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# Highly cited articles in the Library and Information Science category in web of science : A bibliometric analysis

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**Purpose**: The purpose of this paper is to reveal the bibliometric characteristics of highly cited articles published in different journals indexed in web of science for the period of 2012-2023.

Design/methodology/approach: The data of highly cited articles for the period of 2012-2023 were extracted from the Web of Science Core Collection . The keyword “Library science ” was used as Publisher term to search documents that are published in 2012-2023. A total of 551 were retrieved as highly cited articles for further analysis, Then VOSviewer and bibliometric analysis using R with an inbuilt utility Biblioshiny were used together for co-word analysis, co-citation network analysis, generating collaboration networks and also generating a unique three-field plot to analyze the evolution of a research field.

**Findings** From impactful articles and global contributions to institutional dynamics, journal influence, key research themes, and individual author metrics, these insights provide a foundation for understanding, evaluating, and advancing research excellence within the dynamic and multidisciplinary field of Library and Information Science. The findings from the tables and figures reveal key insights into the landscape of Library and Information Science (LIS) research. Seminal works, such as O. Ellegaard's "The bibliometric analysis of scholarly production," exhibit significant influence with a high citation rate of 97.33 per year . The global distribution of highly cited papers underscores the collaborative nature of research, with the USA and China emerging as major contributors . Institutions like Wuhan University and the National Taiwan University play pivotal roles in the diverse and impactful landscape of LIS research. Certain journals, including "Library & Information Science Research" and "Scientometrics," stand out as crucial disseminators of influential research . The identified research themes, such as academic libraries and information literacy, highlight the evolving nature of LIS research. Lastly, the bibliometric analysis of prolific authors provides a comprehensive assessment of their scholarly impact and productivity, contributing to the broader understanding of research excellence .

**Research limitations/implications:** The most prominent limitation of this study is that only one database (WoS) was used to obtain data. Future research can use multiple databases, like SCOPUS and Google Scholar in addition to the WoS. Lastly, in accordance with the purpose of the study, the analysis was confined to the studies related to LIS only. Therefore, this study can be repeated with bibliometric studies from different research fields.

Originality/value: This paper would be useful to the researchers to know the trends and achievements in the library and information science.

## Introduction

The statistical examination of books, journals, scientific publications, and authors is known as bibliometrics. The fundamental, early metrics for such statistical analysis were word frequency analysis, citation analysis, or the number of publications written by writers. According to the Institute for Scientific Information (ISI), Science Citation Index (SCI), bibliometrics evolved from a straightforward statistical analysis of bibliographies after the 1990s into a distinct and special field of research**.** Bibliometrics is indeed a well-established research field that focuses on quantitative analysis of scholarly publications. It aims to measure and evaluate various aspects of scientific literature, including the impact of publications, author productivity, citation patterns, and journal rankings. By utilizing bibliometric indicators, researchers can gain insights into the influence and visibility of scientific work. There is a lengthy history of bibliometrics. This topic of study has been the subject of a wide variety of investigations throughout the last few decades. The field is continuously evolving, and the number of articles in it is rising. Approximately 800 documents were published in the topic in 2018 according to the Scopus database (Scopus, 2019). Bibliometrics is now an interdisciplinary field that spans all scientific disciplines (Glanzel, 2003). The bibliometrics examination of certain journals has been carried out for fifty years (Biswas et al., 2017). Previously, information about a certain publication was gathered, and the frequency of papers produced, citations received, and highly productive authors, institutions, and nations were examined. But when new technologies emerged and bibliometric software programs were developed, bibliometric visualization of journals was made possible. This included, for example, mapping co-authorship, co-citation, keyword co-occurrence, and bibliographic coupling patterns and networks. A popular research technique in library and information science (LIS) is bibliometrics. Although it has been there for a while, this topic of LIS research is not new. To assess the impact of a single author or to characterize the relationship between two or more authors or works, researchers employ bibliometric methods of evaluation. The level of collaboration between research groups, regional patterns of research, and national research profiles can all be investigated using bibliometric studies. Major bibliometrics derivatives include, but are not limited to:

