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Bibliometric Mapping of LIS Research in India: A Study Seen Through the Mirror of Indian Citation Index

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Abstract

Purpose: Library and Information Science subject is exceedingly pragmatic in nature in India more than a century old, which is one of the most knowledge producing and knowledge utilizing area and is associated with many of the tool subjects like computer science, statistics, management science etc. Since the subject has a very practical base therefore, both the theory and practice should go side by side. As a knowledge fabricating domain, a lot of researchers, professionals, academicians etc. are profoundly involved in the research. This research work briefly traces the Library and Information Science research stemming from India in the 21st century based on the data as depicted in Indian Citation Index (ICI) during the year 2006 – 2015 which will help the LIS professionals to get aware of the latest and emerging issues in this field.

Methodology: A whole of 2,483 bibliographic data set have been retrieved in CSV format from one of the India's national level citation database i.e. Indian Citation Index (ICI) from 2006 to 2015. Methodologically bibliometric tools and techniques have been taken up and descriptive statistics methods were employed. The study also uses fractional counting method.

Findings: 2,460 sole Indian LIS researchers have contributed 2,483 research papers in seven diverse categories and amongst them, 90.61% (2250) are research articles. 2015 have been the most productive year by publishing 16.63 % literatures. SRELS, DJLIT, PEARL, IJILS, IASLIC Bulletin, Library Herald and ALIS are the most preferred journals to the LIS professionals for publishing their research works. Most of the works of the researchers has been categorised into 57 micro areas. Out of them, Bibliometrics (14%) is the most significant area for the research fraternity. Other emerging areas of research are the following- User studies, Information technology, digital libraries, library consortia, library automation etc. Many of the literatures have been published in closed access in comparison to open access platform. The study showcases the collaborative research is leading in this field.

Originality/Value: The bibliometric work on the quantitative analysis of Indian LIS literature published in Indian journals during the time span of 2006 – 2015 is the first of its kind.

Keywords: *LIS research, Library and Information Science, Bibliometrics, Indian Citation Index, India*

1. Introduction:

Research trend in the field of Library and Information Science (LIS) education establishes a significant activity and by overlooking this part of the subject, no new progression can be certified in this discipline. It is a major developmental activity of any discipline. LIS research will assist in the long run to identify the major alterations in the trend of the research going on, the upcoming areas of the researches being carried out etc. In the year 1924 when Dr. S.R. Ranganathan joined this profession, during that period the origin and development of LIS was started (Pandey, 2014). The first university in India which provided LIS School of education with Ph.D. degree was the Delhi University. From then on, various other universities also introduced this subject (Patra & Chand, 2006). The fundamental intention of the current research work is to analyze the research contributions in LIS by Indian researchers as retrieved from Indian Citation Index (ICI) during the period 2006-2015. In addition to this, authorship pattern, core area of research, reflection of LIS research work in various scientific communications is also been highlighted.

2. Literature Review:

Prasher and Rai (1988) studied the growth of LIS literature from Indian periodicals during 1976-1986 and found that the Journal of Library and Information Science was the most preferred journal. They also noticed single trend in authorship and group work remained unnoticed during that period. Chatterjee, Rath and Poddar (1995) identified the research trend in LIS in India during 1984-1988 and found a massive growth of LIS literature. The year 1978 showed major growth of literature on library movement and library legislation. Lahiri (1996) analysed the research programmes in Ph.D. in LIS in India. He noticed that research was not only based on historical research but also include surveys and experimental research adopting operation research techniques. Manjunatha and Shivalingaiah (1998) highlighted the trend of LIS research during 1987-1997. The authors exposed that there was an upward trend in the field of LIS research in 1990s. Patra and Chand (2006) examined the LIS research in India based on LISA. They concluded that from 1967-2004 there were 2732 authors who published 3,396 articles in 281 journals and the article per author was 1.24. Mittal (2011) analysed the trend of LIS research in India from 1990-2010 as reflected in LISA. He found that researches laid focus on the field of libraries, library collection, and library practice in contrast to areas such as online catalogues, user training, etc. Maharana and Das (2014) studied the growth and development of LIS research in India based on SSCI from 1999-2013. They evaluated the degree of collaboration, authorship patterns, most prolific author etc. and found that the annual publications of Indian researchers range from 9 to 10 papers with 0.64 degree of collaboration. Barik and Jena (2014) investigated the growth of LIS research articles in India as depicted in Scopus during 2004-2013. They found a total of 385 articles

