

Conceptual Analysis of DESIDOC Journal of Library and Information Technology: A Bibliometric Study

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Abstract

The study aimed to analyse the growth rate of publications, author collaboration, research productivity, domain, keyword network, thematic and cluster analysis of DESIDOC Journal of Library and Information Technology. Data was gathered from the Scopus database, focusing on the subject area of Social Science/Library and Information Science and the journal DESIDOC Journal of Library and Information Technology. A total of 639 articles published between 2012 and 2022 were downloaded, along with their bibliographic information. The analysis revealed that 2012 was the most productive year, accounting for 10.80% of the total publications, while 2022 saw the least productivity at 7.36%. Citation analysis showed the highest number of citations in 2015 (14%) and the lowest in 2022 (1.14%), with an average of 4.54 citations per article annually. Multi-authored articles were predominant (70.57%) compared to single-authored ones (29.43%). B. M. Gupta, C. K. Ramaiah and S. M. Dhawan were noted as the highest contributors to the journal. C. Baskaran's article "Research Productivity of Alagappa University During 1999 to 2001: A Bibliometric Study," published in 2013, receiving the highest number of citations. Bibliometric coupling analysis highlighted the terms "Scientometrics," "Bibliometrics" and "Research Productivity," along with authors like R. K. Singh, A. K. Siwach, K. C. Garg, S. Parmar, S. Dwivedi and R. Kumbhar as the most impactful group during the study period. Thematic analysis identified emerging areas in LIS research such as Information Literacy, Plagiarism, Citations, Academic Integrity and Intellectual Property Rights, while subjects like Open Access, E-books, Institutional Repositories and Collection Development

showed declining research interest. India emerged as the primary contributor in both publications (83.10%) and citations (83.03%), followed by Nigeria (2.66% publications, 2.72% citations), indicating the journal's need to expand its international presence. Institute analysis revealed that research institutes contributed more to publications compared to central universities with library science departments.

Keywords: DESIDOC, Bibliometric, Scientometric, Conceptual Analysis, Thematic Map, Intellectual Analysis

Introduction

21st century is a century of information technology where everyone uses this technology makes humans life more easily. With the help of these technologies, accessibility of information sources is easier (Weiser, 1991). In these sources journals are the primary source of communication and dissemination of scholarly knowledge. Several journals in the fields of science and social science are published in India. One notable publication is the DESIDOC Journal of Library & Information Technology (DJLIT), formerly known as the DESIDOC Bulletin of Library and Information Technology Journal. Established in 1981, DJLIT is a significant journal in the library and information science domain in India. It operates on a peer-reviewed, double-blind, open-access basis and is issued bimonthly. The journal focuses on the application of information technology in library activities, services and products, featuring original articles and review papers. Its major subject fields include information

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systems, knowledge management, collection building & management, information behaviour & retrieval, librarianship/library management, library & information services and records management & preservation (Pandita, 2014). The journal is indexed in a variety of reputable databases including Scopus, Web of Science (Emerging Source Citation Index), Dimensions, LISA, LISTA, EBSCO, J-Gate Plus, Proquest, Library Literature and Information Science Index/Full-text, The Informed Librarian Online, Indian Science Abstracts, Indian Citation Index, WorldCat and Google Scholar, among others. As of 2022, the journal has a Scopus Citescor of 2.0, an SJR (SCImago Journal Rank) of 0.281 and a SNIP (source normalised impact per publication) of 0.580. The online version of the journal can be accessed directly through its website (<https://publications.drdo.gov.in/ojs/index.php/djlit/issue/view/694>).

Application of statistical and mathematical methods to measures the books, services and other media of communication known as bibliometrics (Batcha, Jahina & Ahmad, 2018). The terms “bibliometric” coined by Alan Pritchard in 1969. It is the combination of two words, first, “Biblio”, which is derived from the Greek word, “Biblion” means “book”, and second, “metrics” derived from the Greek word “metrikos” means “measurement” (Pritchard, 1969). F. J. Cole & Nellie B. Eates represented the first recorded study on “bibliometrics” in 1917 in science progress and E.W. Hulme is the pioneer of the term Statistical bibliography (Sengupta, 1992). Bibliometric is a method of research which is most frequently used by library and information science field but presently it is used by other subject field’s also (Siddiqui, 2011). We can say that the application of bibliometric not limited to library and information science its scope is expanded to beyond the limitations of subjects.

