Metrics, Indicators, Mapping and Data Visualizations in Webometrics, Informetrics and Scientometrics

Editors:

Dr. Parveen Babbar

Dr. P K Jain

Dr. Bernd Markscheffel

Dr. Debal C Kar

Ms. Rabiab Sangchantr

Metrics, Indicators, Mapping and Data Visualizations in Webometrics, Informetrics and Scientometrics

Metrics, Indicators, Mapping and Data Visualizations in Webometrics, Informetrics and Scientometrics

Editors:

Dr. Parveen Babbar
Dr. P K Jain
Dr. Bernd Markscheffel
Dr. Debal C Kar
Ms. Rabiab Sangchantr

B.K. Books International
Delhi

Metrics, Indicators, Mapping and Data Visualizations in Webometrics, Informetrics and Scientometrics

Dr. Parveen Babbar, Dr. P K Jain, Dr. Bernd Markscheffel, Dr. Debal C Kar, Ms. Rabiab Sangchantr

© Editors, 2022

All rights reserved. No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system, without permission in writing from the copyright holder.

ISBN: 978-81-932517-7-5

First Published in 2022 by:

B.K. Books International
3/79, Nirankari Colony,
Delhi-110009
Ph.: 011-27601283
E-Mail: bkbooksinternational@gmail.com

Distributors:

Bookwell
3/79, Nirankari Colony,
Delhi 110009, India
Ph: 91-11-27601283, 9810043240
E-mail**:** bookwelldelhi@gmail.com
Website: www.bookwellindia.com

Preface

After two years, where it was not possible to hold the COLLNET meeting on a regular basis due to the effects of the Corona pandemic, we are happy and proud to be able to hold a conference for the Scientometrics community again this year. For more than twenty years this conference series has been a fixed date in the calendars not only of the members of the COLLNET community. We are glad to have found partners in Chulalongkorn University Bangkok and the Thai Library Association (TLA) in association with the Society for Library Professionals (SLP) and Asian Community, Special Libraries Association (SLA) to support us in organizing and running this event.

On January 1, 2000, under the leadership of Hildrun Kretschmer (DEU), together with Liming Liang (CHN) and Ramesh Kundra (IND), the global interdisciplinary research network COLLNET was formally founded. Ramesh Kundra was at this time senior researcher at National Institute of Science, Technology and Development Studies (NISTADS - New Delhi is currently merged into the Council of Scientific & Industrial Research (CSIR), a think tank which has its vision in enhancing the quality of life of the citizens of India through innovative Science and Technology, globally competitive R&D, by developing sustainable solutions and capacity building), Liang Liming was Professor at the Institute for Science, Technology and Society, Henan Normal University, and Hildrun Kretschmer was at this time private lecturer at Free University Berlin and became later a honorary Professor at Henan Normal University.

The main motivation for the foundation of the global interdisciplinary research network "Collaboration in Science and in Technology"- COLLNET - was:

> "*The rise in collaboration in science and technology experienced world-wide at national and international level, has assumed such an overriding importance that there is now an urgent need perceptible to study such processes with a view to acquiring fundamental knowledge for organizing future research and its application to science and technology policies.*"[1]

The integrative character of the COLLNET conferences implied by this is reflected not at least in the variety of different approaches to problem solving and the interdisciplinary oriented research questions and contents. Therefore, it is hardly surprising and is illustrated in the present conference proceedings that in their research the majority of our contributors address a multifaceted content spectrum by the great variety of the research topics considered. The scope of the content ranges from Natural Language Processing and Text Mining (6 papers), Scientific Mapping and Collaborations (6 papers), Citation Studies (6 papers) to the consideration of Bibliometric Analysis and Research Trends (14 papers) and Scientometric-, Webometric-, and Altmetric-Analysis (15 papers) to Publications and Publication Policies (8 papers) and Knowledge- and Library Management (13 papers). There was a significant international representation, with participants coming from research centres in Asia, Europe and North America.

The editors are confident that this publication will provide the reader a broad overview of the latest findings in the thematized research areas, and that it will be a valuable reference source for further research.

The editors would like to express their sincere appreciations and thanks to all the authors for their thought provoking contributions to this publication. We would like to express our gratitude and appreciation for all of the reviewers for their constructive comments on the papers. Grateful acknowledgments are extended to Ms Shweta Dhingra and Dr Deepa Singhal for their devoted assistance in formatting the proceedings. We would also like to

[1] Hildrun Kretschmer, Liming Liang, and Ramesh Kundra (2001). Foundation of a global interdisciplinary research network (COLLNET) with Berlin as the virtual center. Scientometrics, Vol. 52, No. 3 (2001) 531–537.

extend our thanks to the members of the organizing team for their valuable work. And we are looking forward to further cooperation and collaboration and future COLLNET meetings.

Editors:

Parveen Babbar
P K Jain
Brend Markscheffel
Debal Kar
Rabiab Sangchantr

Contents

Preface *v*

Natural Language Processing and Text Mining.