and concluded that publication ranges from 70-80 articles with a yearly average growth of 16.49%. Kar and Mallik (2015) examined the trend of research in LIS by analysing research publications in ALIS and DJLIT during 2009-2013. Findings revealed 22 promising areas of research domains amongst which scientometrics is the most dominant area with 15.53% of the total articles. Garg and Sharma (2017) studied the bibliometric research in LIS in India during 2004-2015 based on Indian citation Index. A total of 2428 publications has been analysed and revealed that the publication growth is highly inconsistent and in the year 2010, the highest number of papers was published and the area of bibliometrics and scientometrics is the core area of research among the LIS professionals.

3. Objectives:

- ❖ To show the year-wise distribution of LIS literature published in Indian LIS journals;
- ❖ To identify the type of research papers;
- ❖ To depict the reflection of LIS research in various Scientific Communications;
- ❖ To examine the authorship pattern among the Indian LIS researchers;
- ❖ To reveal the core areas of LIS research.

4. Methodology:

The bibliographic data related to “Library and Information Science” literature have been collected from “Indian Citation Index” (<http://www.indiancitationindex.com/>). The search is conducted on July 20, 2018 using the search term “*Library Science* “OR “*Library and Information Science*” in the Subject field and the year is limited to 2006 - 2015 to visualise the clear picture of the LIS research in 21st century. The search retrieved 2969 bibliographic records (published by both Indian and foreign authors). The study is restricted to only Indian authors and that’s why, 486 articles (foreign authors) were removed and a totality of 2,483 publications is finalized for the study. The records are downloaded and analysed according to the objectives with the help of Microsoft Excel 2007.

5. Analysis and Results:

5.1. Year-wise distribution of research

Table 1 represents the year-wise distribution of total LIS research output in India during 2006-2015, produced a total of 2483 publications. It is observed that the literature in LIS has grown steadily during the period of study from 135 in 2006 to 413 in 2015. The year 2015 is the most productive year with the publication of 413 (16.63 %) articles followed by the year 2010. The authors have produced 24856 pages for 2483 research papers with an average of 10 pages per article. The authors have used 32917 references for 2483 articles with an average of 13.26 references.

Table-1: Distribution of LIS publications- Year wise (2006-2015)

Years	TP	%	CP	Pages	APPY	NCR	ARP
2006	135	5.44	135	1274	9.44	1481	10.97
2007	181	7.29	316	1763	9.74	2084	11.51
2008	225	9.06	541	2171	9.65	2588	11.50
2009	213	8.58	754	2002	9.40	2504	11.76
2010	270	10.87	1024	2617	9.69	3246	12.02
2011	268	10.79	1292	2781	10.38	3575	13.34
2012	251	10.11	1543	2538	10.11	3687	14.69
2013	269	10.83	1812	2889	10.74	3924	14.59
2014	258	10.39	2070	2517	9.76	3958	15.34
2015	413	16.63	2483	4304	10.42	5870	14.21
Total	2483	100	--	24856	10.01	32917	13.26

TP = total papers, % = Percentage, CP = cumulative papers, NCR =Number of Cited References, ARP= Average Reference per Paper; APPY= Average number of pages per articles.