- publication counts;
- citation counts;
- co-citation analysis;
- co-word analysis;

- scientific “mapping”; and
- citations in patents

***A brief history of bibliometrics***

It has been discovered through research into bibliometrics' past that the discipline has several connections to LIS. The term statistical bibliography was previously used in place of bibliometrics. E. Wyndham Hulme appears to have coined the phrase "statistical bibliography" in 1922 when he gave two lectures at the University of Cambridge (Pritchard, 1969). A book based on the lectures with the working title Statistical Bibliography in Relation to the Growth of Modern Civilization was released in 1923 by Hulme. Hulme viewed the statistical bibliography as the discipline of classifying knowledge that has been recorded. Probably the first person to use the phrase "bibliometrics" in French was Otlet (1934, p. 9). He viewed this measurement as a higher form of knowledge and foresaw the emergence of a new sub-discipline called bibliology. After around 35 years, Pritchard (1969) used the term "bibliometrics" for the first time in his article, which was published in the Journal of Documentation in December 1969. Robert Fairthorne (1969) claimed that Pritchard revived the phrase in the first line of his work, "Empirical hyperbolic distributions (Bradford-Zipf-Mandelbrot) for bibliometric description and prediction." The famous and succinct study by Alan Pritchard, "statistical bibliography or bibliometrics," appeared just five pages later. This subject was known as statistical bibliography prior to Prichard. Despite the fact that it had been sufficient in the past, Pritchard (1969) thought that the usage of statistical bibliography was unacceptable given the ambiguity of the term and the rapid advancement of scientific disciplines. . He pointed out that the terms "statistical bibliography" and "statistics" or "bibliography related to statistics" are often used interchangeably. He stressed when he came up with the name "bibliometrics" that it is not ambiguous and that it has a clear relationship to terms like "biometrics," "econometrics," "scientometrics," and other similar terms. "The application of mathematics and statistical methods to books and other media of communication," according to Pritchard (1969), is the definition of the field.

## Literature Review

Numerous scholars have employed bibliometric techniques. Bibliometric studies typically concentrate on certain academics, research institutions, nations, particular themes, and particular media, such as journals. A good resource for potential authors and some useful references for the journal's future development are provided by the use of bibliometric tools to examine the knowledge structure and scientific features of a certain journal. As a foundation for furthering its quality improvement, it can also indicate its current condition and development trend (Xu et al., 2018), Between 2004 and 2010, Isiakpona (2012) performed a bibliometric analysis on the LIBRES, Library and Information Science Research Electronic Journal. She claimed that bibliometric analysis plays a significant role in the field of LIS, particularly in the areas of research evaluation and quality adjustment of published articles. This is supported by both historical and contemporary literature. The study's findings showed that 61 publications in total were published over the seven-year period, with 12 articles appearing in 2008 being the highest total. The majority of the articles were published by a single author and fell under the general subject area of LIS. As a result, the degree of collaboration was 0.279, and authors from universities produced the majority of the papers. For assessing the output and influence of scientific literature across practically all disciplines, bibliometrics approaches are well-known. To demonstrate the publication trends and contribution patterns within a particular field of research, they employ quantitative and statistical methodologies. Researchers can compare different fields, researchers, institutions, regions, and even individual countries using the data generated as a result of bibliometric analysis (Belter, 2018; Singh and Chander, 2014). In their bibliometric analysis of the Journal of Applied Information Science and Technology from (2019, Usman and Ewulum )presented the research output of Nigerian LIS scholars. According to the survey, the amount of LIS literature is increasing and has a highly collaborative authoring style.

