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Analyzing Global Trends and Collaborations in Library and Information Science Research: A Bibliometric and Social Network Analysis Perspective

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Abstract

Universities globally have long been pivotal in fostering education, research, and societal service. Since the research is a key driver of university missions, it enhances institutions' reputation and academic standing. In Library and Information Science (LIS), producing publishable research is crucial, constantly adapting to educational trends like technology and big data. This study employed Bibliometrics and Social Network Analysis (SNA) to examine LIS research output, employing the Bibliometrix-R package to analyze trends in 14,517 Scopus articles from 1954 to 2023. Additionally, the content analysis was also employed to cover the Bibliometrics analysis on the topic of computer science, decision science, physics, engineering, social science and mathematics. The findings highlighted that Wuhan University and Chinese researchers in China were at the first rank in LIS International research and collaborations based on keyword searching with 'Information Science' and 'Information Retrieval' in Scopus. As a result, the study would assist in the LIS research development and future international collaborations and suggested that the need for a broader database and keyword refinement should be included in future studies.

Keywords: Bibliometric, LIS, Library and Information Sciences, Social Network Analysis, University.

Introduction

Library and Information Science (LIS) education and research play a paramount prominence in university institutions around the world since it was constructed in the 1960s from various knowledge disciplines such as Computer science, Information systems, Knowledge management, Digital education, and Information management. Hence, it might be assumed that the sciences play an important role in supporting teaching, research, and social services (1). One of the important fields of research in LIS is the bibliometric techniques, which was to increase efficiency for job classification and data analysis research. The analysis would affect personal development and job development in educational institutions (2). Furthermore, the biometric analysis would help to identify the university's expertise or cooperation as well as comprehend the current and past state of LIS studies for effective curriculum planning and research support (3). Therefore, the LIS field would play an important role in library operations in educational institutions, research support services provision, and the intellectual structure planning to prepare the LIS education to support other related operations in the technology and communication (ICT) era (4, 5). Global trends in LIS research reflect the growing importance of international collaborations, driven by technological advancements and a shared focus on critical themes like big data, digital libraries, and bibliometrics. However, significant challenges remain, particularly concerning the inclusion of underrepresented regions and diversity in research priorities. By fostering more inclusive collaborations and addressing emerging global challenges, the LIS field can continue to evolve and remain relevant in a rapidly changing information landscape. Additionally, based on the LIS literature reviews, the bibliometric analysis was mostly found in the methods, objectives, and different research areas. In this study, the researcher has divided the literature review into three main categories: Bibliometric analysis: the analysis of databases of publications, researchers, publication sources, countries, institutions, the keywords and citation such as citations rank from the author, type of publication , publication sources or h-index, g-index, i-10 index, FWCI values, etc., which

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considered as a quality indicators of the articles, 2) Social network analysis: the analysis of three-filed plot analysis, co-occurring keyword analysis, co-citation, cooperation network, and revolution in different time periods to comprehend the trends and research topics for future research planning and decision-making, 3) Content analysis: the analysis of research articles, the author, DOI, name of the journal published, publication year, objective and results/conclusion according to content analysis modified (6, 7). As such, the Library and Information Science (LIS) research would play a pivotal role in developing and enhancing information management systems across various organizations and institutions, supporting efficient operations, and contributing to organizational and societal growth. This research was instrumental in advancing information technology and innovation, utilizing analysis and strategic planning as key methodologies. For example, the study was crucial to identify the underlying issues or gaps within the LIS profession. Similarly, researchers (8) highlighted the acceleration of the service standards, formulating new theories, and expanding knowledge (9) through barometric and social network methods. The Bibliometrics has analyzed the data from the research output through research articles, types, and patterns of social networks related to research and the highest research citations. The study's objectives were to analyze university journal articles in LIS through bibliometric analysis to explore the types and patterns of social networks in research collaborations and assess the research content of the most cited studies according to the research objectives.

Methodology

This study employed a bibliometric and social network analysis according to some previous research (10, 11) as shown in Figure 1. The data used in this study was gathered from Scopus, one of the largest and most comprehensive abstract and citation databases, on September 10, 2023. The search process was meticulously guided by a thorough review of existing literature in Library and Information Science (LIS), drawing on influential works by some researchers (12, 13) to ensure the selection criteria were relevant and comprehensive. The search strategy employed specific keywords, utilizing TITLE-ABS-KEY, a Scopus search parameter targeting indexed articles' titles, abstracts, and keywords. The terms used in the search included variations of "library and information science," such as "library and information science*," "library science*," "information science*," and the common acronym "LIS." Additionally, to narrow the focus to academic contributions, the AFFIL (universit*) parameter was employed, ensuring that the results primarily included works affiliated with university institutions. The search spanned an extensive period from 1954 to 2023, enabling the analysis of historical trends and developments in LIS research over nearly seven decades. The study focused solely on research articles published in English-language journals, as these are the predominant medium for global scholarly communication and would provide the most accessible and comparable dataset for international collaborations. In refining the dataset, additional steps were taken to ensure the data was relevant and targeted toward LIS research. General terms and keywords frequently used in various research disciplines but irrelevant to the core LIS focus were excluded. These included terms such as "article," "human," "male," "female," "adult," and "child," which are often present in studies from other fields like medicine, psychology, or biology but do not contribute to the objectives of this analysis. This refinement process ensured that the dataset remained focused on LIS-specific studies and was free of unrelated material, providing a clearer foundation for bibliometric and network analyses. As the bibliometric analysis involved no human subjects, it did not require approval from a Research Ethics Board (IRB, 14). The data was then saved as a .csv file, meticulously checked, and clean data. Ultimately, this process resulted in a dataset of 14,517 valid research articles, ready for further analysis using the Bibliometrix R-Package. This comprehensive dataset forms the basis for the study's subsequent discussion and conclusions, as detailed in Figure 1.