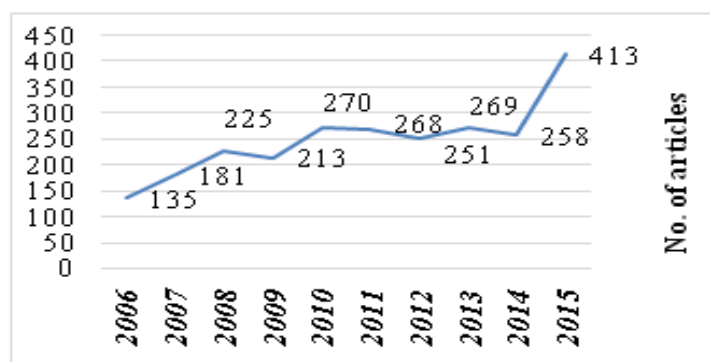


Fig-1: Year wise distribution

5.2. Type of documents:

The analysis shows seven different item types in which scientific communications have been made. Amongst the 2483 research papers, 90.61 % of the documents published are articles which are the first choice of the authors to publish their research works followed by case study i.e. 96 (3.87%). Other types of documents are editorial, short communication, bibliographical item, review and note.

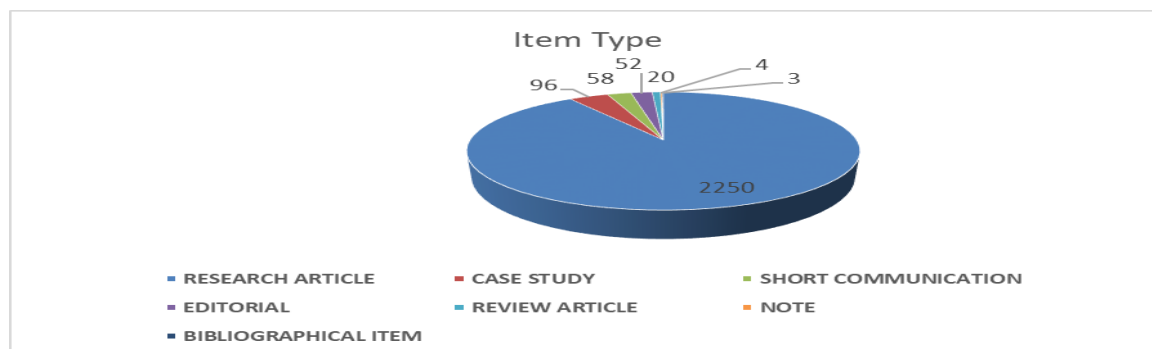


Fig-2: Type of documents

5.3. Reflection of LIS research in various Scientific Communications:

Figure 3 highly reflects twenty-four journals where the LIS literature are scattered. Most of the researchers preferred to publish their research work in the journal named SRELS which published 343 (13.81%) of the research papers followed by Desidoc Journal of Library & Information Technology 292 (11.75%) and Pearl: Journal of Library & Information Science 273 (10.99%). The fourth rank is taken by Indian Journal of Information, Library & Society by producing 174 (7.01%) papers followed by IASLIC Bulletin 173 (6.97%). The Indian researchers have published 156 (6.28%) research papers in Annals of Library and Information Studies.

