and information science and only 296 meet the criteria that have contributed two or more article with collaboration of other organization is give in Figure 2. The vos viewer automatically assigns cluster for items in the network. Each cluster has the closely related items. Total 177 items categorized in 22 clusters in the network visualization map represent node and link on the basis of the strength. The thickness of the link depends on the number of articles published with co-authorship collaboration. Jawaharlal Nehru University, New Delhi and University of Delhi emerged as top organization in term of articles published with co-authorship in library and information science followed by IIM, IIT, university of Kashmir, Indian statistical institute, CSIR, BHU, Punjab University and Thaper University.

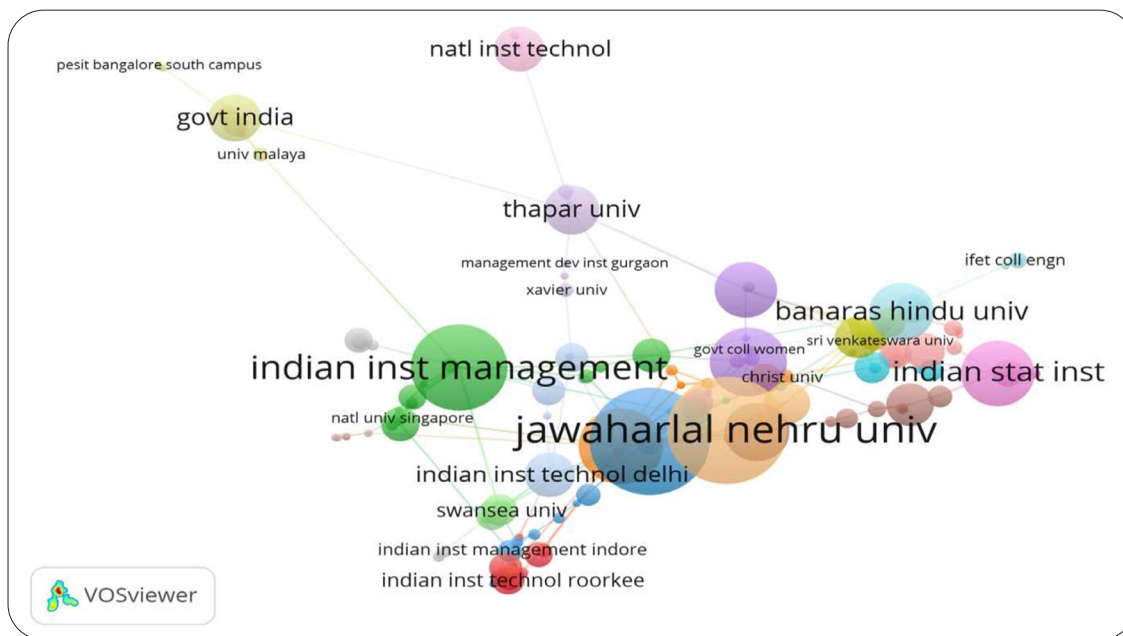


Figure 2. Co-authorship Organizational collaboration

6. International Collaboration

The collaborative network represents the geographical location of author which collaborative contributed with other countries. Authors from 50 countries contributed in library and information science and only 34 meet the criteria that have contributed two or more article with collaboration of India is give in Figure 3. The vos viewer automatically assigns the node for the cluster in the network. Each cluster has the closely related node. Total 34 countries categories in 16 clusters in the network visualization map represent node and link on the basis of the strength. The thickness of the link depends on the number of articles published with co-authorship collaboration. USA emerged as top collaborator with India followed by England, peoples china, Germany, Wales, Australia, Canada, Singapore, France and Malaysia.