Review of Related Literature

Author Bal Ram and Sandeepa Yadav (2022) investigate the authorship pattern of the articles, degree of author’s collaboration, length of articles, the ranking of authors of the “DESIDOC Journal of Library and Information Technology” during 1981–2018. A significant growth rate and citation pattern found of the journal. It is found that maximum 70 (7.07%) articles published in 2012 and B. M. Gupta was contributed 41 articles (2.33%) followed by C.

K. Ramaiah 23 articles in the journal. Singh and Kumar (2022) investigate the DESIDOC Journal of Library and Information Technology (DJLIT) during the period 2010–2019 and try to investigate chronological distribution of articles and references, geographical distribution, distribution of Intellectual output and pagination patterns. The results reveal that 258 (47.60%) articles are double authored, 28.59% of the published papers remained un-cited, year 2012 is most productive year with 64 publications. Pandita (2014) investigate the article distribution pattern of the journal articles, authorship pattern, geographical distribution of authors and citation analysis and find out that collaborative authorship is dominating in nature, New Delhi is highest contributing state, an average 6.20 articles are published in each issue, 13.83 average reference received by each articles. Parida (2021) investigate the journal during 2012–2020 for the various scientometric parameters and find out that a CAI varies from 91.78 to 112.18, The level of collaboration deviates from 0.61 to 0.74, with 0.68 obtaining the mean and the highest collaboration between country Fiji and Indonesia is 16.67 each. Barman (2019) investigate the comparative study of Annals of Library and information Studies and Desidoc Journals of Information Technology during 2017–2019, find out that papers of DESIDOC Journal of Library and Information Technology are more cited by others than the papers in Annals of Library and Information Studies. Garg (2014) also conducted study on above two journals on the basis of citation using Google Scholar and reveals that DJLIT published more papers than ALIS and also received more citations. However, citation per paper for both the journals is almost equal. Bapte and Gedam (2021) conducted a comparative study of ALIS and DJLIT, revealing that both journals experienced an average growth rate of 1.64%. However, the relative growth rate (RGR) varied between 0.32 and 3.76. B M Gupta emerged as the most productive author with 28 contributions, while scientometrics and bibliometrics were the most relevant themes. The multiple collaboration ratios for both journals were registered as 0.029. Lamba and Madhusudhan (2019) analysed topics in the DESIDOC Journal of Library and Information Technology (1981–2018). They found Bibliometrics, ICT, information retrieval and user studies were major areas of research in India, Spain and Taiwan. Sub-fields in Indian Library and Information Science included open access, online exhibitions, virtual libraries, multimedia

libraries, open-source software, library automation and management systems. Topics evolve over time, with new ones emerging and old ones fading.

Objective

This study is based on several set of objectives, which has been given below:

- To examine the year-wise growth and citations pattern of DESIDOC Journals of Library and Information Technology during 2012–2022.
- To Find Most Productive authors and articles.
- To analyse the keyword and research trends in Library and Information Science.
- To examine the thematic research trends in LIS in India.

Data and Methodology

Bibliometric method applied for analysis of this study and data has been downloaded from Scopus database during 2012–2022 (11 years). The reason for selection the year from 2012 is that the listing year of journals in Scopus database is 2012. Scopus is an abstracting and indexing database which provides link of full text journals produced by the Elsevier Co. it is started in November 2004. It is a comprehensive and largest database which provides citation, funding and other bibliographic related information of Documents. The name Scopus was inspired by the bird name “Hammerkop” (*Scopus*

umbretta), which reportedly has excellent navigation skills. The advance Search Technique “SRCTITLE (desidoc AND journals AND of AND library AND information AND technology) AND PUBYEAR > 2011 AND PUBYEAR < 2023” used for searching data. Total 639 records find out and downloaded in CSV format. The Bibliometrix 4.3.1 software package is an open-source tool programmed in the R language. It is used to performing a comprehensive scientific mapping. We used Bibliometrix features like collaborative network analysis and strategic mapping, conceptual analysis means co-occurrence of keyword, thematic evaluation, intellectual analysis and key word analysis (Burnham, 2006).

Data Analysis

The data covers Growth rate of publication with the year of publication and its volume number, name of the author with their affiliations and its geographical location, total count of authors, number of references cited by the article, co-citation analysis of documents and authors, number of keywords use by authors, Conceptual Analysis including Co-occurrence, Thematic map and thematic evolution of keywords. MS-Excel and R-software (biblioshiny) version 4.3.1 is used for data analysis. The main information about the data analyses by R Biblioshiny software depicted in Table 1, where AGR (3.77), document average is 6.24, average citation per document (4.53), co-authorship per document (2.08), international co-authorship (4.22) and references (11760).