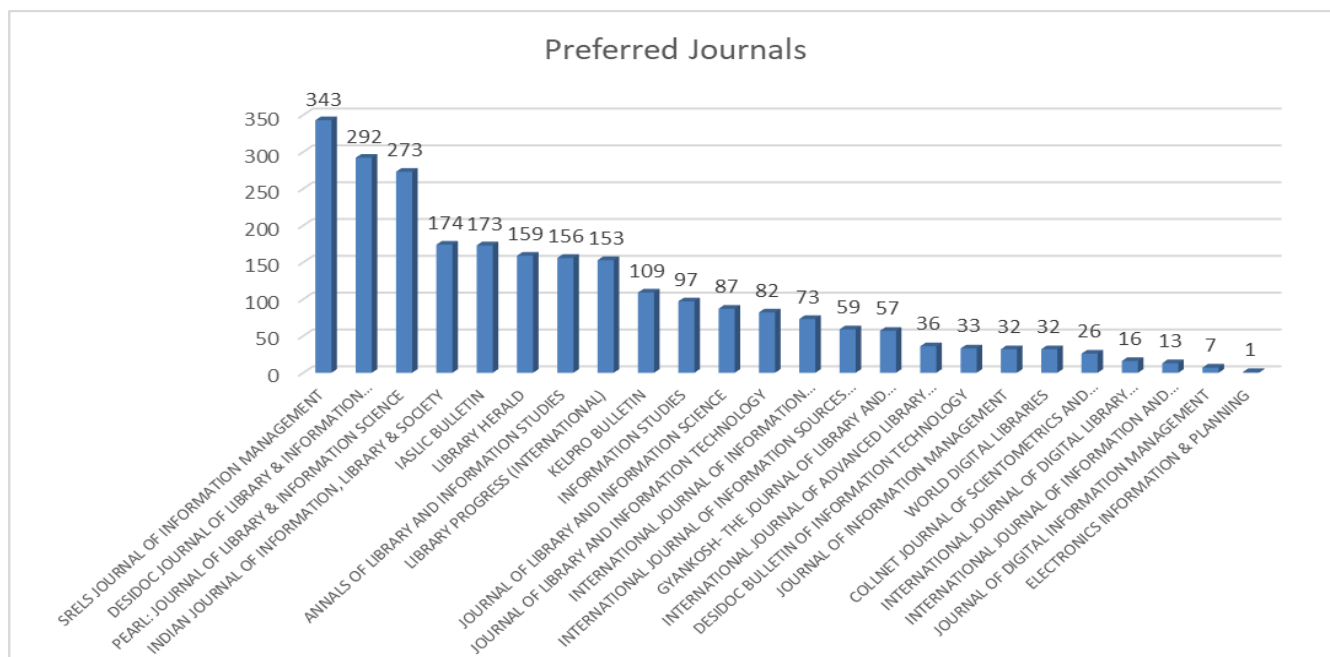


Fig-3: Core journals with no. of publications

5.4. Authorship Pattern:

The analysis reveals that out of the total publications 36.08% works published in the name of single author and 46.68% research works done by double authors while only 14.29% articles were published by three authors and rest of the research papers were published by four and more than four authors. Here, we come to an inference that double authorship is most prevalent among the LIS research fraternity. Further, Table 2 also presents that a totality of 4597 authors has contributed in 2483 papers with an average authorship of 1.85 per contribution.

Table 2: Distribution of Articles by Authorship

Year	TP	Authorship value					Occurrence of Authors	Average authorship
		Single	Double	Triple	Quadruple	(≥5)		
2006	135	45	73	14	2	1	246	1.82
2007	181	78	63	31	7	2	336	1.86

2008	225	78	105	31	10	1	429	1.91
2009	213	63	109	36	5	0	409	1.92
2010	270	93	125	38	12	2	516	1.91
2011	268	100	127	34	6	1	485	1.81
2012	251	90	118	39	2	2	465	1.85
2013	269	100	126	40	1	2	486	1.81
2014	258	88	127	35	7	1	480	1.86
2015	413	161	186	57	6	3	745	1.80
	2483	896	1159	355	58	15	4597	1.85

5.5. Subject Trend:

The analysis revealed the promising areas of research as well as the trend of research going on in LIS field. The research domain of the published research works is distributed amongst 57 subject domains during the study period. Most of the literature were concentrated on bibliometric study which revealed that Bibliometrics is the leading area of research with 349 articles. Information Technology is at the second position with 198 papers followed by User Studies (176), Digital Libraries (166), Library Services (142) etc. Other areas of research include library automation, academic library, library resources, library professionals, library management and so on. Very minimal number of literatures has been produced in the field Biography, Cloud Computing and Open Source Software which brings to our notice that researches on these areas are lagging behind and more number of researches is needed in these subject domains. ICT related subject domains like Web 2.0, Social networking, information security, data mining, open access, semantic web etc seems likely to be upcoming areas of researches in the LIS field.

