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Research productivity of Library and Information Science in India during 2010-2019: A Scientometric Study

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Abstract: The aim of this study is to analyze the Library & Information Science literatures available in the Web of Science database during 2010-2019 by the topic "Research productivity of Library and Information Science in India during 2010-2019: A Scientometric Study". The required data is retrieved from Web of Science database using advanced Boolean search techniques. Total 778 numbers of literatures are retrieved from the database. The literatures mainly include journal articles, proceeding papers, editorial materials, etc. In the study, analysis of year wise growth rate, productive journals, articles, authors, etc are covered. Along with that three mostly used bibliometric laws, Bradford's law, Lotka's Law and Zipf's law are examined with the help of the dataset. It is found that there is no constant growth rate of the published literature but the average annual growth rate is 12.64%. The study reveals that the most published literature form is article (88.95%) and "Scientometrics" with highest contribution of 98 is the most preferred journal on the subject.

Keyword: Library & Information Science, Bibliometrics, Scientometrics, Growth of Literature, Citation analysis, Most productive journal, Most Productive Author, Bradford's law of scattering

1. Introduction:

Research plays a vital role in academics, educational process and also in the development of the society. After completing the research, scholars and researchers finally published their work as research reports, theses, dissertations, articles, books etc. Publication is a formal means of communication. Publishing the research findings is the most appropriate way of sharing and disseminating the latest knowledge. The communication of research is said to very indispensable for advancement, development and improvement of the institution, society and the nation as well.

While research and publication have been given more significance by the scholarly community, the application of measuring the research output or productivity has drawn extensive consideration amongst the researchers, scholars and administrations. Methods and techniques of mathematical and statistical procedures for measurement, assessment and analysis of bibliometric information is called Bibliometrics. In addition to the conventional measuring scales, certain specialized set of metrics are used to carry out quantitative and qualitative measurement, assessment and analysis of bibliometric information, the core of bibliometrics are formed by these specialized matrices. For various measurements of the literature, Bibliometrics has different parameters like Bradford's Law of Scattering, Lotka's Law of Author's Productivity, Zipf's Law of Word occurrence, Relative Growth Rate, Doubling Time, Authorship Pattern, Collaborative Measures, h-index, Impact factors etc.

The present study is an endeavor to apply bibliometric laws and indicators to analyze various aspects of publications on the discipline of Library and Information Science (LIS). The study is expected to help in understanding the research productivity of Library & Information Science in India.

1.1 Objective of the Study

1. To analyze form wise distribution of the literature.
2. To analyze year wise publication and to calculate annual growth rate.
3. To identify the preferred publication type as their communication channels.
4. To identify the ranking of journals.
5. To identify the highest cited article.

6. To determine year wise Citation per Paper.
7. To identify most productive author.

1.2 Scope and limitation of the study

The study is a statistical analysis of Library and Information Science publication in India for a period of ten years, 2010 to 2019. In the present days, information explosion is occurring almost in every subject field. It becomes difficult to retrieve right information at the right time. Along with that it is difficult to find out the top most productive works in a particular subject. A bibliometric study helps to know about the growth and development of the literature of that particular subject. The present study is carried out to analyze the research publication in the field of Library and Information Science in India. The analysis is conducted in a window of ten year i.e. 2010-2019. As bibliometric analysis is a broader area, all the metrics could not be applied. There are various literature published on LIS, but only the literature which is indexed in Web of Science database is taken for the study.

1.3 Methodology of the Study

The data has been collected from the Web of Science database from the subject area Library and Information Science in India for the period from 2010 to 2019. All publications including research papers, editorials, conference papers, etc. were considered as these have received citations. To meet the objectives of the study statistical methods are applied and the data were collected, organized, analyzed and interpreted in the excel sheet. The data is taken on September 2020.

The search expression is SU = Information Science & Library Science AND CU = India. (Timespan=2010-2019. Indexes=SCI-EXPANDED, SSCI, A&HCI.)

2. Review of Literature

Verma, A., Sonker, S.K. & Gupta, V. (2015) carried out a bibliometric study of the E-Journal, Library Philosophy and Practice from 2005 to 2014. The study covers different bibliometric aspects such as growth of literature, authorship patterns, degree of

collaboration etc. A total number of 1177 articles was taken up for the study and necessary bibliometric measures are applied to analyze different publication parameters. In all with an average 117 articles were published each year. Single authorship is leading authorship trend but also two authored articles have shown good number of contribution with the 0.51 rate of degree of collaboration.