Table 1: Main Information About Data

<i>Time Span</i>	<i>2012:2022</i>	<i>Authors</i>	<i>890</i>
Sources (Journals, Books, etc)	1	Authors of single-authored docs	148
Documents	639	Single-authored docs	188
Annual Growth Rate %	-3.77	Co-Authors per Doc	2.08
Document Average Age	6.24	International co-authorships %	4.225
Average citations per doc	4.538	Article	598
References	11760	Editorial	20
Author's Keywords (DE)	2075	Note	2
		Review	19

Result and Discussions

Year-Wise Distribution of Publication and Citation with ACPP & RCI

publications period, year 2012 (69) to 2016 (51) show declining pattern then 2018 (61) increasing again show decreasing pattern to 2022 (47) publications. The mean of total citation per year is seen between 0.33 (2012) and 1.01 (2019) during the study periods.

Fig. 1 Demonstrate the year-wise publications of articles in the journals, there are ups and downs seen in the

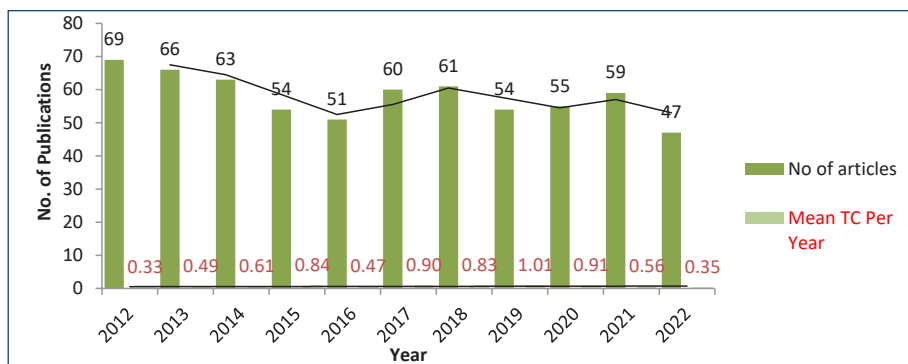


Fig. 1: Represents Annual Scientific Publications and Mean of Total Citation Per Year

Table 2 demonstrate the annual growth rate on the basis of (Kumar & Kaliyaperumal, 2015) Formula, highest AGR of publication 17.65 % with 60 publications found in year 2017, and lowest (-20.34%) with 47 publications noted for year 2022. The higher number of citations 406 (14.00%) receive in the year 2015, followed by 384 (13.24%) in

2014 and 380 (13.10%) in 2017, and lower 33 (1.14%) for year 2022. The average citation per publication 4.54% noted annually and highest citation per publication 7.52 for year 2015, followed by 6.33 for 2017 and 6.10 for 2014. The average RCI 1 noted annually and highest RCI 1.657 (2015) and minimum 0.155 (2022).

Table 2: Demonstrate AGR, RCI and ACPP

Year	No. of Articles	AGR	% of Articles	Total Citations	% of Citations	RCI	ACPP
2012	69	0	10.80	275	9.48	0.878	3.99
2013	66	-4.35	10.33	356	12.28	1.189	5.39
2014	63	-4.55	9.86	384	13.24	1.343	6.10
2015	54	-14.29	8.45	406	14.00	1.657	7.52
2016	51	-5.56	7.98	190	6.55	0.821	3.73
2017	60	17.65	9.39	380	13.10	1.396	6.33
2018	61	1.67	9.55	303	10.45	1.094	4.97
2019	54	-11.48	8.45	274	9.45	1.118	5.07
2020	55	1.85	8.61	200	6.90	0.801	3.64
2021	59	7.27	9.23	99	3.41	0.370	1.68
2022	47	-20.34	7.36	33	1.14	0.155	0.70
Total	639		100	2900	100	1.000	4.54

AGR-Annual Growth Rate, RCI- Relative Citation Index, ACPP- Average Citations Per Paper

Most Cited Articles

Table 3 demonstrates the top 10 most highly cited articles during the study. The articles “Research Productivity of Alagappa University During 1999 to 2001: A Bibliometric Study” by C Baskaran (2013) received highest number of citations (N=34), while the article Bibliometrics of library and information science research in India during 2004–2015 by KC Garg and C Sharma (2017) received the second highest number of citations (N=33) followed by Plagiarism and Academic Misconduct a Systematic

Review by S Awasthi (2019) (N=32) Citations. On the basis of keyword similarities out of top ten study 6 study belong to bibliometric and scientometric, annual growth rate, author productivity, related study, whenever other four studies related to Plagiarism and Academic Misconduct, Research Data Management, Mobile Reading Habits and Institutional Repositories. That’s why Desidoc journals of library and information study is a major journal in LIS fields in India which represent that the major research domain in library and information science is Bibliometric and Scientometric.