## Research method

The primary purpose of the study was to present a bibliometric analysis of the scholarly literature of LIS published worldwide during 2012–2023. The survey method was employed in the study, and factual data were retrieved from the core collection of ISI WoS, a well-known and reliable database, often used for scientometric analysis and scientific research (Herther, 2009). It has also been used as a comprehensive citation data source (Tripathi *et al.*, 2018). The WoS provides wide-ranging data about the author, journal, subject and country’s contribution (Herther, 2009). The said database was selected because, for decades, this database has been extensively used for evaluating the quality of peer-reviewed literature at a global level (Abrizah *et al.*, 2013; Meho, 2007). Mongeon and Paul-Hus (2016) reported that the WoS provides a multidisciplinary, comprehensive, and authoritative coverage of more than 13,605 international research journals.

In this study, the researchers only focused on the Highly cited Articles of LIS. The period selected for the analysis of documents was from 2012 to 2023. The type of documents included in the study was limited to research articles . After setting these parameters in the ISI WoS, a report was generated. The total number of documents retrieved from the WoS, based on the search term “Library Science” was 20,772. After refining the search results by type of documents and by the period of 2012–2023, the number of documents was reduced to 551 highly cited articles of the total LIS documents. The refined results were saved on the computer for a detailed analysis. The researchers analyzed the results on the following basis: research productivity of each county, annual publications, annual citations, highly cited articles, highly cited LIS journals, most productive research institutions and most prolific authors in LIS. In this perspective, the research of Garg and Kumar (2019) was conducted on the same pattern of research to know the global output of research on the topic of Jatropha curcas Linn pant citations

**The following research objectives frame the rest of the study:**

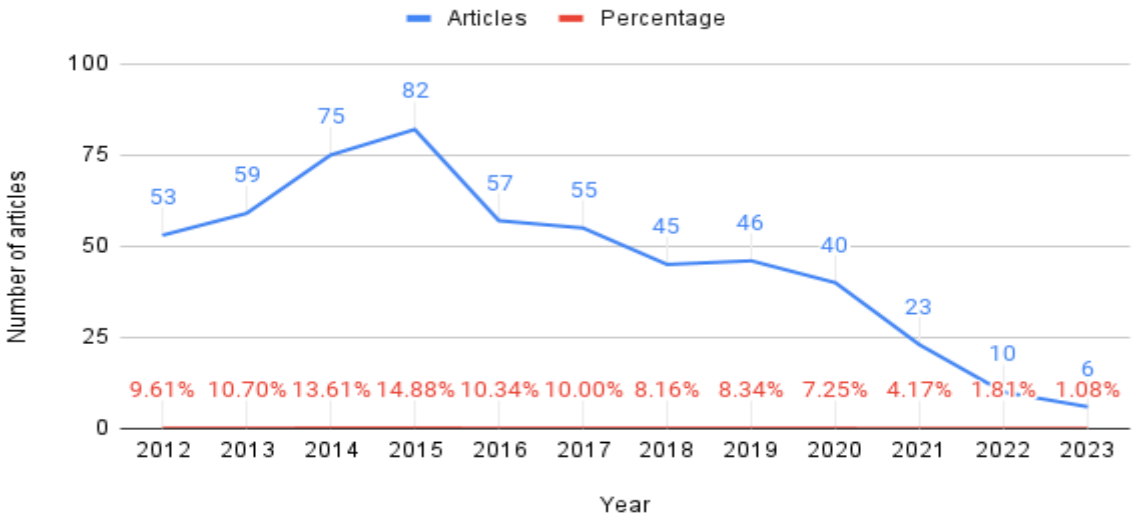
1. To obtain an overview of currently available scientific literature on library science .
2. To analyze contributions based on authorship, citations and geographical area.
3. To identify influential authors in terms of their citation scores and their collaborations with other authors.