1. Research on Technology Opportunities Discovery Fusing paper and Patent Semantic Space Vectors
Wang Kang and Chen Yue *1*

2. An Attempt to Automatically extract Academic Stories and Industry-Academia Collaborative Stories in Newspapers Using Machine Learning Models
Masaki Nishizawa and Yuan Sun *8*

3. Responsible Research – view behind the concept
Ülle Must *15*

4. Star Scientists' Prediction in the AI Scientific Ecosystem Using Machine Learning Techniques
Koosha Shirouyeh, Andrea Schiffauerova, Ashkan Ebadi. *22*

5. Detecting Emerging Topics in the Artificial Intelligence Scientific Ecosystem
Ali Ghaemmaghami, Andrea Schiffauerova and Ashkan Ebadi *30*

6. Keywords Extraction using Natural Language Processing: an Automation Technique to Strengthen the Representation of Documents in Libraries
Rajesh Chutia, Mukut Sarmah and Mousum Handique *39*

Scientific Mapping and Collaborations

7. Policy Measurement of Technology Transfer Incentives in Chinese Universities
Hao Tao, Lin Deming, Ding Kun and Kang Xudong *49*

8. Typology of Prescribed Collaboration in the Iranian Health Comprehensive Scientific Map (IHCSM)
Mohammad Hassanzadeh and Razieh Kaheh *60*

9. Simulating Scientific Collaborative Ecosystems to Understand the Role of Critical Actors
Mahsa Noori Najafi, Andrea Schiffauerova and Ashkan Ebadi *67*

10. Scoping Review and Informatics of Research Patterns in Bioengineering in India
Ujjawal Shukla *74*

11. Investigating the Impact of Different Research Funding Programs
Hamid Vosoughi, Andrea Schiffauerova and Ashkan Ebadi *87*

12. Towards Increasing the Share of Female Researchers' Funding in Science
Ashkan Ebadi and Andrea Schiffauerova *92*

Citation Studies

13. Citation Analysis of Research in Informatics Based on Co-Classification Universitas Katolik Musi Charitas
Chatarina Eka Oktavilia *99*

14. A Citation Analysis of LIS Research in the Philippines: 1980 – 2022
Janice Peñaflor and Joseph Marmol Yap *108*

15. Research on the Influence of Knowledge Flow on Technological Innovation Performance of Enterprises from the Perspective of Patent Citations
Song Chao and Chen Yue *119*

16. Study on citation accuracy of Iranian Journals in the field of Library and Information Science
Yasin Veisi and Amir Reza Asnafi *127*

17. Citation Analysis of Doctoral Theses of Library and Information Science, Babasaheb Bhimrao Ambedkar University, Lucknow, India
K L Mahawar, Sunil Goria and Preeti *137*

18. Are Publication and Citation Count Enough for Ranking Universities? Introducing A New Indicator for Evaluating Universities
R. Sevukan, J.P.S. Kumaravel and Mohamed Idhris *144*

Bibliometric Analysis and Research Trends

19. Pattern of Russian international collaboration with Iran, India and Turkey: bibliometric characteristics, InCites, 2011-2021
Valentina Markusova *152*

20. Exploring the Research Trend and its Relevance to the Current Curriculum of LIS Department UIN Sunan Kalijaga: A Bibliometric Analysis
Marwiyah and Thoriq Tri Prabowo *165*

21. Data Visualization of Educational Research on Critical Thinking and Problem- Solving Skills: A Bibliometric Analysis
Tatsawan Timakum, Sujira Ammarukleart, Nilobon Wimolsittichai, Sutthinan Chuenchom and Charochinee Chaimi *174*

22. Mapping the Progress in COVID-19 Vaccine Research: A Bibliometric Analysis of Publications Indexed in Scopus Database
Mahender Pratap Singh and Vijay Kumar Bharati *183*

23. Library and Mobile Technology Research Output and Visualization: A Bibliometric Analysis
Shiv Singh and Sanjay Kataria *196*

24. Awarded Doctor of Philosophy (Ph.D.) Theses of Manipur University during 1984 to 2020: A Case Study
M. Lokendro Singh and Bobby Phuritsabam *207*

25. Identifying Authorship Collaboration Patterns and Applying Bradford's Law of Scattering in the Department of Library and Information Science
TS Paumunmuang Simte and Bobby Phuristsabam *218*

26. Climate Change Research Productivity in BASIC Countries: A Metric Study
Ningombam Iroshini and Ch. Ibohal Singh *227*

27. Research on Research Data Management till 2021 as reflected in Scopus: A Bibliometric Analysis
Pallab Pradhan and Lavji N Zala *234*

28. A Bibliometric Analysis and Visualization of Covid Case Study
Jignesh Makwana and Trushna A. Gohil *250*

29. Bibliometric study of Scholarly Chemistry output of some selected Universities of India (2017-2021)
Mahendra Kumar Patel and Maya Verma *259*

30. Mapping the Geography of Sustainability Transitions Research: A Bibliometric Analysis
Raghvendra Singh Yadav *265*

31. Publishing Trends on Library Service Quality Literature: A Bibliometric Study
Shakil Ahmad, Praveen Babel and Manuel Raj Peter *285*

32. Evolution of Open Access Literature on Semantic Web: A Bibliometric Analysis
Raj Kumar and Sapna Kumari *295*

Scientometric Analysis

33. Towards Scientific Massage: A 20-years Scientometric Studyof Massage Therapy
Yousef Abedi *307*

34. The trends of Indonesian Scientific Publications Related to Covid-19: A Scientometric Analysis
Zhahirah Indrawati Zainuddin *320*

35. Scientometric Portrait of Prof. K R Venugopal, Bangalore University, Bangalore, India
M. Raghunandana, Charu Chandralekha S and V.T. Kamble *330*