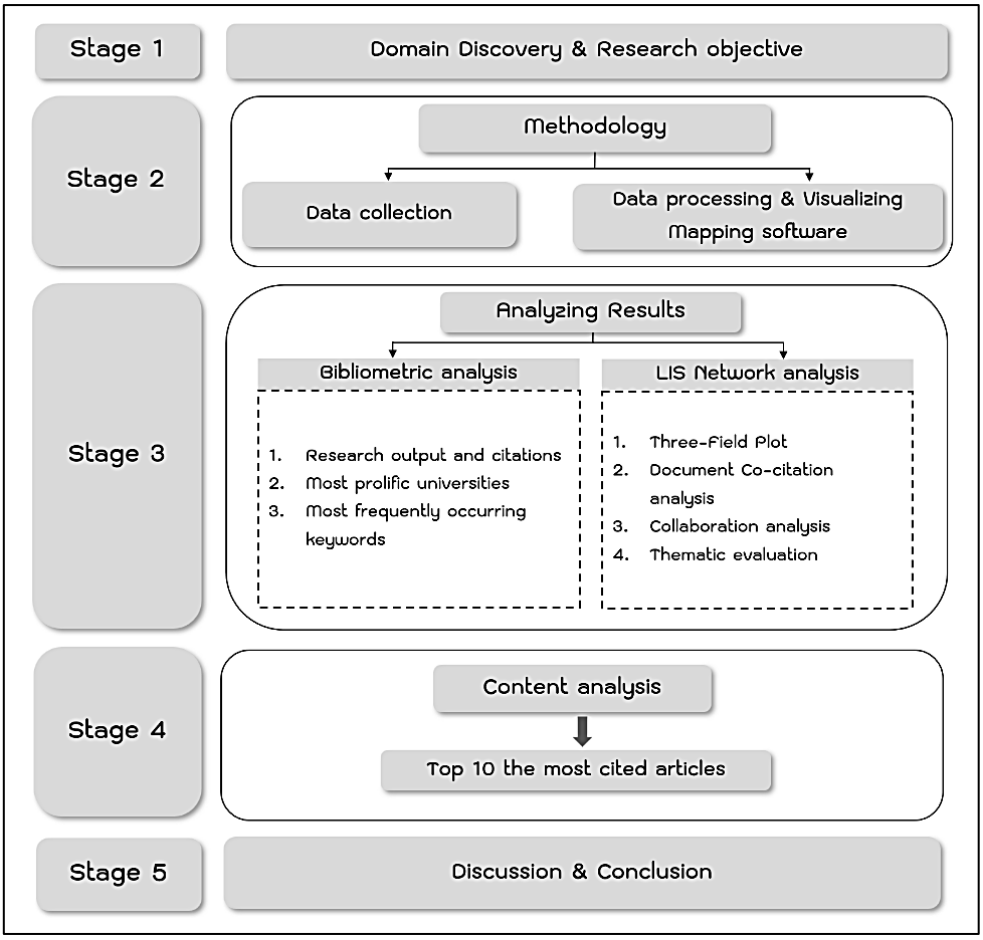


Figure 1: The Procedure of Bibliometric Analysis and Social Network Analysis [Modified from some previous research (10, 11)]