Gaud, N.,& Shukla, R. (2018) analyzed on the research output in the discipline of a faculty member of Library and Information Science, Babasaheb BhimraoAmbedkar University, Lucknow during the period of (1991-2017). A total number of 426 publications were published by the LIS faculty members of the university. The required data for present analysis acquired through curriculum vitae of faculty members of Department of LIS, BBAU, Lucknow. After analysis the results shows that the total publications were as follow- journal articles 131 (30.75%), conferences proceedings 131 (30.75%) and books/books chapter/ed. book117 (27.46). The maximum number of 332 contributions was published by multiple authors. The highest annual growth rate (AGR) was 325 recorded in the year 2007. The maximum relative growth rate (RGR) was recorded (0.747) in the year 1993 and doubling time (Dt) was (0.928). The study resolved that the overall degree of collaboration is 0.783 i.e.92 articles are single-authored publications and 332 contributions are multiple authored publications.

Shukla, R.K., Singh, S.K., & Verma, M.K. (2019) did mapping of library and information science research publication output of the faculty member of DLIS, Mizoram University during 2008-2017. A total no. of 279 publications was taken for the study and the different bibliometric measures are applied. From the study it is found that in year 2017 the highest 61 of research papers were published. Again, the study reveals that every year there is an increase in the growth of publication. There is no constant growth of publication every year, thus the annual growth rate fluctuated.

Anwar, M., & Zhiwei, T. (2020) analyzed research productivity of Indian authors in the Online Journal of Library Philosophy and practice from 2008-2013. The data for the study has been taken from the database of the journal. The study reveals that Indian author contributed 193 numbers of papers to the journal. In 2013 highest number of research papers was published which is 60 (31.08%) and in 2009 least number of papers were published which is 13 (6.73%). Studying the authorship pattern the researchers

found that 80 (41.45%) were single authors while four authors are 4 (2.07%) which is the least.

3. Data analysis and Interpretation:

Total 778 literatures related to Library and Information Science in India retrieved from Web of Science database from 2010 to 2019. The search expression is "SU = Information Science & Library Science AND CU = India" limited to the period 2010-2019. The objective of any research is to solve a research problem and to give some basic idea, concept and result about the research field. After collecting the data various methods are used to analyze the data. In the data analysis, data are analyzed and recorded in tables and presented with the help of diagrams. Diagrams are helpful to understand and remember anything in comparison to text form.

3.1 Year wise analysis

Table-3.1: Year wise analysis

Year	No. of Publication	Percentage
2010	52	6.68%
2011	56	7.20%
2012	45	5.78%
2013	45	5.78%
2014	90	11.57%
2015	82	10.54%
2016	81	10.41%
2017	102	13.11%