36. A Scientometric Analysis and Visualization of Abelmoschus esculentus (Okra) Literature as seen through Scopus Database
Shailendra Kumar and Shyam Nath Yadav *339*

37. Publication Pattern Changes Due to Covid-19 Pandemic: A Scientometric Assessment
Jyoti Rana and R.K. Bhatt *353*

38. Mapping of Global Scientific Research and Trends in Crypto Currency: A Scientometrics Study
Prem Prakash Kushawaha, Sharad Kumar Sonkar and M. P. Singh *364*

39. Research Collaboration in UoK based on Co-Authorship Network Analysis: A Scientometric Study
Mubeena Beevi. M and B Mini Devi *373*

40. Scientometric Analysis of Indian Research Output on Nanotoxicology Based on Science Citation Index
Gururaj S. Hadagali, Renuka S. Mulimani, Rudramuni Hiremath, Rajesh N. Turamari and Shivanand Bulla *387*

41. Quantitative Analysis of Scientific Literature on Climate Change in India: A Scientometric Study
Tapas Kumar Das, Jignesh C. Makwana and Akhandanand Shukla 398

42. Breast Cancer Research of India during 2012-2021: A Scientometric Study
Gyanajeet Yumnam, Ch. Ibohal Singh and Rajkumari Sofia Devi 409

Webometric Analysis

43. Websites of State Veterinary Universities in India: A Webometric study
Kutty Kumar and P K Jain 420

44. A Webometric Analysis of Architecture Engineering Colleges in Karnataka, India
Shivanand D. Bulla, Rajesh N. Turamari, Shrinivas V. Shenvi, Arvind S. Nayak, Swatantrya A N and Sneha Bhandari 429

Altmetric Analysis

45. National Research Impact of Thai Universities Articles via Mendeley Readership count: An Altmetrics Study
Ashish Kumar Ahirwal and J. Shivarama 440

46. The Correlation Investigation of ResearchGate Behavior among the Universities Faculties of School of Physical Sciences in Tezpur University and Mizoram University: an Altmetrics Approach
Dibanjyoti Buragohain, Borna Nath and Amit Kumar 451

47. Understanding Altmetrics: An overview and Assessment
Gajender Singh and M. P. Singh 458

Publications and Publication Policies

48. Open Access to Scholarly Publications on the Internet and Academic Social Networks: Digital Copyright
Sharon Q Yang and Robert James Congleton 465

49. Keyword-based Automated Selective Dissemination of Information and Resources System for Special Libraries in Bangladesh
Md. Hasinul Elahi and Abdur Rahaman Sumon 471

50. Grey Literature in the Libraries of ICSSR Institutions in Delhi: Discussion of Problems and Prospects on the basis of an Users' Survey
Geeta Paliwal 478

51. How much do Indian Private Industries contribute to scientific research? A three-decade analysis using the lens of research publications indexed in Web of Science data
Bhaskar Mukherjee. 485

52. Preprint Repositories in India: A Case Study
Manu T R and Nabi Hasan 492

53. An Analysis of the Preprint Policies of the Communication Disorders Journals
Shijith Kumar C 501

54. Institutional Repositories: A Comprehensive Study
Leela Mohana Kumari.R *509*

55. Convergence of Print with the Emergence of Digital Communication Technologies
V.K. Bharti, Sanjay Bharti, M. P Singh and Kanwar Singh *515*

Knowledge Management and Library Management

56. Skilling the Library and Information Science Professionals
Nabi Hasan, Manu T.R. and Mohit Garg *522*

57. Assessment of Knowledge Management or Virtual Library Management in the Context of Use Access: The Contemporary Quest
Shiva Kanaujia Sukula *526*

58. Digital Repository: Today's Concept for preserve Knowledge in Digital Form
Hemant Sharma and Manoj Kumar Tiwari *540*

59. An Assessment of Social Media usage Patterns among Librarians of CSIR and DST- Institutes Libraries: A Preliminary Study
K.P.S. Sengar, Rajesh Kumar Lohiya and Rakesh Kumar Gupta *545*

60. Impact of Covid-19 Pandemic on Mental Health and Wellbeing of the Working Professionals in Academic set up: An Exploratory Study
Poonam Bharti and Shantanu Ganguly *557*

61. A Groundwork Revision of Anxiety among Library Professionals using GAD-7: A Picture of Covid-19 Consequence
Bidhan Dolai and Nitin S Joshi *570*

62. Remote Access to Academic Libraries using Online Platforms in India: A Comprehensive Study
P. Raghavaiah and K. Srikanth *577*

63. Adoption of Web 2.0 Technology in Libraries and its Impact to Library Community: A Study
Sanasam Sandhyarani Devi and Th. Purnima Devi 584

64. Use of Electronic Resources at IIM Kashipur: A study
Sanjeev Kumar Jha *593*

65. Educational Management for the 21st Century of Demonstration Schools
Pawinee Sorawech, Sriparinya Toopgrajank and Pimchana Sriboonyaponrat *608*

66. ICT Literacy Skills, Competencies and Information Searching Behavior among Women LIS Professionals of India: A Survey during COVID-19 Period
Sangita Yadav and Manoj Kumar Sinha *617*

67. Challenges of academic librarians in Thailand to promote Information literacy with the ACRL frame work
Rabiab Sangchantr *634*

68. Bibliometric Assessment of Articles Published in "Big Data & Society" from 2014-2021
Neha Garg, Joginder Singh Burman and Sunil Kumar *642*