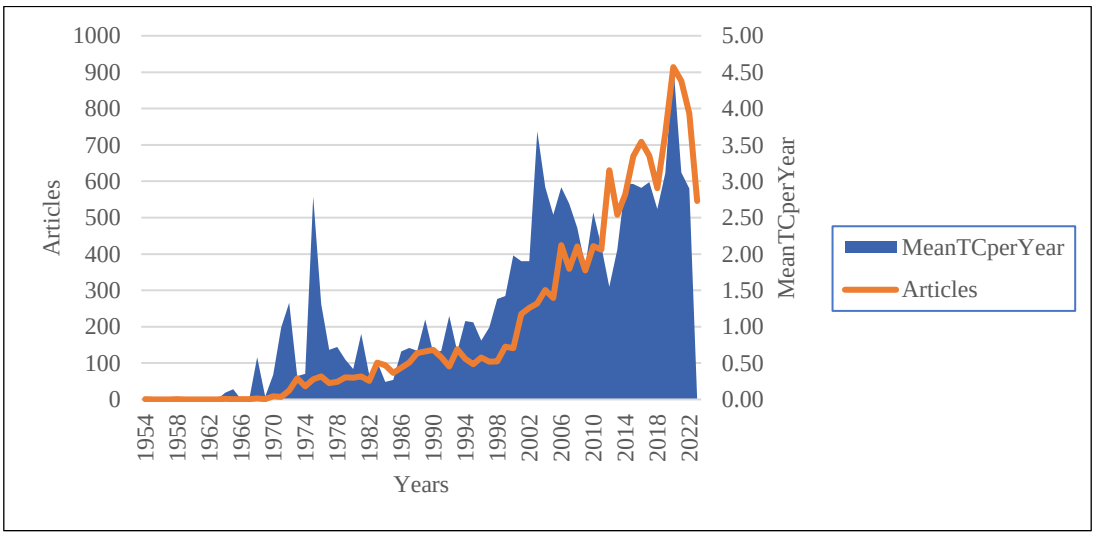


Figure 2: Research Output and Mean Total Citations of LIS Articles

Results

This study has divided the results into three main parts as follows: 1) the LIS research articles by the bibliometric methodology, 2) the LIS Social Network analysis, and 3) the Content analysis of the LIS top-ten most cited research articles. The scope of the study was research articles analysis, which was published in English in LIS academic journals from the university in Scopus.

Bibliometric analysis

Research Output and Citations

Figure 2 illustrates the annual publication trends and average citations per year in the Library and Information Science (LIS) field from 1954 to 2023. In 2020, it stood out with the highest number of published research articles, with a total of 914 articles. In contrast, the period from 1954 to 1971 has fewer than 10 articles published annually. The overall citations have steadily increased over the years, with an annual growth rate of 9.56%. The collaboration trends also show an average of 2.82 persons or co-authors per document, with 17.39% and these were international collaborations. Notably, the average yearly citations have risen consistently since 1972, with 2020 marked as the peak in average annual citations, more than 4.61 times higher than previous years. However, in recent years, from 2022 to 2023, the citation rate has declined compared to previous years.

The Top University

Table 1 shows the university with the most relevant research articles at Wuhan University in China, with 269 articles, followed by the University of California and Nanjing University of Information Science and Technology, with 250 and 131 articles, respectively. As for the research results, the universities ranked 4 to 6 were found at the University of Science and Technology of China (121 articles), Nanjing University (117 articles), and Indiana University (115 articles). Meanwhile, universities ranked 7 to 8 had the same number of research articles, about 109 articles, at Nanyang Technological University and Northwestern University from Singapore, and in the United States, about 107 articles and 105 articles, respectively. The overall analysis indicated that the universities with the most relevant research articles from four Chinese universities have the greatest influence on research in LIS, followed by the USA from four famous universities, which can be seen that universities in Asia tend to be the leaders in LIS research, particularly China, Pakistan, and Singapore, and the America universities were also play a vital influence on research output were as follows.

Table 1: Top 10 Most Prolific Universities

Rank	University	Country	Articles
1	Wuhan University	China	269
2	University of California	USA	250
3	Nanjing University of Information Science and Technology	China	131
4	University of Science and Technology of China	China	121
5	Nanjing University	China	117
6	Indiana University	USA	115
7	University of Maryland	USA	109
8	University of the Punjab	Pakistan	109
9	Nanyang Technological University	Singapore	107
10	Northwestern University	USA	105

The Most Frequently Occurring Keywords

Table 2 shows the most frequently occurring keywords in LIS research articles, highlighting their significance based on the number of times. The keyword “information science” dominates, and most frequently appears across all studies. It leads in Keywords Plus with 4,499 mentions, followed by “quantum optics”, “information systems”, “software engineering”, “quantum information science”, “information retrieval”, “database systems”, “mathematical models”, “information retrieval systems”, and “GIS”, with usage frequencies ranging from 200 to 600 times or more. In terms of Author Keywords, “information science” again tops the list, accompanied by “library and information science”, “bibliometrics”, “academic libraries”, “libraries”, “information literacy”, “LIS education”, “education”, “librarians”, and “citation analysis”. These keywords show a usage frequency between 100 to 500 times or more. Notably, "information science" is prominent in both Keywords Plus and Author Keywords categories. The study focuses on science-related keywords, particularly in physics, computer science, engineering, and mathematical principles. “Quantum optics”, “quantum information science”, and “GIS” (geographic

information system) are indicative of this trend. Additionally, in the Author Keywords category, "information science" and "bibliometrics" were included to reflect their importance in LIS research. These trends were evident in the research themes, as well as information literacy, LIS education, and citation analysis.