2018	113	14.52%
2019	112	14.40%
Total	**778**	**100%**

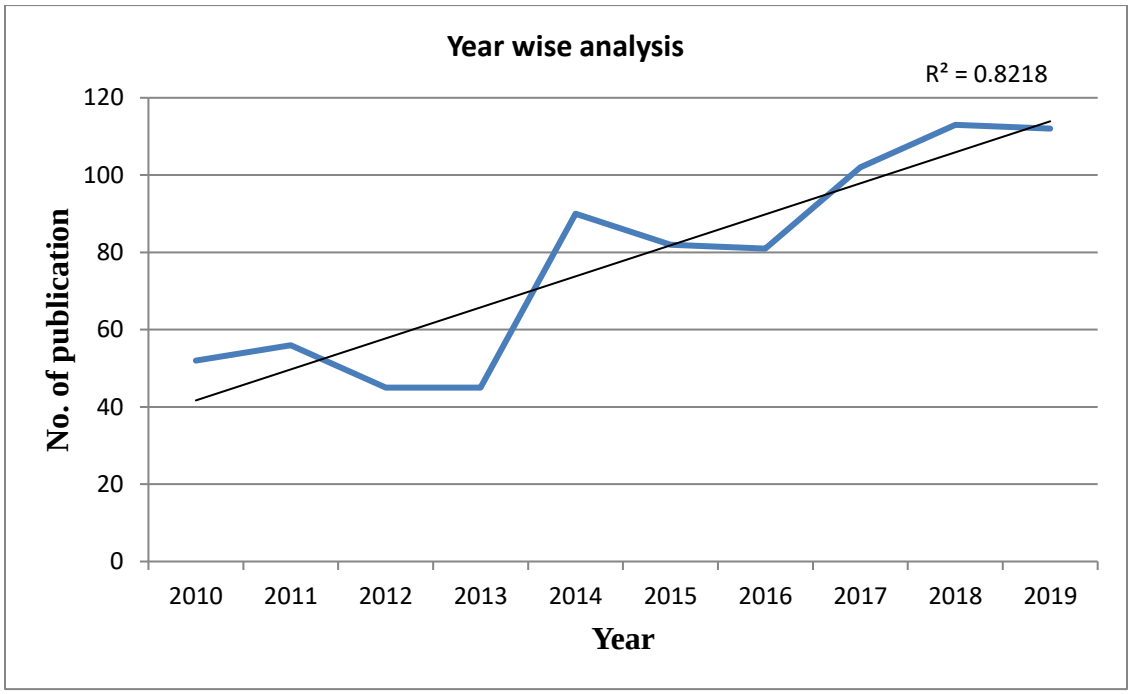

Fig: 3.1 Year wise distribution

Table: 3.1 along with Fig: 3.1 show the year wise distribution of the literature. From the graph it is clear that highest 113 literatures are published in the year 2018 which is almost 14.52% of the total literature and lowest 45 literatures are published in the year 2012 & 2013 which is almost 5.78% of the total literature. Slope and R^2 value is found to be 8.024 and 0.82 which indicates a consistent growth of literature over the window period.

3.2 Annual Growth Rate

Table-3.2: Annual Growth Rate

Year	No. of Publication	AGR%
2010	52	

2011	56	7.69%
2012	45	-19.64%
2013	45	0.00%
2014	90	100.00%
2015	82	-8.89%
2016	81	-1.22%
2017	102	25.93%
2018	113	10.78%
2019	112	-0.88%

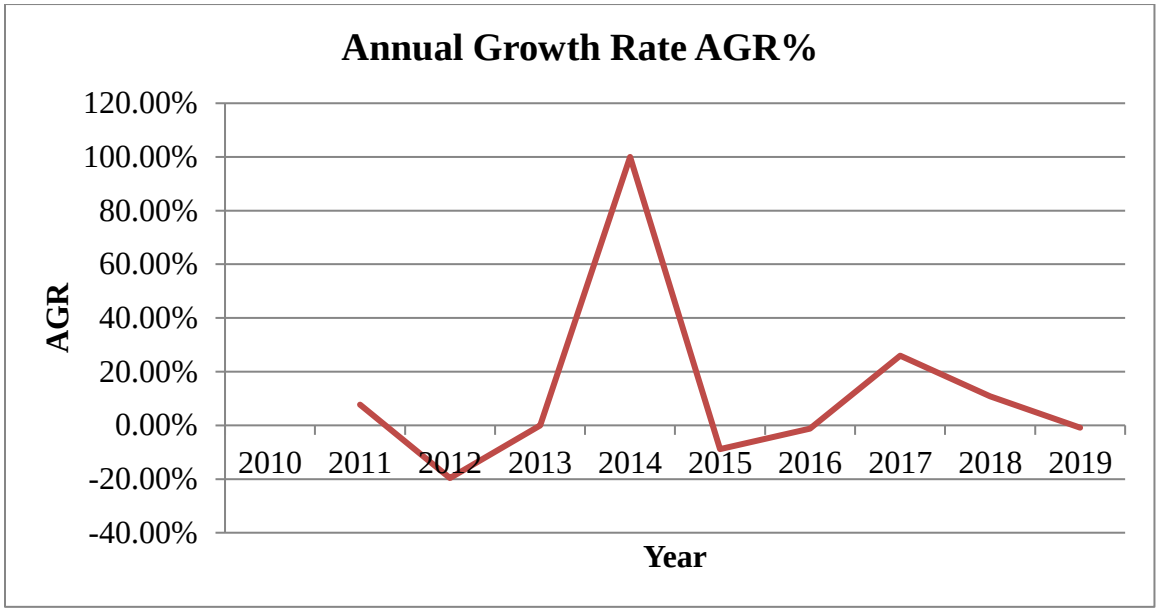

Fig- 3.2: Annual Growth Rate

The line graph in the Fig-4.2 helps to understand the AGR of these 9 years (AGR of 2010 can't be calculated as the data of 2010 is not included in the study). The AGR of the year 2014 is highest (100%) and AGR of the year 2012 is lowest (-19.64%). In 2012, 2015, 2016 and 2019 AGR is negative which indicate that in these years the number of literatures published is less than the number of previous years. From the graph it is seen that the AGR is inconsistent. The main reason behind this result is all the published literatures are not available in the Web of Science database. To know about the more problems on this topic, we must go for further study in details.