Table 3: Summery Information About Top 10 Most Cited Articles

Sr. No.	Title	Author	Year	TC	Keywords
1	Research Productivity of Alagappa University During 1999 to 2001: A Bibliometric Study	C Baskaran	2013	34	Degree of collaboration, authors productivity, relative growth rate
2	Bibliometrics of library and information science research in India during 2004-2015	K C Garg and C Sharma	2017	33	Scientometrics, Bibliometrics
3	Plagiarism and Academic Misconduct A Systematic Review	S Awasthi	2019	32	Plagiarism, Academic misconduct, Academic integrity, Anti-plagiarism
4	Bibliometric Analysis of Research Publications of Maharshi Dayanand University (Rohtak) During 2000-2013	A K Siwach and Satish Kumar	2015	32	Maharshi Dayanand University, research productivity, bibliometrics
5	Research Data Management Practices in University libraries: A study	M Tripathi, A Shukla and S K Sonker	2017	30	Research data management, Data repositories, Data Curation, Data preservation
6	Lotka’s Law and Pattern of Author Productivity in the Area of Physics Research	K G Pillai Sudhier	2013	30	Lotka’s law, , scientific productivity, bibliometrics
7	A Bibliometrics Profile of Gujarat University, Ahmedabad during 2004-2013	A K Hanumappa, M Dora and A Desai	2015	27	Gujarat University, research productivity, bibliometric study
8	An Overview of Mobile Reading Habits	S R Shimray, C Keerti and C K Ramaiah	2015	27	Mobile reading, online learning, reading habits,
9	Publication Productivity of University of Kerala: A Scientometric View	Gopikuttan A and Aswathy S	2014	26	Scientometrics, collaborative co-efficient, impact factor, research productivity
10	Awareness on Institutional Repositories-related Issues by Faculty of University of Calcutta	G Dutta and D Paul	2015	26	IR-awareness, dual copyright, institutional repositories

Top Ten Most Prolific Authors

Table 4 demonstrate the author Gupta, B.M. National Institute of Science Technology and Development Studies India received highest number of publication (N=20) and citations (113) followed by Ramaiah, C.K. Pondicherry

University with (N=17) publications and (N=59) citations. On the basis of Average Citation per paper Garg, K.C. National Institute of Science Technology and Development Studies, New Delhi securing top position with (N=9.75) followed by M. Tripathi, Jawaharlal Nehru University, New Delhi with (N=6.78).

Table 4: Top Ten Author with Highest Publications, Citations and H-Index

Sr. No.	Author	Affiliation	NP	TC	ACPP	NCP	H-Index
1	Gupta, B.M.	National Institute of Science Technology and Development Studies, India	20	113	5.65	1	6
2	Ramaiah, C.K.	Pondicherry University, India	17	59	3.47	6	4
3	Dhawan, S.M.	Council of Scientific and Industrial Research India, New Delhi, India	11	63	5.73	0	5
4	Gupta, R	Paul George Global School, New Delhi, India	9	49	5.44	0	5
5	Tripathi, M	Jawaharlal Nehru University, India	9	61	6.78	1	4
6	Bhardwaj, R. K	St. Stephen's College, New Delhi, India	8	40	5.00	0	4
7	Garg, K.C	National Institute of Science Technology and Development Studies, New Delhi	8	78	9.75	0	5
8	Pandita, R	Baba Ghulam Shah Badshah University, Rajouri, India	8	48	6.00	0	4
9	Verma, M.K	Mizoram University, Aizawl, India	8	41	5.13	2	4
10	Ram, S	Sikkim University, Gangtok, India	7	34	4.86	0	4

NP- Number of Publications, TC- Total Citations, NCP- Non-Cited Paper, ACPP-Average Citation Per Paper