Table 2: The Top 10 Most Frequently Used Keywords in Research Articles

Rank	Keywords Plus	Occurrences	Author Keywords	Occurrences
1	information science	4,499	information science	572
2	quantum optics	608	library and information science	339
3	information systems	580	bibliometrics	240
4	software engineering	509	academic libraries	203
5	quantum information science	495	libraries	191
6	information retrieval	301	information literacy	190
7	database systems	295	lis education	177
8	mathematical models	289	education	174
9	information retrieval systems	288	librarians	144
10	gis	287	citation analysis	141

Social Network Analysis

Three-Field Plot

Figure 3 illustrates a three-axis graph analysis of the relationships among authors, universities, and the most-used keywords in Library and Information Science (LIS) research. This graph employed a Sankey diagram to illustrate the flow of information through coordinated paths with a comprehensive view of data distribution and movement. The 3D graphic format aided in understanding complex data relationships. In this diagram, the size of the square nodes represents the frequency of authors, institutions, and keywords in the collaborative network. The lines' width indicates the number of connections between these nodes. Notably, authors Kanwal Ameen, Nosheen Fatima Warraich, and Khalid Mahmood from University of The Punjab, Pakistan has the most substantial connections, followed by contributors from Indiana University, USA. This network leads to the top ten most common keywords: "bibliometrics", "information science", "library and information science", "citation analysis", "academic libraries", "information literacy", "libraries", "education", "librarians", and "LIS education". These results highlighted the significant collaboration patterns and prevalent research themes in the field.

Co-Citation Analysis

Figure 4 illustrates a co-citation analysis of Library and Information Science (LIS) research articles categorized into five clusters. These clusters were visualized through nodes in various colours, with each node representing a different research area, while the connecting lines indicated the relationships between these studies. The thickness of these lines reflected the degree of similarity or commonality among the studies. These analyses included 50 nodes and signified that the articles within each cluster frequently reference one another and share common thematic interests (15). Notably, the articles in the red and green clusters form a substantial network of shared references, indicating a higher level of interconnectedness. In contrast, the clusters represented in orange and purple consist of 7 studies each, while the blue cluster contains only 2 studies. This distribution highlights the varying degrees of citation relationships and thematic focus across different areas of LIS research.

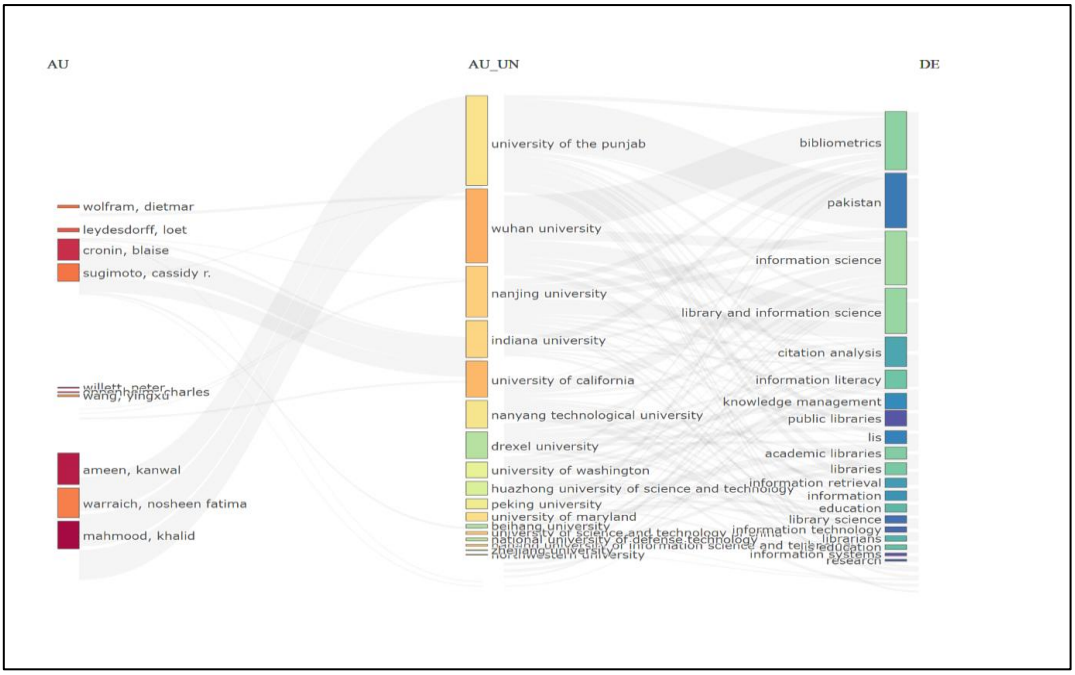


Figure 3: Three-field Plot Showing the Network Between Authors (Left), Institutions (Middle), and Keywords (Right)