Average Annual Growth Rate (AAGR):

AAGR = {7.69 + (-19.64) + 0 + 100 + (-8.89) + (-1.22) + 25.93 + 10.78 + (-0.88)} / 9
= 12.64

From the analysis it is found that the Average Annual Growth Rate of the decade is 12.64%.

3.3 Form wise distribution

Literatures are published in various formats. Different formats of literatures analyzed in this study are given in Table 3.3.

Table- 3.3: Form wise distribution

Document type	No. of Publication	Percentage
Article	692	88.95%
Editorial Material	33	4.24%
Review	21	2.70%
Letter	20	2.57%
Proceedings paper	10	1.29%
Book Review	8	1.03%
Early Access	8	1.03%
Correction	3	0.39%
Bibliographical Item	1	0.13%

3.4 Ranking of the journals

Table- 3.4: Ranking of Journals

Rank	Name of Journals	No. of article
1	SCIENTOMETRICS	98
2	ELECTRONIC LIBRARY	56
3	JOURNAL OF ENTERPRISE INFORMATION MANAGEMENT	36

4	JOURNAL OF KNOWLEDGE MANAGEMENT	31
5	PROGRAM-ELECTRONIC LIBRARY AND INFORMATION SYSTEMS	30
6	JOURNAL OF GLOBAL INFORMATION MANAGEMENT	28
7	INFORMATION PROCESSING & MANAGEMENT	26
8	INTERNATIONAL JOURNAL OF INFORMATION MANAGEMENT	25
9	INFORMATION TECHNOLOGY FOR DEVELOPMENT	20
9	JOURNAL OF INFORMATION SCIENCE	20
10	TELECOMMUNICATIONS POLICY	18
11	TELEMATICS AND INFORMATICS	16
12	INFORMATION DEVELOPMENT	15
12	INFORMATION SYSTEMS RESEARCH	15
12	MALAYSIAN JOURNAL OF LIBRARY & INFORMATION SCIENCE	15
13	LIBRARY HI TECH	14
14	INFORMATION TECHNOLOGY & PEOPLE	13
14	JOURNAL OF ORGANIZATIONAL AND END USER COMPUTING	13
14	KNOWLEDGE ORGANIZATION	13
14	QUALITATIVE HEALTH RESEARCH	13
15	JOURNAL OF THE ASSOCIATION FOR INFORMATION SCIENCE AND TECHNOLOGY	12
16	JOURNAL OF HEALTH COMMUNICATION	11
17	GOVERNMENT INFORMATION QUARTERLY	10
18	INFORMATION & MANAGEMENT	9
18	JOURNAL OF GLOBAL INFORMATION TECHNOLOGY MANAGEMENT	9
18	JOURNAL OF MANAGEMENT INFORMATION SYSTEMS	8
18	MIS QUARTERLY	8
19	JOURNAL OF ACADEMIC LIBRARIANSHIP	7

19	ONLINE INFORMATION REVIEW	7
20	DATA TECHNOLOGIES AND APPLICATIONS	6
20	INFORMATION TECHNOLOGY & MANAGEMENT	6
20	INTERNATIONAL JOURNAL OF GEOGRAPHICAL INFORMATION SCIENCE	6
21	ASLIB JOURNAL OF INFORMATION MANAGEMENT	5
21	JOURNAL OF INFORMETRICS	5
21	LEARNED PUBLISHING	5
22	ASLIB PROCEEDINGS	4
22	HEALTH INFORMATION AND LIBRARIES JOURNAL	4
22	INTERLENDING & DOCUMENT SUPPLY	4
22	JOURNAL OF INFORMATION TECHNOLOGY	4
23	DATA BASE FOR ADVANCES IN INFORMATION SYSTEMS	3
23	EUROPEAN JOURNAL OF INFORMATION SYSTEMS	3
23	INFORMATION AND ORGANIZATION	3
23	INFORMATION SOCIETY	3
23	JOURNAL OF THE AMERICAN SOCIETY FOR INFORMATION SCIENCE AND TECHNOLOGY	3
23	LIBRARY COLLECTIONS ACQUISITIONS & TECHNICAL SERVICES	3
23	SERIALS REVIEW	3
24	ECONTENT	2
24	JOURNAL OF STRATEGIC INFORMATION SYSTEMS	2
24	JOURNAL OF THE AMERICAN MEDICAL INFORMATICS ASSOCIATION	2
24	KNOWLEDGE MANAGEMENT RESEARCH & PRACTICE	2
24	MIS QUARTERLY EXECUTIVE	2
24	SOCIAL SCIENCE COMPUTER REVIEW	2
25	CANADIAN JOURNAL OF INFORMATION AND LIBRARY SCIENCE	1