Table 3: Distribution of core areas of research

S	SUBJECTS		S	SUBJECTS	
1	BIBLIOMETRICS	349	30	SPECIAL LIBRARIES	16
2	INFORMATION TECHNOLOGY	198	31	WEB 2.0	16
3	USER STUDIES	176	32	INFORMATION SECURITY	15
4	DIGITAL LIBRARIES	166	33	INFORMATION SOCIETY	17
5	LIBRARY SERVICES	142	34	SOCIAL NETWORKING	14
6	LIBRARY AUTOMATION	131	35	LIBRARY INFORMATION NETWORKS	12
7	ACADEMIC LIBRARY	114	36	INFORMATION CONSOLIDATION AND REPACKAGING	11
8	LIBRARY RESOURCES	111	37	OPEN ACCESS	13
9	LIBRARY PROFESSIONALS	84	38	COMMUNITY INFORMATION SERVICES	10
10	LIBRARY MANAGEMENT	72	39	LIBRARY LEGISLATION	10
11	INFORMATION SOURCES, SYSTEM AND SERVICES	70	40	LIBRARY CATALOGUING	9

12	LIBRARY CONSORTIA	67	41	SEMANTIC WEB	9
13	LIBRARY SURVEYS	58	42	LIBRARIANSHIP	8
14	INFORMATION LITERACY	54	43	LIBRARY DEVELOPMENT	8
15	PUBLIC LIBRARY	47	44	DATA MINING	7
16	INFORMATION RETRIEVAL	44	45	INFORMATION RESOURCE	7
17	LIBRARY EDUCATION	43	46	LIBRARY INFRASTRUCTURE	7
18	WEBOMETRICS	42	47	LIS EDUCATION AND RESEARCH	9
19	LIBRARY CLASSIFICATION	41	48	REPOSITORY	7
20	INFORMATION SEEKING BEHAVIOUR	35	49	DATABASE	6
21	ELECTRONIC RESOURCES	33	50	FUNDAMENTAL LAWS	6
22	COLLECTION DEVELOPMENT	24	51	METADATA	5
23	DOCUMENTATION AND INFORMATION CENTRES	23	52	REFERENCE SERVICE	5
24	KNOWLEDGE MANAGEMENT	20	53	SCIENTOMETRICS	5
25	COMMUNICATION SYSTEMS	19	54	SUBJECT GATEWAY	5
26	PRESERVATION AND CONSERVATION	19	55	BIOGRAPHY	4
27	INFORMATION ACCESS	17	56	CLOUD COMPUTING	4
28	INTELLECTUAL PROPERTY RIGHTS	19	57	OPEN SOURCE SOFTWARE	4
29	LIBRARY AND INFORMATION MARKETING	16		Total	2483

6. Conclusion:

The trend of research in LIS plays a very crucial role in determining the future of this profession. The present study on LIS research by Indian authors is based on the data collected from Indian Citation Index (ICI) during the period of 2006-2015. Of the 2483 publications by Indian authors, most of the publications are journal articles. The sub facets like Bibliometrics, Information Technology, User studies were the top three fields of research during the 10 years study period and more number of researches in the areas which are lagging behind will give a new elevation to this profession. The study concludes that ICT related subject domains like information security, data mining, open access, semantic web etc. seem likely to be upcoming areas of researches. The year 2015 remained the most remarkable year during the study period by producing the highest number of literature and the journal named SRELS published most of the publications of the LIS research fraternity. Finally, this study points out that the majority of the research fraternity are inclined towards publishing in a dual collaboration which is an interesting sign of growing professionalism among the researchers.

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