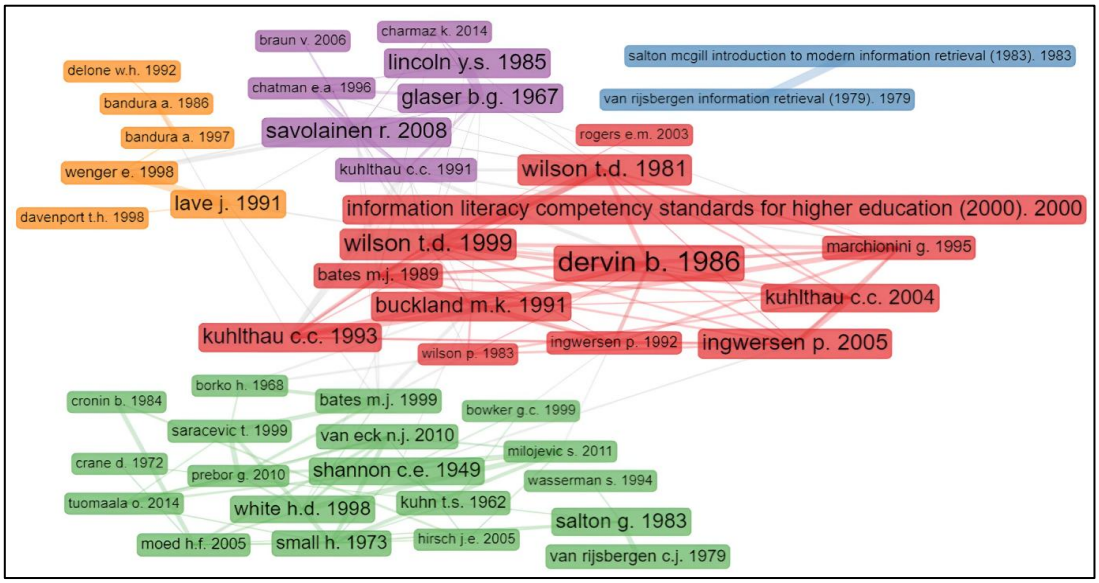


Figure 4: Co-Citation Analysis

Collaboration Analysis

Table 3 shows the top ten universities according to BC and CC social network values for showing the importance of collaborative work networks and their role in supporting research and research collaboration in exchanging opinions in global LIS research. The analysis revealed that Wuhan University in China obtained the highest BC value, followed by Nanjing University, University of California, and Indiana University. It can be noticed that the universities with CC values, such as Islamic Azad University in Iran and the University of Malaya in Malaysia, have research collaborations and may need explicit collaboration with other institutions, as shown in Table 3. In conclusion, the study implies that the famous universities may arise from developed countries like China, the USA, Canada, and Singapore.

Table 3: Top 10 Most Central of Affiliation Collaboration Based on Betweenness and Closeness Centralities

Rank	University	Country	BC	University	Country	CC
1	Wuhan University	China	242.0317	Islamic Azad University	Iran	1.0000
2	Nanjing University	China	168.2515	University of Malaya	Malaysia	1.0000
3	University of California	USA	129.3414	Wuhan University	China	0.0128
4	Indiana University	USA	94.3745	Drexel University	USA	0.0118
5	Drexel University	USA	91.8738	Nanjing University	China	0.0116
6	Nanyang Technological University	Singapore	85.0739	University of California	USA	0.0116
7	Harvard University	USA	79.2937	National University of Singapore	Singapore	0.0111
8	National University of Singapore	Singapore	59.4669	Indiana University	USA	0.0109
9	University of Alberta	Canada	57.7962	Nanyang Technological University	Singapore	0.0104
10	Tsinghua University	China	51.0288	Peking University	China	0.0104

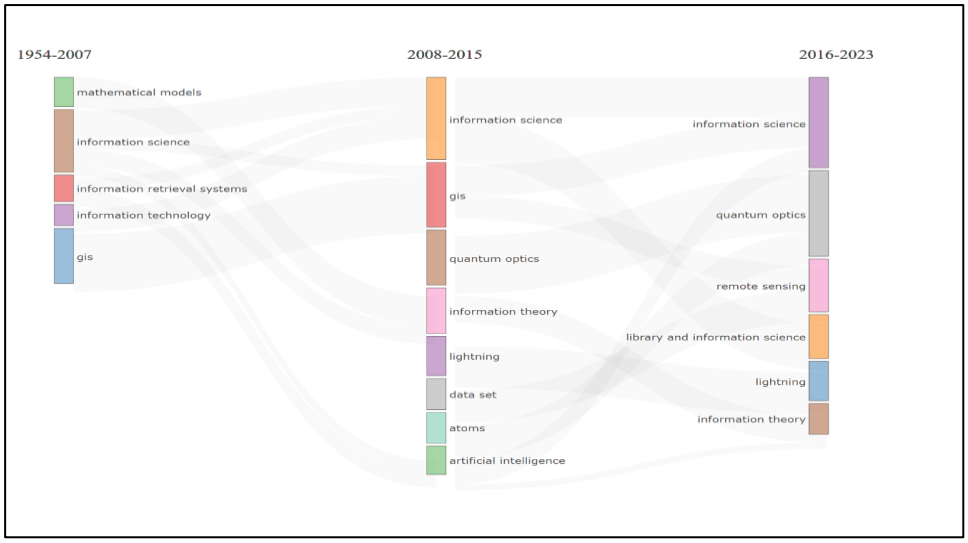
BC = Betweenness centrality; CC = Closeness centrality