25	COLLEGE & RESEARCH LIBRARIES	1
25	INFORMATION & CULTURE	1
25	INFORMATION RESEARCH-AN INTERNATIONAL ELECTRONIC JOURNAL	1
25	INFORMATION SYSTEMS JOURNAL	1
25	INFORMATION TECHNOLOGY AND LIBRARIES	1
25	JOURNAL OF DOCUMENTATION	1
25	JOURNAL OF LIBRARIANSHIP AND INFORMATION SCIENCE	1
25	LIBRARY & INFORMATION SCIENCE RESEARCH	1
25	LIBRARY QUARTERLY	1
25	LIBRI	1
25	REFERENCE & USER SERVICES QUARTERLY	1
25	RESTAURATOR-INTERNATIONAL JOURNAL FOR THE PRESERVATION OF LIBRARY AND ARCHIVAL MATERIAL	1
25	SOCIAL SCIENCE INFORMATION SUR LES SCIENCES SOCIALES	1

692 articles are published in 66 journals on Library and Information Science in India during the period 2010-2019.

3.5 Bradford's Law

Bradford's law is a basic law which helps to find out the most productive scientific journals. To examine the fulfillment of Bradford's law the total 66 journals are divided into three zones by organizing them according to their decreasing productivity. The numbers are given below in Table-4.5.

Table-3.5: Data for Bradford's law

Zone	No. of journals	No. of articles
1	4	221
2	12	242

3	50	229

Here, 4:12:50

or, 1:3:12.5

It doesn't satisfy the Bradford's law because it doesn't satisfy the relation 1: n: n^2. In order to satisfy the law, the value of n^2 should be 9. It is attributed to the fact that the study covers a relatively small dataset. Moreover, all the data are not indexed in the Web of Science database.

3.6 Most cited article list

Table- 3.6 shows the list of the 50 most cited article.

Table-3.6: Citation wise article list

Serial No.	Article Title	Times Cited
1	Too Big to Fail: Large Samples and the p-Value Problem	295
2	What motivates customers to participate in social commerce? The impact of technological environments and virtual customer experiences	208
3	Understanding determinants of cloud computing adoption using an integrated TAM-TOE model	163
4	Contextual semantics for sentiment analysis of Twitter	144
5	Investigating the intention to purchase digital items in social networking communities: A customer value perspective	134
6	An Empirical Analysis of the Impact of Information Capabilities Design on Business Process Outsourcing Performance	115
7	Examining branding co-creation in brand communities on social media: Applying the paradigm of Stimulus-Organism-Response	101

8	The Energy-Exergy-Entropy (or EEE) sequences in bibliometric assessment	71
9	Mapping the intellectual structure of scientometrics: a co-word analysis of the journal Scientometrics (2005-2010)	70
10	Twitter sentiment analysis using hybrid cuckoo search method	68
11	Is there a place for a mock h-index?	67
12	The impact of online brand community characteristics on customer engagement: An application of Stimulus-Organism Response paradigm	65
13	Information and communication technologies (ICTs) and farmers' decision-making across the agricultural supply chain	61
14	Mobile banking in a developing economy: A customer-centric model for policy formulation	59
15	Web 2.0 features in university library web sites	59
16	Search engine marketing is not all gold: Insights from Twitter and SEOClerks	57
17	A multi-analytical approach to understand and predict the mobile commerce adoption	56
18	Big data analytics for disaster response and recovery through sentiment analysis	55
19	Cooperation, Coordination, and Governance in Multisourcing: An Agenda for Analytical and Empirical Research	55
20	Bridging The Services Innovations: Evidence from Indian Healthcare Service Providers	54
21	Blockchain research, practice and policy: Applications, benefits, limitations, emerging research themes and research agenda	54
22	Knowledge management and organizational culture: a	52