Keyword and Author Cluster Analysis

Keyword represents the main idea, themes of a particular subjects, the keyword bibliometrics found as most occurred keywords with 44 occurrence (2.12%), whenever terms India 43 (2.07%) is second most occurring terms followed by Scientometric 40(1.93%) and e-resources 25 (1.20%). Citation analysis is most fifth occurring terms with 21(1.01%) followed by library services 17 (0.82%), research productivity 16 (0.77%), academic library 15 (0.72%), digital library and information 14 (0.67%) each. The analysis of keyword indicates that authors focused on review types of research like metric study rather than core subject of library science. The term *bibliographic*

coupling was first introduced by MIT in a paper published in 1963. It occurs when two works reference a common third work in their references (Jarneving, 2007). Table 5 depicted the result of author cluster analysis. The analysis reveals that total 17 clusters identified, cluster 2 found as highest with 1.90 impacts and 1.02 centrality and author AK Siwach highest 14.3 normalised local citation score. The key words of the group noted are bibliometric, Scientometric and Author Productivity. Cluster 15 has lowest impact, but the centrality of cluster found 1.21 and author of group is S R Shimray with 5.7 citation score and India, Cultural Heritage Information, Pondicherry University and Research Scholars noted as keyword.

Table 5: Demonstrate the Author Cluster by Bibliographic-Coupling

Sr. No.	Cluster Subjects	Cluster Author (Normalized Local Citations)	CF	C	I
1	Scientometrics, Bibliometrics, Global Publications	Loan FA(3), Dhawan SM(5.7), Gupta BM(5.6), Kumbar BD(5.8), Gupta R(4.9)	5	0.72	1.27
2	Bibliometrics, Scientometrics Research Productivity	Singh RK(6.0), Siwach AK(14.3), Garg KC(10), Parmar S(8.3), Dwivedi S(9), Kumbhar R(8.4), Bansal A(7), Ramesh DB(4), Kumar N(3), Mohanty B(1), Sahoo J(1), Sahu SC(1), Biradar BS(1.5)	13	1.02	1.9
3	Citation Analysis, Bibliometrics, Vosviewer	Garg M(2), Bapte VD(6.1), Roy SB(6.5), Paliwal N(6.5), Ganaie SA(2.3), Ram S(4.4)	6	0.68	1.48
4	India Rankings, NIRF Higher Education Institutions	Nassa AK(2), Arora J(2.2), Kumar A(3.9), Singh VK(0.5), Singh P(0.8), Rao M(2.0), Solanki H(0.6), Trivedi K(0.6), Joorel JPS(0.5)	9	1.41	1.15

Sr. No.	Cluster Subjects	Cluster Author (Normalized Local Citations)	CF	C	I
5	India, Marketing, Collaboration	Habiba U(13), Jain PK(7.5), Bhardwaj RK(5), Das K(5), Mahapatra RK(2.5), Sanaman G(1)	6	0.83	1.84
6	Scientometrics, Authorship Pattern, Information Literacy	Dora M(17), Santhakumar R(10.5), Kaushik A(10), Jana S(8), Kaliyaperumal K(11), Verma MK(5.1), Gupta DK(5.7), Shukla R(6.5), Chauhan SK(6), Mondal D(6), Hasan N(3.3), Maity A(3), Pal JK(1.5), Banerjee S(0)	14	0.74	1.65
7	E-Resources, Bibliometric Indicators, Impact Factor	Ahmad S(12.5), Tyagi S(7), Sohail M(8.8), Naqvi TH(5.7)	4	0.69	1.77
8	Hr Functions, E-HRD, Hr Personnel Training, Management	Sharma RK(7.5), Nageswara Rao K(4.3), Muralidhar S3.3), Athithya E(0), Kavitha AC(0)	5	0.79	1.22
9	Service Quality, Library Service	Sadik Batcha M(9), Valizadeh-Haghi S(4.5), Sajna KP(3.5), Mohamed Haneefa K(3.3)	4	0.7	1.69
10	Webometrics, Search Engine, Augmented Reality	Sutradhar B(1.5), Vijayakumar M(6), Jalal SK(2.3), Mukhopadhyay P(1)	4	0.89	1.25
11	Higher Education, India, Research Journals	Pillai Sudhier KG(12.7), Singh S(7.8), Pandita R(6)	3	0.89	1.58
12	India, Bibliometrics, Citation	Malik BA(8), Naushad Ali PM(7), Dutta B(3), Das AK(1.5)	4	0.86	1.36
13	Misconduct, Retraction. Bibliometrics	Shukla A(12.3), Tripathi M(6.8), Kumar S(5.2), Gaur RC(3.3), Sharma J(2), Sonkar SK(2.7)	6	1.43	1.69
14	Drdo, Desidoc, E-Journal Consortium	Madhusudhan M(5.4), Shrivastava J(4.5), Soni NK(4.5), Senthil V(6.5)	4	1.13	1.01
15	Cultural Heritage Information, Pondicherry University, Research Scholars	Shimray SR(5.7), Ramaiah CK(3.5), Deepti C(0.5)	3	1.21	0.0
16	Publication Efficiency Index, Publication Productivity, R and D Trend	Sagar A(8.5), Kademani BS(7), Bhanumurthy K(5.8)	3	0.89	1.27
17	E-Resources, Punjab Agricultural University, Consortium	Kumar R(7.5), Kathuria K(2.5), Kaur K(2.5)	3	0.56	1.41