## Data Analysis

**highly cited articles in the Library and Information Science category relative to the total number of articles in that year**

The Figure 1 reveals a consistent number of articles each year, ranging from 53 in 2012 to 6 in 2023. The percentage column indicates the proportion of highly cited articles in the Library and Information Science category relative to the total number of articles in that year. In the earlier years of the study, from 2012 to 2015, there is a discernible upward trend in both the absolute number and the percentage of highly cited articles. The peak is reached in 2015, with 82 highly cited articles, constituting 14.88% of the total. This period may signify a period of increased impact and recognition within the field, possibly indicating influential research or significant advancements. Subsequently, from 2016 to 2023, there is a consistent decline in both the absolute number and the percentage of highly cited articles. The percentage drops from 10.34% in 2016 to 1.08% in 2023. This decline could be attributed to various factors, such as changes in research focus, shifts in the importance of specific topics within the field, or alterations in the criteria used to define highly cited articles. The year 2021 stands out with a substantial decrease in both absolute numbers and percentages, with only 23 highly cited articles, accounting for 4.17% of the total. This suggests a potential shift in the landscape of impactful research within Library and Information Science during that period. In summary, the data provides insights into the trends of highly cited articles in the Library and Information Science category over the specified timeframe. The fluctuations observed may prompt further investigation into the factors influencing citation patterns, the evolution of research themes, and the dynamics of scholarly impact within this academic domain.

Figure 1. Annual scientific production of highly cited articles




**Subject area of highly cited papers in Library and Information Science**

The provided information details a selection of scholarly articles in the field of Library and Information Science, encompassing various topics and authors. Each article is associated with key metrics such as total citations (T C), citations per year (TC per Year), and Impact Factor (IF) of journal . Table 1 One notable contribution to the field is "The bibliometric analysis of scholarly production: How great is the impact?" authored by O. Ellegaard, published in the journal Scientometrics in 2015. This article has gained significant recognition with a total citation count of 876, translating to an impressive citation rate of 97.33 per year. The journal Scientometrics itself holds an Impact Factor of 3.9, reflecting its influence within the scholarly community. J.W. Zhu's 2020 article, "A tale of two databases: the use of Web of Science and Scopus in academic papers," published in Scientometrics, explores the utilization of key databases in academic research. With 298 total citations and an annual citation rate of 74.5, this work has made a substantial impact. The journal Scientometrics maintains an Impact Factor of 3.9. Another significant contribution is "Emerging trends and new developments in information science: a document co-citation analysis (2009–2016)" by J.H. Hou, also published in Scientometrics in 2018. This work provides insights into the evolving landscape of information science, accumulating 179 total citations and a citation rate of 29.83 per year. P. Sud's 2014 article, "Evaluating altmetrics," published in Scientometrics, has garnered 178 total citations with an annual citation rate of 17.8. The journal has an Impact Factor of 3.9. Additional articles by Y.W. Chang, S. Aabo, T. Bartol, S.C.J. Sin, C.P. Hu, and H.T. Chu cover diverse aspects of library and information science. These articles explore topics such as the evolution of research subjects, assessment of research fields, international students'

information-seeking behavior, and research methods. They contribute significantly to the field, each with notable citation counts and published in journals with varying Impact Factors. The scholarly works showcase the depth and breadth of research within Library and Information Science, with authors making impactful contributions as evidenced by their citation metrics and the prestige of the journals in which they were published.

**Table 1**

| Author and YOP | Journal Name | Paper Title | T C | TC per Year | IF |
|---|---|---|---|---|---|
| ELLEGAARD O, 2015, | SCIENTOMETRICS | The bibliometric analysis of scholarly production: How great is the impact? | 876 | 97.33 | 3.9 |
| ZHU JW, 2020, | SCIENTOMETRICS | A tale of two databases: the use of Web of Science and Scopus in academic papers | 298 | 74.5 | 3.9 |
| HOU JH, 2018, | SCIENTOMETRICS | Emerging trends and new developments in information science: a document co-citation analysis (2009–2016) | 179 | 29.83 | 3.9 |
| SUD P, 2014, | SCIENTOMETRICS | Evaluating altmetrics | 178 | 17.8 | 3.9 |
| CHANG YW, 2015, | SCIENTOMETRICS | Evolution of research subjects in library and information science based on keyword, bibliographical coupling, and co-citation analyses | 148 | 16.44 | 3.9 |
| AABO S, 2012 | LIBR INFORM SCI RES | Use of library space and the library as place | 140 | 11.67 | 2.9 |
| BARTOL T, 2014, | SCIENTOMETRICS | Assessment of research fields in Scopus and Web of Science in the view of national research evaluation in Slovenia | 116 | 11.6 | 3.9 |
| SIN SCJ, 2013, | LIBR INFORM SCI RES | International students' everyday life information seeking: The informational value of social networking sites | 105 | 9.55 | 2.9 |
| HU CP, 2013, | SCIENTOMETRICS | A co-word analysis of library and information science in China | 104 | 9.45 | 3.9 |
| CHU HT, 2015, | LIBR INFORM SCI RES | Research methods in library and information science: A content analysis | 103 | 11.44 | 2.9 |