	theoretical integrative framework	
23	The impact of IT outsourcing on information systems success	51
24	Social media content and product co-creation: an emerging paradigm	50
25	Classifying, Measuring, and Predicting Users' Overall Active Behavior on Social Networking Sites	50
26	Economic growth and the development of telecommunications infrastructure in the G-20 countries: A panel-VAR approach	49
27	Analytical mapping of opinion mining and sentiment analysis research during 2000-2015	48
28	Role of knowledge infrastructure capabilities in knowledge management	48
29	Balancing knowledge strategy: codification and personalization during product development	45
30	The 100 most prolific economists using the p-index	43
31	A survey towards an integration of big data analytics to big insights for value-creation	41
32	A survey on scholarly data: From big data perspective	40
33	Short and amusing: The relationship between title characteristics, downloads, and citations in psychology articles	39
34	Big data, knowledge co-creation and decision making in fashion industry	35
35	An Empirical Analysis of the Contractual and Information Structures of Business Process Outsourcing Relationships	35
36	Conversation and Compliance: Role of Interpersonal Discussion and Social Norms in Public Communication Campaigns	35
37	Information technology, knowledge management and	34

	environmental dynamism as drivers of innovation ambidexterity: a study in SMEs	
38	The Evolution Of An ICT Platform-Enabled Ecosystem for Poverty Alleviation: The Case of Ekutir	32
39	Modified collaborative coefficient: a new measure for quantifying the degree of research collaboration	32
40	Examining the role of trust and quality dimensions in the actual usage of mobile banking services: An empirical investigation	32
41	Analyzing customer preference and measuring relative efficiency in telecom sector: A hybrid fuzzy AHP/DEA study	31
42	Success of IoT in Smart Cities of India: An empirical analysis	30
43	Recent developments in social spam detection and combating techniques: A survey	30
44	Knowledge quality: antecedents and consequence in project teams	30
45	Information and communication technology and economic growth in India	28
46	Navigating the extended reach: Target experiences of cyberbullying at work	28
47	Quasity, when quantity has a quality all of its own-toward a theory of performance	28
48	Mobile edge computing based QoS optimization in medical healthcare applications	28
49	The 2014 Indian elections on Twitter: A comparison of campaign strategies of political parties	28
50	The Last Research Mile: Achieving Both Rigor and Relevance in Information Systems Research	27

These 50 articles received total 3090 citations. Top three most cited articles are “Too Big to Fail: Large Samples and the p-Value Problem” (295), “What motivates customers to participate in social commerce? The impact of technological environments and virtual customer experiences” (208), “Understanding determinants of cloud computing adoption using an integrated TAM-TOE model” (163). Total 692 articles received 7218 citations.

3.7 Year wise citation per paper

Table-3.7: Citation per paper

Year	No. of Publication	Citation	CPP
2010	52	785	15.10
2011	56	783	13.98
2012	45	398	8.84
2013	45	666	14.80
2014	90	903	10.03
2015	82	893	10.89
2016	81	751	9.27
2017	102	764	7.49
2018	113	869	7.69
2019	112	405	3.62

Year wise citations are shown in Table 3.7. In 2014 highest number of citation is occurred which is 903 and in 2012 lowest number of citation is occurred which is 398.
Year wise CPP ratio of 10 years is shown in Table-3.7 and Fig 3.3. CPP ratio in 2013 is highest 14.80 and in 2019 is lowest 3.62.