CN- Cluster Number, F- Cluster frequency, C-Centrality, I-Impact

Conceptual Analysis

Co-Occurrence Network of Keywords

Co-occurrence network sometimes represent semantic network, it is a methods to analyse text that includes a graphic visualisation of potential relationships between author, keywords, title, abstracts or other entities represented within written text (Segev, 2021). Fig. 2 demonstrates in relation between author keyword and groups them on the basis of similar characteristic. We

will analyze to 50 keywords, 40 meets thresholds on the basis of walk trap clustering algorithm and normalise associations, 7 clusters are identified they are present the major research fields in Library and Information Science in India. Cluster 5 represent bibliometric and scientometric related theme with (N=15) keyword followed by cluster 1, digital library (N=7) and cluster 2, academic library (N=6) keyword, whenever other major themes are cluster-3 institutional repository (N=3), cluster 4 e-resources (N=5), cluster 6 publication ethics (N=2) and cluster 7 user study (N=2) find out during the study.

Table 6: Demonstrate the Thematic Map of Emerging Subjects

Cluster No.	Cluster Name	Rank Centrality	Rank Density	Cluster Frequency	No. of Keywords	Relevance
Cluster 5	Bibliometrics	8	4	331	41	8.07
Cluster 7	E-Resources	7	5	186	32	5.81
Cluster 3	Academic Libraries	9	2	177	29	6.55
Cluster 1	Digital Library	6	7	131	24	5.45
Cluster 2	Social Media	5	6	101	22	4.59
Cluster 6	Information Literacy	4	3	58	12	4.83
Cluster 4	Open Access	2	1	44	8	5.50
Cluster 9	Webometrics	3	8	24	6	4.00
Cluster 8	Service Quality	1	9	17	5	3.40

- *Motor Theme:* It represents the High centrality and density, well-developed and important research field structuring themes. On the strategic map, they appear in the upper right quadrant. Digital library, Open Source Software, Information retrieval, Digitization and D-Space are the well established research fields in LIS educations.
- *Niche Themes:* It represents the Low centrality and high density very specialised, environmental and peripheral themes. Lack the appropriate background or are no longer deemed important due to newly emerged concepts or technology. Located in the upper left quadrant. webometrics, content Analysis, website Analysis, WWW are most relevant in comparison of Service quality, library services, quality assessment and research evaluation are the research area belongs to peripheral and specific topics for LIS research.
- *Emerging or Declining Themes:* Its represents the Low centrality and density themes represent emerging or declining themes, qualitative analysis is needed to determine whether emerging or declining Lower left quadrant. Information Literacy, Plagiarism, Citations, Academic Integrity, Intellectual property Rights are the most emerging area in LIS research, whenever open access, E-books, Institutional repositories, Collection Development are the subjects is showing declining themes.
- *Basic Themes:* It represents the High centrality and low density, important themes, but not yet well-developed in the research field. Located in the

lower right quadrant. Bibliometric, Scientometrics, Citation analysis, academic library, e-learning are popular basic subject of LIS research in India.

Inter quartile's themes, social media major themes cover subjects like knowledge Management, Social networking Sites, research data management, library marketing and augmented reality ect. related research is found in-between Niche themes and Motor theme whenever e-resources, library services, digital preservation, consortium, corporate social responsibility, information services, online database, user study, ICT, health science library, search engine related research themes are found in-between motor theme and basic theme.

Thematic Evolution LIS Subjects

Thematic evolution of keyword is representing the changes of nature of subject's themes in-between subjects within specific time period. Fig. 4 represent the library marketing, academic library, digital library, cataloguing and India are the major area of research in-between year 2012 and 2017, whenever information retrievals, e-learning, library services, information literacy, plagiarism and social media are the major area of research in-between 2018 and 2022 in India. The research area bibliometric, e-resources are relevant during the period.