20

Exploring the Research Trend and its Relevance to the Current Curriculum of LIS Department UIN Sunan Kalijaga: A Bibliometric Analysis

Marwiyah
Department of Library and Information Sceince
UIN Sunan Kalijaga Yogyakarta, Indonesia
Email: marwiyah.mlis@uin-suka.ac.id

Thoriq Tri Prabowo
King Mongkut's Institute of Technology Ladkrabang
Bangkok, Thailand
Email: toriq.prabowo@uin-suka.ac.id

Abstract

This research aims to explore the research trend in LIS fields, to identify productivity of LIS Department lecturers and to evaluate the relevance of the research to the current LIS curriculum with focus on 5 main areas: information resources, organization of recorded knowledge, Information Technology, Library Management and organisation and library services. It also discusses the potential to develop study on interdisciplinary field primarily related to the university values that become distinctive values; inclusivity, Javanese culture and Islamic values. This research uses bibliometric method by exploring bibliographic data of research work conducted by LIS lecturers gathered from university web. Research publications are then checked using publication and index sites such as Google Scholar, database online Scopus, SINTA, DOAJ. VOSviewer is applied to visualize and to map the web of research conducted by LIS lecturers. To identify its relevance to LIS curriculum, this research use content analysis approach. The findings show that during 3 years, there are 85 research publications produced by lecturers of LIS Department UIN Sunan Kalijaga. In terms of research topic, there is similarity between global trend and research trend conducted by LIS lecturers. Research topics also are relevant to LIS curriculum that includes 5 main areas, but topics related to distinctive values are need to be developed.

Keywords: Library and Information Science (LIS), Research Trend, LIS Curriculum, Bibliometri.

0. Background

Research is a fundamental mission of higher education as stated in most universities' mission. Also, research is a major function of higher education since the result of research is potential to contribute to knowledge development across disciplines. Higher education institutions have an academic contribution as powerful sources for scientific and technology advancement to help solving social problems faced by societies, to cultural development and fulfilment, to sustainable human development, to spread ideas of democracy and protection of the environment and to develop socio-economics (Özbaşi, 2019). In Indonesia, the significance of research in higher education is clearly stated in government law, *Permenristek* No 44 article 2 issued in 2015, in which research in higher education are directed to develop knowledge, science and technology, to enhance social welfare and to create competitive resources. Furthermore, to support research in higher education, Ministry of education released a policy on guide to implementation of lecturers' performance indicator as written in General Director of Higher Education and Culture policy. In this policy, research is an essential component of lecturers' performance indicator, in which

lecturers should produce research works in an academic year. Based on this policy, the number of researches should increase every year. However, according to SINTA (Science and Technology Index, Indonesian indexed-journals), the number of lecturers across disciplines who produces research-based work is not satisfying. In 2020, only 200.000 out of 305.000 Indonesian lecturers that publish their research in Indonesian indexed journals (Pratama, 2020). In international context, it is found that there is a significant increase in Library and Information Science (LIS) scholarly publication that encourage researchers to review these publications to identify the recent and future contribution of research in LIS field to society (Wijewickrema, 2022).

Library and Information Science Department also has responsibility to contribute to knowledge development in LIS field through research and to empower community in general context. Therefore, Library and Information Studies (LIS) lecturers should actively conduct research based on LIS field as explicitly stated in curriculum. Curriculum of LIS Department UIN Sunan Kalijaga consists of five main cluster; information resources, organization of recorded knowledge, Information Technology for LIS, Library Management and organisation and library services. The curriculum also has distinctive element derived from university values; inclusivity, Javanese culture and Islamic values. Therefore, the research conducted by lecturers should relate to those topics. While many scientific works on LIS field are recently published in international journals, it is important to identify the productivity of the lecturers of LIS Department UIN Sunan Kalijaga in conducting research that can be seen in journals publication, books and conference proceeding. It is also important to find trend of research performed by LIS lecturers and its relevance to curriculum. This research aims to explore the research productivity of LIS Department lecturers and to identify the research trend. This research will also evaluate the relevance of the research to the current LIS curriculum with focus on 5 main cluster and its potential to develop study on interdisciplinary field primarily related to the university values (inclusivity, Javanese culture and Islamic values) as distinctive values.

1. Literature Review

1.1. Higher education and research

Higher education institutions have three main mission and functions, teaching and learning, research and community services, and the implementation of these functions and mission become indicators to measure the quality of those institution. According to Olvido (2021) assessment to higher education consists of two components namely academic and research evaluation. Most university accreditation standards use these three functions as indicators to determine university rankings that show the quality of the university as developed by QS World University Rankings that place productivity of research as main priority. This priority is based on the argument that research generates new knowledge that will become a distinguishing characteristic of the university (Olvido, 2021). In Indonesia, assessment of university ranking conducted by the Research and Higher Education Ministry also put research as one of ranking indicators (Sayidah et al., 2019).

The significance role of higher education to contribute to community and science development is supported by government law and policies. Indonesian government released Policy on Lecturers' performance indicator through *Keputusan Direktur Jenderal Pendidikan Tinggi Kementrian Pendidikan dan Kebudayaan* No 12/ E/KPT/ 2021 that underline research as one of important components. The policy states that lecturers as researchers have responsibility to develop knowledge across discipline, science and technology through research and distribute the research result to society. With largest science and technology human resources, higher education is research institution that has made big contribution in research output target achievement in Indonesia (Hermanu et al., 2022).