YOP=Year of publication TC= Total citation IF=Impact Factor

***Country publishing the highly cited papers in Library and Information Science***

The Table 2 presents a comparative overview of research output and impact metrics across various countries in terms of documents, citations, and total link strength. These metrics offer insights into the scientific productivity and influence of each country in the specified dataset. The United States (USA) emerges as a leading contributor in this dataset, with a substantial number of documents (173), citations (4715), and a high total link strength (265). This suggests a significant and influential presence in the global research landscape, reflecting the country's robust scientific community and the impact of its scholarly work. Peoples Republic of China follows closely, with an impressive 104 documents, 3161 citations, and a remarkable total link strength of 249. China's significant contribution underscores its growing influence and prominence in global research, particularly in terms of total link strength, which indicates collaborative ties and network strength within the scientific community. Other notable contributors include Japan, with 18 documents and 436 citations, demonstrating a strong research presence and impact. Canada, England, Spain, and Taiwan also exhibit noteworthy contributions, with substantial document counts, citations, and total link strength. On the other hand, some countries, such as Scotland and Slovenia, have lower document counts and citations, indicating a comparatively smaller research output in the provided dataset.Overall, the data highlights the diversity in research productivity and impact across different countries. The USA and China stand out as major players in the global research landscape, reflecting their significant contributions to scientific knowledge and their well-established research networks. The dataset also underscores the importance of considering both document count and citation metrics to assess a country's research impact comprehensively

| country | documents | citations | total link strength |
|---|---|---|---|
| australia | 25 | 758 | 64 |
| austria | 5 | 157 | 8 |
| belgium | 12 | 458 | 37 |
| canada | 32 | 771 | 91 |
| denmark | 7 | 1094 | 20 |
| england | 37 | 1018 | 53 |
| finland | 15 | 485 | 38 |
| germany | 8 | 217 | 19 |

| | | | |
|---|---|---|---|
| hungary | 8 | 287 | 25 |
| india | 8 | 172 | 10 |
| iran | 19 | 377 | 24 |
| israel | 11 | 262 | 23 |
| japan | 18 | 436 | 104 |
| malaysia | 15 | 476 | 33 |
| nigeria | 9 | 176 | 12 |
| norway | 9 | 365 | 17 |
| pakistan | 20 | 434 | 27 |
| peoples r china | 104 | 3161 | 249 |
| saudi arabia | 9 | 229 | 20 |
| scotland | 6 | 103 | 2 |
| singapore | 6 | 342 | 19 |
| slovenia | 5 | 220 | 10 |
| south africa | 10 | 154 | 13 |
| south korea | 20 | 466 | 16 |
| spain | 29 | 713 | 62 |
| sweden | 13 | 271 | 23 |
| taiwan | 43 | 1177 | 82 |
| usa | 173 | 4715 | 265 |