Thematic Evaluation

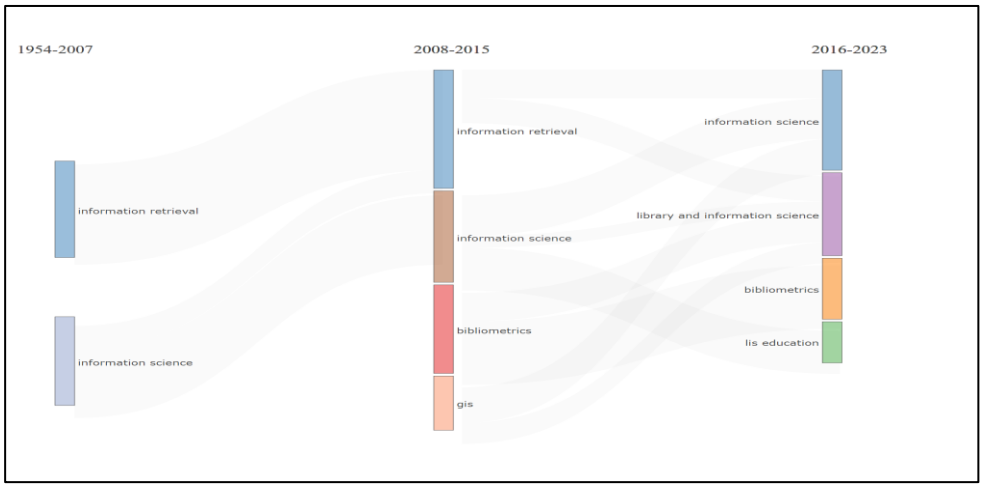
Figure 5 illustrates the analysis of the evolution of research topics in Library and Information Science (LIS) over the past 70 years. The analysis reveals the changes in the areas across three distinct periods. In the first period (1954-2007), Keywords Plus showed an emphasis on topics like mathematical models, information science, information retrieval systems, information technology, and GIS. The following period (2008-2015) manifests a shift in information science, GIS, quantum optics, information theory, lightning, datasets, atoms, and artificial intelligence. The most recent period (2016-2023) highlights the prominence of information science, quantum optics, remote sensing, library and information science, lightning, and information theory. For Author Keywords, the square box's size indicates the keyword's frequency; from 1954 to 2007, information retrieval and information science were predominant; from 2008 to 2015, these trends continued with the addition of bibliometrics and GIS. The recent period shows a sustained interest in information science and library and information science, with bibliometrics and LIS education also becoming significant. These indicate that "information science" has consistently been a key focus across all periods. The evolution of bibliometric research is particularly notable in the second and third periods. In the latest years (2016-2023), while "information science" remains central, the emergence of "library and information science" and "bibliometrics" indicates a significant shift towards education-related topics and the appearance of "LIS education" underscores its growing importance in recent LIS research.

Content Analysis

Table 4 shows the top ten most cited LIS-related articles. The article's contents spanned various areas, from information retrieval models to technology acceptance, big data, and quantum entanglement. It notably covered a crucial aspect, such as information sorting, user behavior models, data visualization, and evaluation metrics in semantic networks. These comprehensive studies highlighted the diversity and importance of research within the LIS domain.



(A)



(B)

Figure 5: Thematic Evaluation Analysis of Keywords Plus (A); Author Keywords (B)

Table 4: Content Analysis of Top 10 Cited Articles in LIS

R	Authors/ Journal/ TC/ AAS	DOI	Objectives	Results or Conclusion
1	Gerard M Salton, Andrew Wong, & Chungshu Yang/ Communications of the ACM/ 1975/ 5,319 / 29	10.1145/361219.361220	The paper proposes a vector space model for automatic indexing in document retrieval, based on space density computations.	The choice of indexing vocabulary relates to space density computations. Retrieval performance might inversely correlate with density. The results validate the model's utility, indicating improved recall-precision performance with reduced density.
2	Anol Bhattacherjee/ MIS Quarterly: Management	10.2307/3250921	The paper applies expectation-confirmation theory to	The study collected data through an online survey of 1,000 online banking