1.2. Library and Information Science Curriculum

Curriculum is one of important elements in higher education to support teaching learning process. Curriculum is a guideline in the form of teaching plan in which learning processes should be based on (Marwiyah and Labibah, 2018). In the curriculum development process, there are three factors that should be considered:

- the knowledge developed by the university
- the society in which curriculum should reflect
- system of value (Sukiman, 2014).

Basically, curriculum is developed based on competencies needed to be a professional. In the field of LIS, competencies for profession of librarianship have been developed by professional associations such as IFLA and American Library Association (ALA). According to IFLA (2012), there are 11 core elements for LIS curriculum:

- The Information Environment, Societal impacts of the information society; Information Policy and Ethics, the History of the Field;
- Information Generation, Communication and Use;
- Assessing Information Needs and Designing Responsive Services;
- The Information Transfer Process;
- Information Resource Management to include Organization, Processing, Retrieval, Preservation and Conservation of Information in its various presentations and formats;
- Research, Analysis and Interpretation of Information;
- Applications of Information and Communication Technologies to all facets of Library and Information Products and Services;
- Knowledge Management
- Management of Information Agencies;
- Quantitative and Qualitative Evaluation of Outcomes of Information and Library Use;
- Awareness of Indigenous Knowledge Paradigms.

Meanwhile, ALA divides core competence of librarianship into 8 main categories:

- Foundations of the Profession;
- Information Resources;
- Organization of Recorded Knowledge and Information;
- Technological Knowledge and Skills;
- Reference and User Services;
- Research;
- Continuing Education and Lifelong Learning;
- Administration and Management (ALA, 2009).

1.3 Bibliometric

Higher education has responsibility to contribute to community through various format (including academic works), therefore university output should be evaluated to ensure the productivity of HEIs in scholarly publications as the form of contribution to society. Ball (2017) identifies two approaches to evaluate university output and its impact on disciplines development;

- qualitative method using peer review technique
- quantitative applying bibliometric analysis.

The term bibliometrics has appeared in 1969s and was defined as application method of mathematical and statistical methods used in books and other communication media(Andrés, 2009). Basically, the objective of bibliometrics is to assess scholarly literature in a given discipline. In practice, bibliometrics is applied to measure the number of publications of researchers, hence by using quantitative approach, bibliometric will measure the number of citations as key indicator. Publications with more citations are regarded as good and important resources (Ball, 2017).

Recently, bibliometrics becomes statistical technique applied to measure productivity and impact of scholarly works across disciplines, productivity of organisation, references and country that generates publications and most proliferate researchers that can be traced through their cited publications (Siddique et al., 2021). Therefore, bibliometrics methods is widely used, as it also has important role in identifying the weakness and strength of certain field, and the most focused and ignored study by researchers (Siddique et al., 2021).

2. Methodology

A bibliometric method is used in this research by exploring bibliographic data of research work conducted by LIS lecturers during the last three years (2019-2022). This research only focusses on 2019-2022 since in these years the world not only faces the industrial revolution 4.0 but also the spreads of COVID-19 that attract researches to focus on these issues. The data of publications are gathered from university web. Furthermore, the publications are verified using publication and index sites such as Google Scholar, database online Scopus, SINTA, DOAJ. This study uses VOSviewer as a data visualization tool because its features can visualize and map the web of research conducted by LIS lecturers. This study will only analyse the relationship between documents and co-occurrence analysis in order to study the research trends of the linked domains. The keyword co-occurrence can be used to identify research trends because it represents the cumulative knowledge of the research topic area being studied. And to evaluate its relevance to LIS curriculum, we will analyse the cluster of topics using qualitative approach based on LIS curriculum developed by LIS Department, UIN Sunan Kalijaga with focus on 5 main areas and 3 distinctive values.

Tabe l 1: Main areas and distinctive values of LIS Curriculum

No.	Main Areas	Distinctive values
1.	Information resources	Inclusive
2.	Organization of Recorded Knowledge and Information	Javanese culture
3.	Information Technology for LIS	Islamic values
4.	Library Management and organisation	
5.	Library Services	

3. Findings

3.1. Trend and topics of research

The research found 23 research-based publications conducted by senior lecturers during 2019-2022 from Google scholar and other platforms. Using VOS Viewer, the visual of research trend shows that there are five research topics: social media, covid-19, innovative library services, library services and disabilities awareness as illustrated in figure 1 below.