Table 6 represents the comparison of changes of subject groups on the basis of common similarities in various themes, bibliometric and marketing are the motor theme; Publication efficiency index, cataloguing and webometrics are the niche themes; agriculture library, virtual exhibitions

and collection development are emerging or declining trends; academic library, e-resources and institutional repositories are basic themes found in-between the year 2012 and 2017, whenever information retrieval, e-learning, service quality and HR Function are Niche themes; social media is emerging themes; bibliometrics,

information literacy, e-resources and plagiarism are basic themes found in-between 2018 and 2022. Digital library and library services are identified in-between motor and basic themes, whenever intellectual property rights and h-index themes identified in between motor and niche themes.



Fig. 4: Demonstrate the Thematic Development of Subjects

Table 7: Thematic Evolution of Subject in Library and Information Science

Themes Name	2012-2017	2018-2022
Motor	<ol style="list-style-type: none"> Bibliometrics (Scientometric, Citation Analysis, research productivity, Bradford laws, Impact factor) Marketing (Web 2.0, social media, e-learning, social media, cloud computing) 	Nil
Niche	<ol style="list-style-type: none"> Publication Efficiency Index (Publication Productivity and Specialization Index) Cataloguing (Knowledge Organization and Ontology, FRBR, faceted Classification, Semantic Web) Webometrics (Link Analysis, Search engine, user interface, website, weblog, Web Impact factor) 	<ol style="list-style-type: none"> Information Retrieval (Open access, Institutional Repositories, Folskonomy and Digital Library) E- learning (Digital reading and online reading) Service quality (Library Service and quality assessment) HR Function (E-HRD,HR-Personal and Training management)
Emerging or Declining	<ol style="list-style-type: none"> Agriculture Library Virtual Exhibition (Online Exhibition, content management system, Virtual museum) Collection development and Preservation 	<ol style="list-style-type: none"> Social Media (Knowledge Management, Digitization, Augmented Reality, Covid-19, Research evaluation, social Networking Sites)
Basic	<ol style="list-style-type: none"> Academic Library (University Library, higher education, ICT, LIS education, Social Networking) E-Resources (Library Services, Internet, E-journals, Information Retrieval Information Seeking Behavior) Institutional Repositories (India, Open access, Knowledge management, Information Technology, online Cataloguing) 	<ol style="list-style-type: none"> Bibliometrics (Scientometrics and Infomatics) Information Literacy (Research Productivity and Scopus) E-Resources (Research Data Management and Consortium) Plagiarism (Academic Integrity and Academic Misconduct)
In-Between Motor and Basic	<ol style="list-style-type: none"> Digital Library (Open-Source Software, Library automation, D-Space, OPAC, Digital Preservation, Digitization, E-resources, Institutional Repositories) 	<ol style="list-style-type: none"> Library Services (Academic library, information service, Public Library, DRDO, Internet and Library Resource)
In-Between Motor and Niche	<ol style="list-style-type: none"> Intellectual Property Rights (Copy Right, Digital Right Management, Traditional Knowledge, TKDL) 	<ol style="list-style-type: none"> H-Index (Research Output, NIRF, Perception, Library Service quality)

Most Collaborative Country and Productive Institute

Analysis of total 639 articles and 2900 citation represent that the average citations per document is 22.03 found during the study, India is leading country with 531 (83.10%) of publications and 2495 (86.03%) citations. The Nigeria found as second most publishing country with 17 (2.66%) publications and 79 (2.72%) of Citations, followed by Indonesia 17 (2.66%) and 44 (1.52%) of citations, Iran 13 (2.03%) of publications and 47 (1.62%) of citations. The country collaboration indicates that *DESIDOC* journal of library and information technology known as national level journal which needs to change in future by enhancing number of foreign publications or collaborative papers. Analysis of total 160 institutions indicate that University of Delhi contributing the highest 46 (7.2%) publications with 229 (7.9%) of citations followed by Council of scientific and Industrial Research, New Delhi with 22 (3.4%) publications and 152 (5.2%) of citations and Pondicherry University 21 (3.3%) of publications and 82 (2.8%) citations. The Jawaharlal Nehru University 20 (3.1%) publications and 134 (4.6%) of citations; Defense Research and Development organization with 19 (3%) publications and 74 (2.6%) of citations is 4th and 5th most contributing institute. The institute analysis indicates that central university, library science department are sharing more publication comparing to research organization.