7. Conclusion

This study represented the contribution in the library and information science filed by the Indian authors in the various journals and other documents. The result of data analysis shows continuous growth of the literature in the field of library and

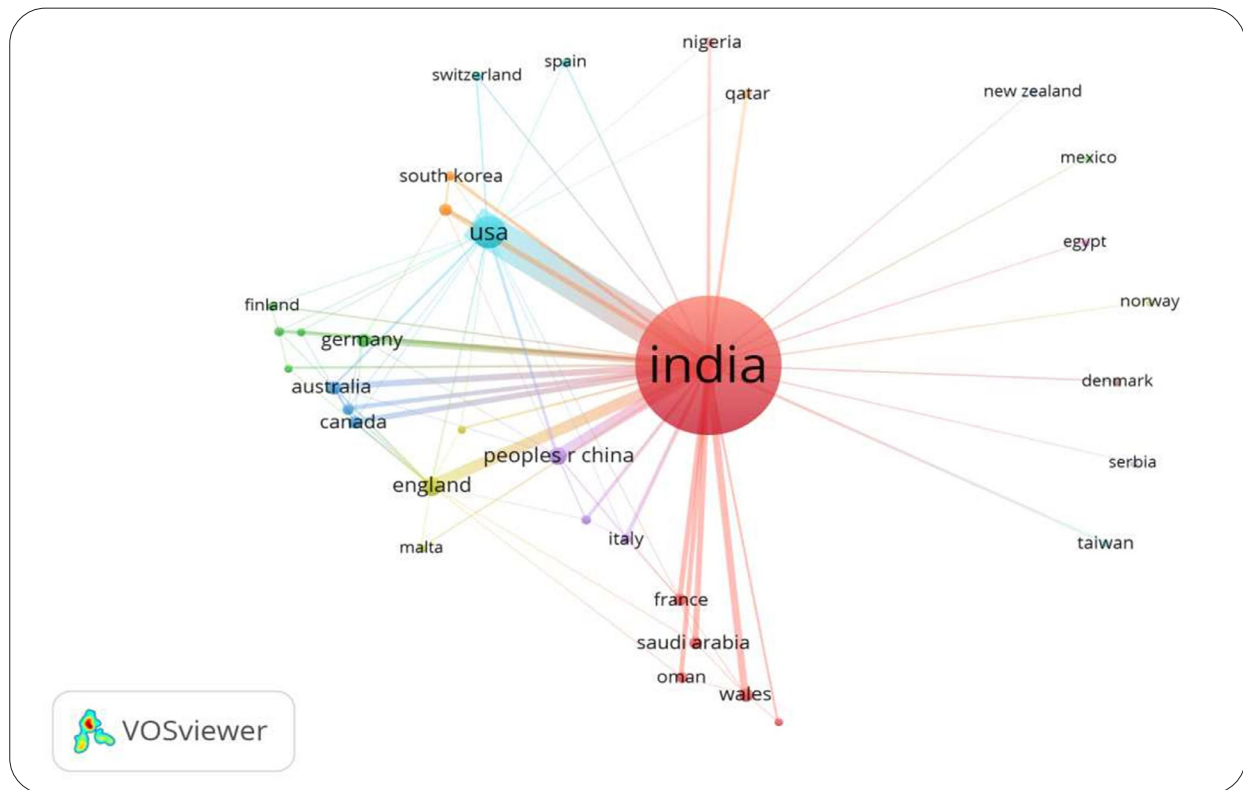


Figure 3. International Collaborated Country Network

information science since 2014 to 2018. Most of the research outputs were published in the 2018 which included 352 papers out of 1275 papers published during the period of 2014-2018. It also shows the trend of the authorship and research collaboration in the publication of the research articles. Study also explored that the multiple authors have more contribution compare to the single authors. Gender wise distribution clearly indicated that male authors were more productive compare to female in the field of library and information science. It is found that *DESIDOC Journal of Library & Information Technology* is most productive journals in Library and Information science Research in India which published 198 research papers during the period 2014-18. *Gupta, BM*, Emeritus Scientist, NISTADS, CSIR, New Delhi is the most prolific author in the field during the period. The collaborative network represents the geographical location of author which collaborative contributed with other countries. USA emerged as top collaborator with India followed by England, Peoples R China, Germany, Wales, Australia, Canada, Singapore, France and Malaysia. The organizational collaborative network represents that Jawaharlal Nehru University, New Delhi and University of Delhi emerged as top organization in term of articles published with co-authorship in library and information science followed by IIM, IIT, university of Kashmir, Indian statistical institute, CSIR, BHU, Punjab University and Thaper University. The network visualization is very useful for the bibliometric and well as scientometric visualization analysis to understand the trend in the publication and collaboration.

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