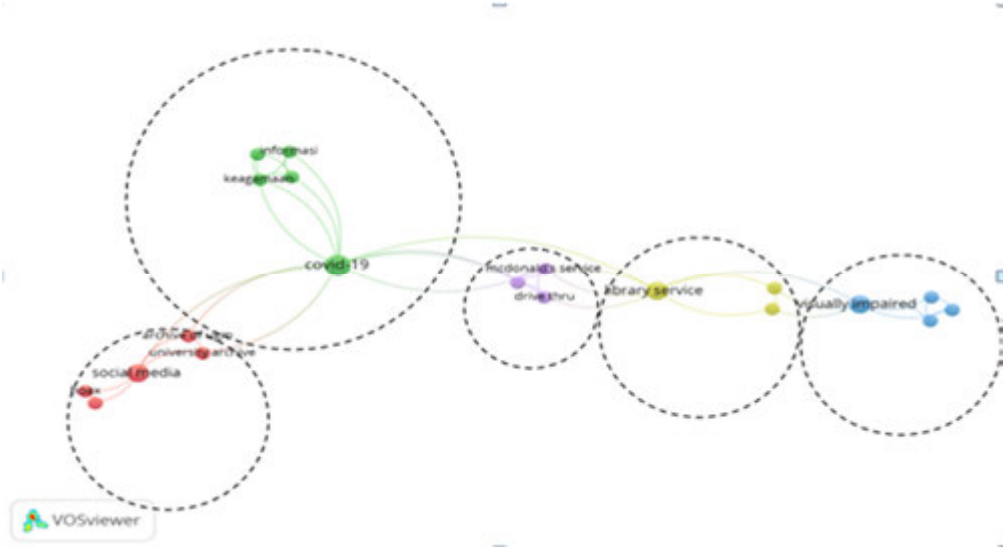

Fig. 1: Research trend of lecturers of LIS Dept. UIN Sunan Kalijaga 2019-2022

These five topics are basically interrelated and covid-19 is central topic and most-frequently studied. Covid-19 outbreak that became global issues has encouraged researchers to conduct research on how this pandemic has contribution to global impact. Therefore, it is reasonable that during pandemic, Covid-19 become popular topic for most researchers. LIS Department lecturers also show their interest in studying this issue related to the impact of pandemic to library, mainly library services. More specifically, we can find research on how libraries and librarians respond pandemic outbreak in providing library services for users. During pandemic, there are two main issues in responding pandemic era, first issue on how libraries should adapt covid-19 situation by providing more innovative services. Second topic is anticipating strategy to evaluate fake news and hoax on Covid-19. This research shows that libraries have important role to prevent fake news and hoax through social media. Religious values (Islamic values that teach Moslem to be critical in dealing with new information) also contribute to prevent hoax. For library services, this study indicates that adaptation is required to offer library services during pandemic by making some changes in the way library serve their users, for example from onsite to online service or combining onsite and online services aa well as implementing health protocol policy. Other aspects of service are also found in this study like innovative services adapted from fast food service and accessible library services for users with visual impairment during pandemic.

On the hand, global trend of research on LIS shows that there are 4 main clusters as can be seen in figure 2.

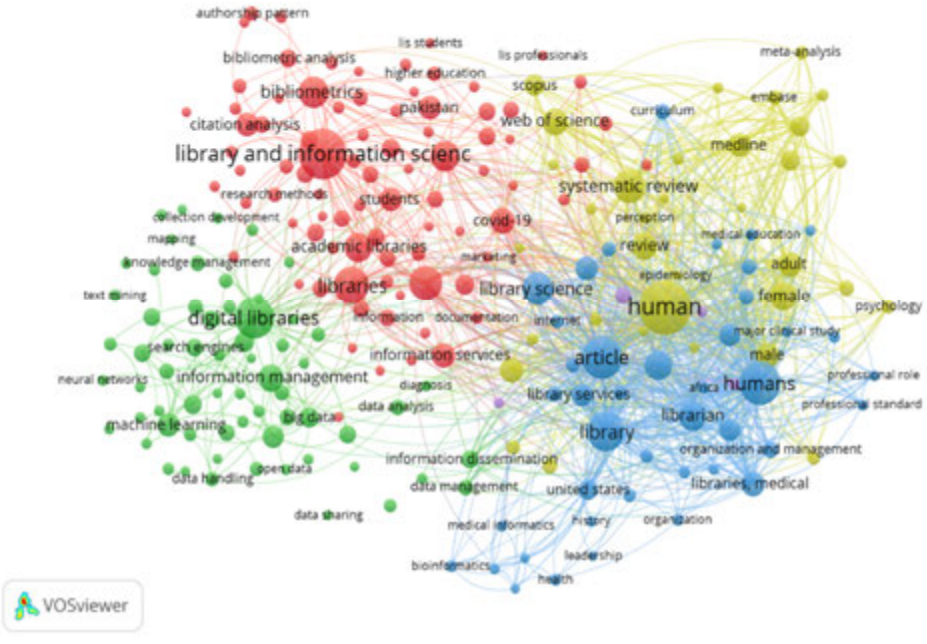

Fig. 2: Global trend of research on LIS based on Scopus database

Based on data from Scopus databases, global trend of research on LIS covers 4 issues;

- Library and information research;
- Library and information technologies;
- Information behaviour;
- Library and information related to health issues.

Meanwhile, research on covid-19 pandemic is minor cluster that visually hardly can be detected in the figure. This shows that there is difference between global and LIS Department in terms of research trend. However, global research shows that there are topics on the use of technology for library services and the use of library as research

resource. This means that there is similarity between global and LIS Department research in terms of research topics.

3.2. Research theme based on publication year

From figure 5, it is clear that before covid-19 pandemic became global issues, library service and issue on disability awareness are major research topics in mid-2019. Then, from the beginning to mid of 2020, covid-19 became most popular research topic as most countries implement lockdown policy. And in LIS Department, there are some titles related to covid-19 like innovative services and impact of covid-19 on user behaviour in accessing information and library service. Research on social media related to covid-19 appeared in 2021, while research topic in 2022 is not clearly defined.