Finding of the Study

After Analysis *DESIDOC* journals of library and information technology during the period 2012-2022 finding are given below:

- The publications period, year 2012 (69) to 2016 (51) show declining pattern then 2018 (61) increasing again show decreasing pattern to 2022 (47) publications and mean of total citation per year is seen between 0.33 (2012) and 1.01 (2019) during the study periods.
- During the study period total 639 articles published, the year 2012 most productive year with 69 (10.80%) articles and 2022 is less productive year with 47 (7.36%) articles.
- The highest AGR of publication 17.65% with 60 publications found in year 2017, and lowest (-20.34%) with 47 publications noted for year 2022.
- The higher number of citations 406 (14.00%) receive in the year 2015 and lower 33 (1.14%) for year 2022 and the average citation per publication 4.54% noted annually.
- The average RCI 1 noted annually and highest RCI 1.657 (2015) and minimum 0.155 (2022).
- The articles “Research Productivity of Alagappa University During 1999 to 2001: A Bibliometric Study” by C Baskaran (2013) received highest number of citations (34).
- The author Gupta, Brij Mohan, National Institute of Science Technology and Development Studies India received highest number of publication (20) and citations (113).
- The keyword bibliometrics found as most occurred keywords with 44 occurrences (2.12%), whenever terms India 43 (2.07%) is second most occurring terms followed by Scientometric 40 (1.93%).
- Author coupling represent cluster 2 is most relevant cluster with 1.90 impacts and 1.02 centrality and author AK Siwach highest 14.3 normalised local citation score. The key words of the group noted are bibliometric, scientometric and author productivity.
- In-co-occurrence of keywords, cluster 5 represent bibliometric and scientometric related theme with (15) keyword followed by cluster 1, digital library (7) and cluster 2, academic library (6) keyword.
- Thematic measurements represents that cluster 5 indicates that theme bibliometric (basic theme) noted as most relevant with 331 cluster frequencies, rank centrality 8 and 4 rank density.
- Digital library, Open-Source Software, information retrieval, digitization and D-Space are the well-established research fields in LIS educations in motor themes.
- Webometrics is most relevant in comparison of service quality; library services, quality assessment and research evaluation are the research area belongs to peripheral and specific topics for LIS research.
- Information literacy, plagiarism, citations, academic integrity, intellectual property rights are the most emerging are in LIS research, whenever open access, E-books, institutional repositories and collection

development are the subjects is showing declining themes.

- Bibliometric, scientometrics, citation analysis, academic library and E-learning are popular basic subject of LIS research in India.
- Library marketing, digital library and academic library cataloguing, are popular research are during 2012–2017 whenever information retrieval, E-learning, information literacy, plagiarism and social media are the research themes found during 2018–2022. Bibliometric and e-resources is evergreen research area in LIS educations.
- On the basis of basic themes the current trend of research in LIS education in India are bibliometric, scientometric, infomatrix, information literacy, research productivity, research data managements, consortiums, plagiarism, academic integrity and publication misconducts.
- E-learning, service quality of library, human resource management are peripheral area of research whenever augmented reality, research evolution, citation impact, digital conservation and preservation, social media, knowledge managements, bibliometric, knowledge sharing and social networking sites are the emerging are of future research in LIS educations in India.
- After India, Nigeria found as most publishing country with 17 (2.66%) publications and 79 (2.72%) of citations, followed by Indonesia 17 (2.66%) and 44 (1.52%) of citations.
- University of Delhi contributing the highest 46 (7.2%) publications with 229 (7.9%) of citations followed by Council of scientific and Industrial Research, New Delhi with 22 (3.4%) publications and 152 (5.2%) of citations.

Conclusion

The study analysed 639 research articles published in DESIDOC journal of library and information technology, a prestigious journal within the library and information science in India, from 2012 to 2022, along with their citation patterns. The research revealed that the publication patterns of the journals in not in linear way, 2012 marked the highest publishing

with 67 articles, while 2022 witnessed the lowest with only 47 articles. bibliometric, scientometric, infometrics, information literacy, research productivity, research data managements, consortiums, plagiarism, academic integrity and publication misconducts are the current research trends in LIS in India whenever E-learning, service quality of library, human resource management are peripheral area of research. Augmented reality, research evolution, citation impact, digital conservation and preservation, social media, knowledge managements, bibliometric, knowledge sharing and social networking sites are the emerging are of future research in LIS educations in, with notable involvement from institutions like university of Delhi and the Council of scientific and Industrial Research, New Delhi, India. In sum, this study underscores India's significant influence in Scientometrics, bibliometrics and citation analysis research, offering valuable insights into the field's evolving dynamics during the study period.

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