	Information Systems/ 2001/ 4,999 / NA		understand the factors influencing users' intention to continue using information systems.	customers. The results showed that perceived usefulness, satisfaction, and confirmation were significant determinants of IS continuance intention
3	Wynne W Chin, Barbara L. Marcolin, & Peter R Newsted./ Information Systems Research/2003/ 4,332 / 3	10.1287/isre.14.2.189.16018	The paper demonstrates the effectiveness of the PLS approach in recovering true effects through a Monte Carlo simulation study with known true effects	The paper introduces a novel approach to analyze interaction effects using latent variable modeling. This technique is validated through simulated and real IT adoption datasets, showcasing its effectiveness via partial least squares modeling in accurately estimating interaction effects in a Monte Carlo simulation and an empirical study on electronic-mail adoption.
4	Shenton Andrew K./ Education for Information/ 2004/ 3,872 / NA	10.3233/EFI-2004-22201	Ensure trustworthiness in qualitative research projects - Address credibility, transferability, dependability, and confirmability	Strategies for ensuring trustworthiness in qualitative research. Importance of addressing credibility, transferability, dependability, and confirmability
5	Chaomei Chen/ Journal of the American Society for Information Science and Technology/ 2006/ 3,129 / 22	10.1002/asi.20317	This article describes the latest development of a generic approach to detecting and visualizing emerging trends and transient patterns in scientific literature, and makes substantial theoretical and methodological contributions to progressive knowledge domain visualization.	- Visualizations of mass extinction and terrorism datasets - Prominent article in mass extinction visualization: Alvarez-1980
6	CL Philip Chen &	10.1016/j.ins.2014.01.015	This paper is aimed to demonstrate a close-up view about Big	This article discusses the challenges and opportunities in dealing

	Chun-Yang Zhang/ Information Sciences/ 2014/ 2,170 / 12		Data, including Big Data applications, Big Data opportunities and challenges, as well as the state-of-the-art techniques and technologies currently adopt to deal with the Big Data problems	with Big Data, including data capture, storage, analysis, and visualization. It is found that managing large-scale data remains a problem, but there are still significant potentials and opportunities in data management.
7	Guifré Vidal, José Ignacio Latorre, Enrique Rico Ortega, & Alexei Yu Kitaev/ Physical Review Letters/ 2003/ 1,850 / 0	10.1103/PhysRevLett.90.227902	To investigate the scaling properties of quantum entanglement in spin chain systems, both in the vicinity of the quantum critical point and at the quantum critical point.	The paper establishes a precise connection between concepts of quantum information, condensed matter physics, and quantum field theory by showing that the behavior of critical entanglement in spin systems is analogous to that of entropy in conformal field theories.
8	Jens Eisert, Marcus Cramer, & Martin B. Plenio/ Reviews of Modern Physics/ 2010/ 1,813/ NA	10.1103/RevModPhys.82.277	The paper reviews the current status of area laws for entanglement entropy in various fields, including black hole physics, quantum information science, and quantum many-body physics.	In this paper, the current status of area laws in quantum many-body systems is reviewed and a significant proportion is devoted to the clear and quantitative connection between the entanglement content of states and the possibility of their efficient numerical simulation.
9	Mauricio S Featherman & Paul A Pavlou./ International Journal of Human Computer Studies/ 2003 /1,791 / NA	10.1016/S1071-5819(03)00111-3	To predict e-services adoption by incorporating perceived risk facets into the Technology Acceptance Model (TAM)	Incorporating a second-order perceived risk into TAM, the study showed performance risks impacting various factors. It highlighted the crucial role of perceived risk, especially in e-service adoption. Emphasizing performance-related risk's influence, ease of use mitigates these concerns, signifying its critical role in e-service acceptance.

10	Roy Rada, Hafedh Mili, Ellen Bicknell, & Maria Blettner./ IEEE Transactions on Systems, Man and Cybernetics /1989 / 1,444 / NA	10.1109/21.24528	The objective of the paper is to develop and apply a metric called Distance on semantic nets to assess the conceptual distance between sets of concepts. The authors aim to evaluate the value of a knowledge base in the retrieval of biomedical literature and ranking of documents in response to a query.	The authors propose a metric called Distance, which is based on spreading activation and conceptual distance, to assess the conceptual distance between sets of concepts in a semantic net of hierarchical relations. Distance is calculated as the average minimum path length over all pairwise combinations of nodes between two subsets of nodes.

R= Rank; TC = Total Citation; AAS = Altmetric Attention Score from www.altmetric.com through google scholar on 30-sep-2023; NA=Not available