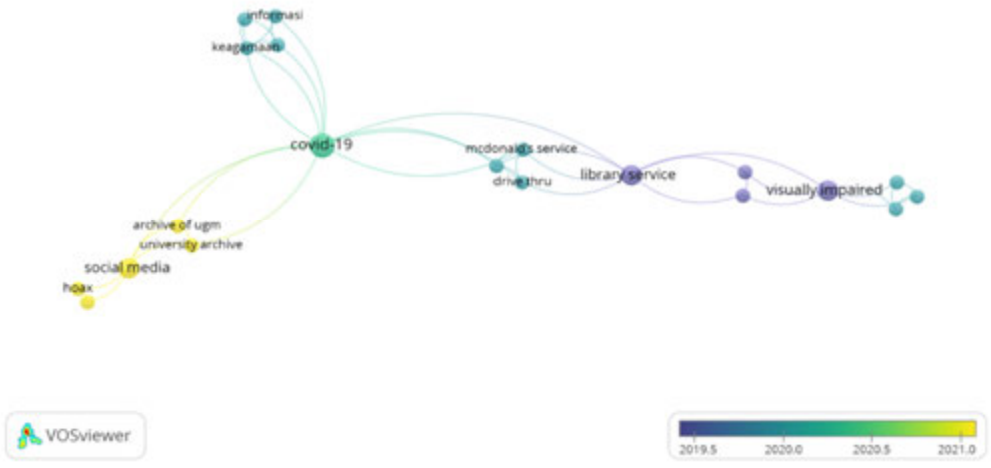

Fig. 3: Research topics based on publication year

Related to the research productivity from 2019-2021, as indicated in table 1 below, it can be seen that the number of researches increases every year. The exception happens in 2022 where only one research publication produced by LIS lecturer since the data was gathered in the beginning of 2022 while most of LIS journals, primarily in Indonesia, are published on midyear and at the end of the year. Therefore, the data in 2022 is not completely recorded during data gathering.

Table 2: Research Productivity 2019-2022

No.	Year	The Number of Publications
1	2019	16
2	2020	29
3	2021	37
4	2022	1
Total: 83 publications		

3.3. Density of research topic

The visuals of the density illustrate in figure 4 shows that there are topics that fall into the 'shadow' of the big cluster.

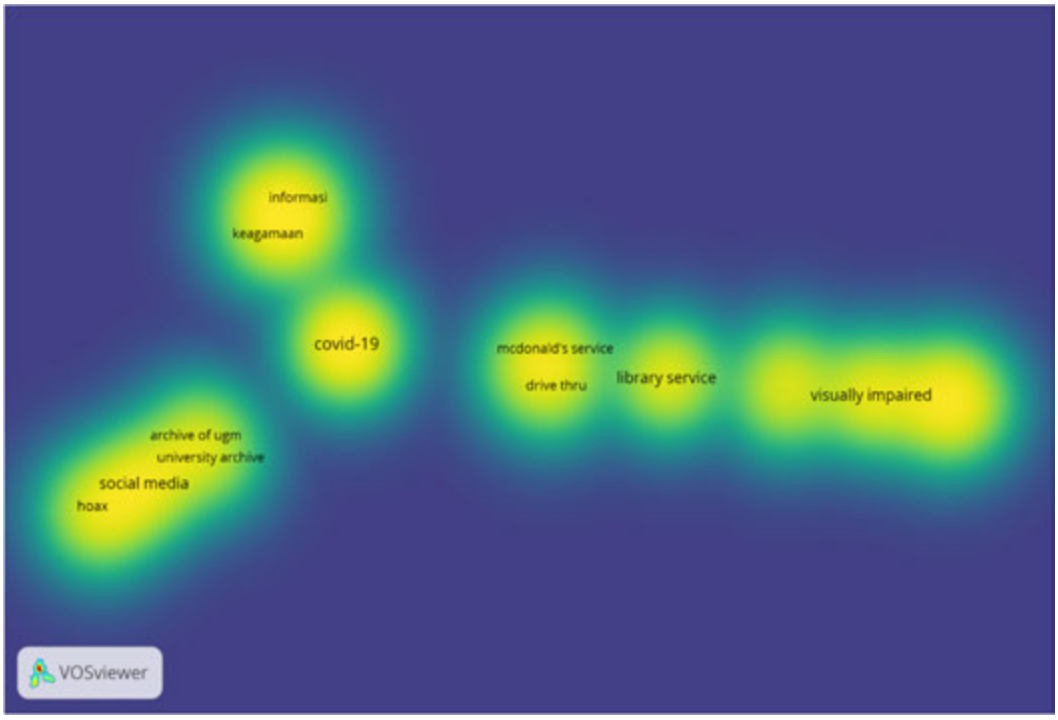

Fig. 4: Density of research topics

Some topics that have not been commonly studied are shown in dimmed color. In the social media cluster, there is the topic on student behavior toward social media which has been studied only once. Furthermore, for the library service innovation in pandemic era and other innovation concepts are also open for research and research development, for example adapting library services to address the needs of net generation and the accessibility of information for persons with disabilities. Based on the research that has been done, it is found that the *net generation* is familiar with library services that implement the concept of a drive thru.