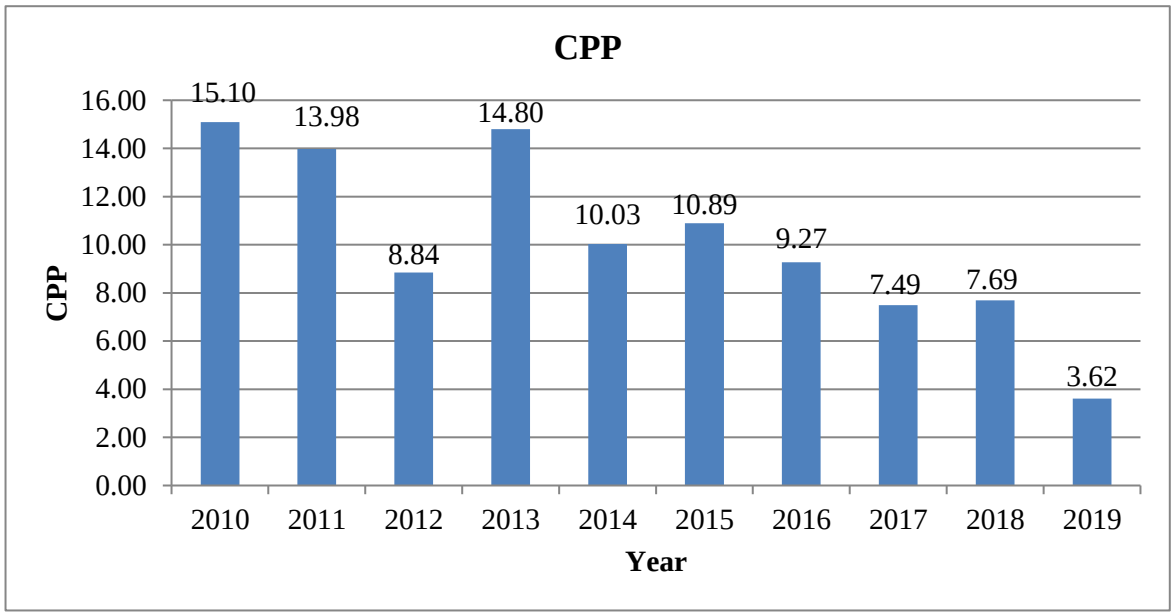

Fig- 3.3: Year wise citation per paper

3.8 Most productive author

Most productive author in the study is given in Table-3.8 according to the number of publications.

Table-3.8: Most productive author

Serial No.	Author Name	No. of articles
1	Prathap, G	28
2	Gul, S	11
3	Kumar, S	10
4	Shah, TA	10
5	Kumar, BTS	8
6	Kar, AK	7
7	Lu, YB	6
8	Mani, D	6
9	Basu, A	6
10	Ahmad, S	5
11	Barua, A	5
12	Kiran, R	5
13	Kumar, V	5

14	Madalli, DP	5
15	Mahajan, P	5
16	Panda, KC	5
17	Kumar, S	5
18	Madhusudhan, M	5
19	Mani, D	5
20	Satija, MP	5
21	Changat, M	4
22	Dutta, B	4
23	Dwivedi, YK	4
24	Gul, S	4
25	Gupta, BM	4
26	Ilavarasan, PV	4
27	Lathabai, HH	4
28	Prabhakaran, T	4
29	Rana, NP	4
30	Singh, R	4
31	Singh, VK	4
32	Zhao, L	4
33	Bhattacharya, S	4
34	Chatterjee, S	4
35	Das, S	4
36	Gupta, BM	4
37	Kaur, H	4
38	Kumar, V	4
39	Mehra, A	4
40	Baabdullah, AM	3
41	Bansal, A	3
42	Bhanumurthy, K	3
43	Bose, I	3
44	Chakraborty, T	3

45	Dey, N	3
46	Dutta, A	3
47	Ganesh, LS	3
48	Garg, L	3
49	George, S	3
50	Ghosh, S	3

In the Table-3.8, 50 most productive authors are listed. Total 256 numbers of articles are contributed by these 50 authors. Most number of articles is published by Prathap, G. which is 28 followed by Gul, S. (11).

3.9 Lotka's law of author's productivity

To check whether the data set satisfy the Lotka's law of author's productivity, the data are organized according to the authors and their no. of publication. Top 50 authors are shown in the Table- 3.8.

Table-3.9: Data for Lotka's Law

No.of contribution	No. of authors
1	1136
2	144
3	41
4	19
5	11
6	3
7	1
8	1
10	2
11	1
28	1

This law states that the number of authors making 'n' number of contribution is about $1/n^2$ of those making 1 contribution. As shown in the Table-3.9, the number of author contributing 1 is 1136. Now, according to Lotka's law the number of author making 2

contribution should be $1/2^2$ * 1136, i.e. 284. But from the analysis it is found that number of authors making 2 contributions is 144. Similarly, number of author making 3 contributions should be $1/3^2$ * 1136, i.e. 126 but it is 41. Analyzing the data, it is clear that the dataset did not fulfill the law.

3.10 Zipf's law of word occurrence

Raking all the keywords of the literature in the study, the list of most occurred words can be found. In the table below 50 most occurred words are given.