Discussion

This study highlighted the importance of Library and Information Science (LIS) researchers in developing, exploring, and evaluating research output in bibliometrics, social networks, and content analysis. Based on the principles of bibliometrics to enhance and stabilize the quality of LIS research to be consistent with a study (16). The Bibliometric tools have been recognized for curriculum analysis (17) and for evaluating research quality (18). A key result in this study was found at Wuhan University as a significant impact on LIS research, which reflected that the university has strong research capability in Asia. This position can be a competitive academic stanace. The comparison underscores the role of Asian universities in advancing LIS research and development with the analysis of Keywords Plus and Author Keywords (Table 2). These revealed a diversity of research topics spanning multiple knowledge fields and the interdisciplinary nature of LIS research. Both technological innovation and the global push for accessible information systems shape the collaborative landscape of LIS research. While countries like China, the USA, and Singapore dominate the field through strong collaborative networks in sub-fields like information retrieval, big data, and bibliometrics, there are notable gaps in community information systems and indigenous knowledge. Addressing these gaps and diversifying the focus of LIS research collaborations will be crucial for ensuring the field's growth and its ability to meet the diverse needs of global information users. These diversities were highlighted by the frequent appearance of Keywords Plus in titles, automatically generated by computer algorithms (19, 20) and the finding would help the researchers to identify the trends and keywords development in LIS research. Nonetheless, the bibliometric and social network analysis at the university has been limited, with variations in methodologies such as differing search terms and regional focuses. The studies from India (21), Bangladesh (22, 23), Arab cities (24), and BRICS countries (25, 26) demonstrated that the study might need more comprehensive bibliometric studies along with social network analysis and content analysis. Both global and regional dynamics shape the landscape of LIS research. While global collaborations continue to foster innovation and drive the field forward, regional disparities in research output and collaboration patterns are evident. Economic resources, academic infrastructure, and access to global research tools influence these disparities. Addressing these disparities through targeted regional collaborations and support can help foster a more equitable and diverse global LIS research community. This approach helps to identify influential authors who foster collaboration and knowledge development. On the one hand, the evolution of research topics in LIS analyzed through Keywords Plus and Author Keywords revealed significant shifts in “information science” and “information retrieval” and emerging themes. The content analysis demonstrated a diversity of

topics, particularly in computer science, decision science, physics, engineering, social science and mathematics. This analysis would help to identify the most impactful articles, providing insights into theoretical frameworks and tools shaping LIS research. Additionally, Altmetric analysis, though at a low level in this study, emerges as a significant tool for measuring the social impact and popularity of research. Power dynamics in global LIS research are heavily skewed in favor of English-speaking Western nations, particularly regarding research focus, methodologies, and funding. The effort to decentralize research networks, reduce language barriers, and promote collaboration across diverse regions is essential to creating a more inclusive and equitable global LIS research ecosystem. By addressing these imbalances, the LIS field can better reflect the global diversity of knowledge systems, improving its relevance and impact. The current state of gender and diversity representation in LIS collaborations is limited, with research often focused on technological advancements at the expense of social issues. Addressing this gap requires increased support for diversity-focused research, inclusive funding policies, and strategies promoting underrepresented groups' involvement. By fostering a more diverse and inclusive LIS research ecosystem, the field can produce more innovative, equitable, and impactful research that better serves global information needs (27). In conclusion, this comprehensive study of bibliometric data in LIS research offers insights into the dynamic evolution of research topics, influential institutions, and key contributors. It underscores the importance of interdisciplinary approaches and the role of bibliometrics and social network analysis in shaping the future of LIS research at the university level.

Conclusion

The Library and Information Science (LIS) education plays a crucial role in the growth of organizations, institutions, society, and professionals worldwide. It was shown as evident through research publications at the university. The study revealed that from 1954 to 2023, a total of 14,517 LIS research articles were published and reflected a steady growth in research direction and citations. These underscore the potential for creating collaborative LIS research opportunities at universities around the world. Global trends in Library and Information Science (LIS) research are shaped by advancements in big data, digital preservation, open access, and information literacy, with significant contributions from North America, Asia, and Europe. International collaborations, particularly between the USA, China, and Europe, dominate areas like information retrieval and quantum information science. Still, challenges such as funding disparities, language barriers, and cultural differences persist, limiting broader participation from underrepresented regions like Africa and Latin America. Globalization has broadened research topics and standardized methodologies, while technology is crucial in facilitating real-time data sharing and collaboration. International organizations like IFLA and conferences like ASIS&T foster global networks, but political and economic contexts shape research priorities differently across regions. Emerging areas, such as indigenous knowledge systems and health information literacy, remain underexplored and require more attention. Balancing global research agendas with local needs is essential for ensuring relevance, as global trends in LIS are shaping professional practices and education. To enhance the global impact of LIS research, strategies should include fostering inclusive funding, promoting open access, and supporting localized research initiatives to address global and regional needs. LIS research activities may need to adapt to future demands for collaboration and networking. Establishing official societies to disseminate and publish high-quality LIS articles can enhance researchers' professional development and boost universities' reputations, as can be seen at Wuhan University in China. The majority of LIS research articles were focused on computer science, decision science, physics, engineering, social science and mathematics. The future study might explore larger databases from other sources or refine keyword searches to analyze different content scopes and interests. The application of Bibliometric techniques, Social Network Analysis, and Content Analysis would contribute to a deeper understanding of LIS research's popularity and impact. As such, in this study, the contribution of the bibliometric techniques would accelerate the understanding of big data and data diagrams to encourage sustainable research and knowledge exchange, including researchers, academics, and

professors. Therefore, recognizing the importance of adapting to technological and educational changes, this research aims to advance LIS research sustainably at universities worldwide.

Abbreviation

Nil.

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Author Contributions

Pornnisa Wattanasiri, Paiboon Manorom, and Wirapong Chansanam contributed to the entire manuscript by writing, reviewing, implementing, conceptualizing, and analyzing.

Conflict of Interest

The authors declare no conflict of interest.

Ethics Approval

Not applicable.

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