3.4. The Relevance of the research to LIS curriculum

Based on content analysis of research publications, it is found that there are 39% of research on Information and Technology for library that mostly are related to the use of IT to support library services like the use of social media, application for information retrieval and user behaviour toward technology applied in library services or social media, while research on library services reach 35%. This means that library service is another major research topic conducted by LIS lecturers with the use of diverse approach. Meanwhile, the study only finds few researches on three areas; information resources (8,7%), organisation recorded knowledge and information for information retrieval (8,7%) and library management (8,7%). Topic on Information resources focus more on the use of information from social media and digital literacy competencies of library users while information organisation is discussed as a part of information technology application for information retrieval tools. Management also becomes minor topic with focus on the implementation of management principles, primarily related to human resources and library facilities.

This data shows that although there's significant gap in research topic proportion, but all research topic conducted by lecturers of LIS Dept. UIN Sunan Kalijaga during 2019-2022 are relevant to curriculum that underline five main areas. This study also uncovers that only few researches that discussed three distinctive values of LIS curriculum; Islamic value, Javanese and inclusive value. There is only 1 research that reflect Islamic value, and 5 research that discuss inclusive issues such as library and disabilities, library for older people. Meanwhile, research on Javanese is not found.

4. Conclusion

Research trend in LIS field conducted UIN Sunan Kalijaga and in global world basically has similarity in terms of research topics. Topics related to global issue such as Covid-19 pandemic become interesting topics that attract

researchers to discuss that topic, mainly that relate to library services. The difference between global and LIS reach trend is on the explicit use of term covid-19 in the title and keyword of research papers. Most global research use term "information on health" instead of covid-19 and consequently, the scope of research discussion become broader. Concerning to the use of information technology in library services, trend in global research provide more varied and broader topics compared to trend research in LIS UIN Sunan Kalijaga which still focus only the use of internet and social media. However, research conducted by lecturers in LIS Department is relevant to curriculum that focus on 5 main clusters: Information resources, Organization of Recorded Knowledge and Information, Information Technology, Library Management and organisation, Library Services. Nevertheless, topics related to UIN Sunan Kalijaga value are still limited. Also, most research on this topic are delivered in Indonesian language that cannot be found in global research. Therefore, it is potential to develop LIS research using interdisciplinary approach that include distinctive values namely inclusive, Javanese and/ or Islamic values that represent distinctive curriculum of LIS Sunan Kalijaga.

References

Andres, A. (2009). *Measuring Academic Research How to undertake a bibliometric study*. Elsevier.

Ball, R. (2018). *An introduction to bibliometrics: new development and trend*. Chandos Publishing

Hermanu, A. I., Sari, D., Sondari, M. C., & Dimyati, M. (2022). Is it necessary to evaluate university research performance instrument? Evidence from Indonesia. *Cogent Social Sciences*, *8*(1), 2069210.

Kementerian Pendidikan dan Kebudayaan. (2021). Salinan Keputusan Direktur Jenderal Pendidikan Tinggi Kementerian Pendidikan dan Kebudayaan No 12/ E/KPT/ 2021 tentang Pedoman operasionan beban kerja dosen. Retrieved from Salinan-Kepdirjendikti-tentang-PO-BKD-compressed.pdf (kemdikbud.go.id)

Marwiyah & Labibah (2019). An exploration on the characteristics of Library Science Curricula at the universities under Indonesia-Islamic Higher Education (PTKIN) based on IFLA Standard and the National Qualification Frame of Indonesia (KKNI) In Jain, Kar and Babbar (Eds.), *Libraries and Librarianship in Digital Plus Era*. Ane Books.

Olvido, M. M. J. (2021). Developing Research Culture: An Outcomes Perspective. *Journal of Research Administration*, *52*(1), 15–37.

Özbaşi, D., (2019). Role of Research and Knowledge Creation in Higher Education (Turkey). In Bloomsbury Education and Childhood Studies. London: Bloomsbury Academic. DOI: 10.5040/9781350995932.0011

Pratama, A. A. (2020, August 16). *Lebih dari sepertiga dosen Indonesia tidak menerbitkan riset: 3 solusi memperbaikinya*. The Conversation. http://theconversation.com/lebih-dari-sepertiga-dosen-indonesia-tidak-menerbitkan-riset-3-solusi-memperbaikinya-140248

Rosas, N. L. (2013). Strengthening Research Culture in Higher Education. *NEU School of Graduate Studies Research Journal* 1(1), 1-1.

Sayidah, N., Ady, S. U., Supriyati, J., Sutarmin, S., Winedar, M., Mulyaningtyas, A., & Assagaf, A. (2019). Quality and University Governance in Indonesia. *International Journal of Higher Education*, *8*(4), 10-17.

Siddique, N., Ur Rehman, S., Ahmad, S., Abbas, A., & Khan, M. A. (2021). Library and information science research in the Arab World: A bibliometric analysis 1951–2021. *Global Knowledge, Memory and Communication*.

Smith, K., Hallam, G., & Ghosh, S. B. (2012). Guidelines for Professional Library/Information Educational Programs—2012.

Song, Y., Wei, K., Yang, S., Shu, F., & Qiu, J. (2020). Analysis on the research progress of library and information science since the new century. *Library Hi Tech*.

Sukiman (2014). *Pengembangan Kurikulum Perguruan Tinggi*. Bandung: Remaja Rosda Karya.

Wijewickrema, M. (2022). A bibliometric study on library and information science and information systems literature during 2010–2019. *Library Hi Tech*.

www.ala.org. (2022, May 9). *2021 Update to ALA's Core Competences of Librarianship* [Text]. Education & Careers. https://www.ala.org/educationcareers/2021-update-alas-core-competences-librarianship