Table 3.10: Most occurred words

Rank	Keyword	Frequency
1	India	100
2	Bibliometrics	20
3	information retrieval	18
4	Scientometrics	18
5	India	18
6	Knowledge management	15
7	Social media	15
8	University libraries	13
9	Quantity	12
10	Academic libraries	11
11	h-index	10
12	Library automation	10
13	Quality	10
14	Bibliometrics	9
15	performance	9
16	ICT	8
17	Indicators	8
18	Internet	8
19	p-Index	8
20	Knowledge management	8

21	China	7
22	E-Commerce	7
23	Exergy	7
24	Libraries	7
25	outsourcing	7
26	Big data	7
27	Information retrieval	7
28	Citation	6
29	development	6
30	Economic growth	6
31	entropy	6
32	Information management	6
33	Information technology	6
34	Technology adoption	6
35	Twitter	6
36	User studies	6
37	Adoption	5
38	Collaboration	5
39	developing countries	5
40	Digital divide	5
41	Digital libraries	5
42	Electronic resources	5
43	Energy	5
44	E-resources	5
45	Impact factor	5
46	Open source software	5
47	qualitative	5
48	Sentiment analysis	5
49	Web 2.0	5
50	Citation analysis	5

Here the dataset doesn't satisfy the Zipf's law. The law states that multiplication of r(rank) with f(frequency) should be c (constant). But it clearly can be seen that the value of the multiplication is not a constant.

4. Results and Findings:

The findings of the study have been presented against the objectives as follows:

Objective 1: To analyze form wise distribution of the literature.

Findings:

1. Literature can be published in various forms like Articles, Conference Paper, Reviews, Editorials etc. In this study majority of the literature is published in the form of Article.
2. 692 literatures are published in the form of Article which is 88.95% followed by Editorial Material (4.24%) and Reviews (2.70%). (Table-4.3)

Objective 2: To analyze year wise publication and to calculate annual growth rate.

Findings:

1. From the analysis it is found that 2018 is the most productive year in terms of publication of literature. 113 no. of literature is published in 2018 (14.52%). In 2012 & 2013 lowest no. of literature is published which is 45 each (5.78%). (Table-4.1)
2. The annual growth rate (AGR) is highest in 2014 which is 100% and lowest in 2012 which is -19.64%. In 2012, 2015, 2016 and 2019 AGR is negative which indicate that in these years the number of literature published is less than the number of 2011, 2014 and 2018 respectively. From Fig-4.2 it is seen that the AGR is inconsistent. The main reason behind this result is all the published literatures are not available in the Web of Science database.
3. The Average Annual Growth Rate of the decade is 12.64%. (Table-4.2)

Objective 3: To identify the preferred publication type as their communication channels.

Findings:

1. From the year wise distribution of the literature it is found that the most preferred publication type is Article. Researchers preferred to publish their research work as journal article. As 88.95% of the literatures are Articles, so it can be said that Articles are the mostly preferred publication type as their communication channel. (Table-4.3)

Objective 4: To identify the ranking of journals.

Findings:

1. 692 articles are published in 66 journals on Library and Information Science in India during the period 2010-2019.
2. The journal titled "Scientometrics" give the most number of contributions which is 98 followed by "Electronic Library" (56) and "Journal of Enterprise Information Management" (36). (Table-4.4)

Objective 5: To identify the highest cited article.

Findings:

1. Total 692 articles received 7218 citations.
2. Top three most cited articles are "Too Big to Fail: Large Samples and the p-Value Problem" (295), "What motivates customers to participate in social commerce? The impact of technological environments and virtual customer experiences" (208), "Understanding determinants of cloud computing adoption using an integrated TAM-TOE model" (163). (Table-4.6)

Objective 6: To determine year wise Citation per Paper.

Findings:

1. Total 7218 citation occurred in ten years.

2. In the year 2014 highest number of citation is occurred which is 903 and in 2012 lowest number of citation is occurred which is 398.
3. CPP ratio in 2013 is highest 14.80 and in 2019 is lowest 3.62. (Table-4.7)

Objective 7: To identify most productive author.

Findings:

1. In the Table-4.8, 50 most productive authors are listed. Total 256 numbers of articles are contributed by these 50 authors.
2. Most number of articles is published by Prathap, G. which is 28 followed by Gul, S. (11).

5. Conclusion:

Bibliometrics plays an important role in analyzing and interpreting the peer reviewed scholarly journals to see growth and development in the selected area of subject. Every day huge amount of literature is published in various subjects accordingly the amount of published literature on Library and Information Science is increasing day by day. So it is very important to find out the core literatures which will help the researchers to find out their requirements. This bibliometric study gives a brief idea of Library and Information Science literature published in India within the period 2010-2019. There is no constant growth rate of the published literature but the average annual growth rate is 12.64%. The study reveals that the most published literature form is article (88.95%) and "Scientometrics" with highest contribution of 98 is the most preferred journal on the subject. The findings of this study is expected to help the Library and Information Science professional to figure out the core literature, journal, article and author whose are devoted to the subject. In addition, the study will help the researchers in further research work in this field.

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