Table 2

***Institution-wise contributions of authors***

The data in table 3 furnishes insights into the research output and impact of various organizations in the field of Library and Information Science, as measured by the number of documents and citations. These metrics are crucial for understanding the scholarly contributions and influence of each organization within the given dataset. Among the highlighted organizations, some exhibit substantial research productivity and impact. For instance, Wuhan University, with 24 documents and 570 citations, stands out as a prolific contributor with a notable citation impact. Similarly, the National Taiwan University, with 21 documents and 706 citations, reflects a strong presence in the field, emphasizing both research quantity and impact.Several other organizations, such as Drexel University, University of Hong Kong, and Simmons College, demonstrate a commendable balance between document count and citations, suggesting a combination of prolific output and impact.On the contrary, some organizations, like the University of Guam or the University of Ibadan, have a comparatively lower document count and citation impact within the dataset, indicating a more modest research output in Library and Information Science.It's worth noting that the dataset encompasses a diverse array of institutions, including universities, research institutions, and colleges. Each organization's research profile may be influenced by factors such as institutional focus, faculty expertise, and collaboration networks. Table 3 offers a snapshot of research productivity and impact for various organizations in the field of Library and Information Science. It underscores the diverse contributions of these institutions and their varying levels of influence within the scholarly community, providing a valuable perspective on the global landscape of research in this domain.

| **organization** | **documents** | **citations** | **organization** | **documents** | **citations** |
|---|---|---|---|---|---|
| **bar ilan univ** | **11** | **262** | **univ boras** | **8** | **157** |
| **charles sturt univ** | **7** | **211** | **univ copenhagen** | **5** | **162** |
| **csic** | **5** | **149** | **univ granada** | **8** | **178** |
| **dalian univ technol** | **6** | **183** | **univ guam** | **11** | **297** |
| **drexel univ** | **9** | **390** | **univ hong kong** | **17** | **476** |
| **florida state univ** | **5** | **139** | **univ ibadan** | **5** | **108** |
| **indiana univ** | **11** | **243** | **univ kentucky** | **7** | **206** |
| **katholieke univ leuven** | **9** | **333** | **univ malaya** | **13** | **389** |
| **kent state univ** | **6** | **102** | **univ oulu** | **5** | **172** |

| | | | | | |
|---|---|---|---|---|---|
| **lib hungarian acad sci** | **7** | **274** | **univ pittsburgh** | **5** | **75** |
| **manchester univ** | **5** | **80** | **univ punjab** | **10** | **185** |
| **nanjing univ** | **6** | **201** | **univ sheffield** | **7** | **199** |
| **nanyang technol univ** | **6** | **342** | **univ tampere** | **5** | **208** |
| **natl cheng kung univ** | **5** | **134** | **univ tennessee** | **6** | **234** |
| **natl taiwan univ** | **21** | **706** | **univ tsukuba** | **16** | **400** |
| **northumbria univ** | **5** | **93** | **univ western ontario** | **8** | **264** |
| **peking univ** | **5** | **110** | **univ wisconsin** | **8** | **374** |
| **rutgers state univ** | **11** | **278** | **wolverhampton univ** | **6** | **270** |
| **simmons coll** | **6** | **239** | **wuhan univ** | **24** | **570** |

Table 3

***Prolific journal***

The Table 4 presents a bibliometric analysis of highly cited articles within the Library and Information Science category, showcasing the number of documents and citations for various journals. These metrics provide valuable insights into the impact and influence of these journals within the scholarly community. Several journals stand out in terms of both the volume of published articles and the significant number of citations they have accrued. For instance, "Library & Information Science Research" leads the pack with an impressive 125 documents and 3,263 citations, underscoring its substantial contribution to the field and its widespread influence. Following closely is the "Journal of Academic Librarianship," with 54 documents and 1,396 citations, highlighting its significant impact within the academic community. Similarly, "Scientometrics" demonstrates a robust presence with 131 documents and a remarkable 5,495 citations, indicating its substantial influence and recognition in the field. Other noteworthy journals contributing to the bibliometric landscape of Library and Information Science include "Journal of Information Science" with 34 documents and 885 citations, "Library Hi Tech" with 55 documents and 1,117 citations, and "Electronic Library" with 51 documents and 1,023 citations. These journals collectively represent a rich source of scholarly output, covering a wide range of topics and contributing significantly to the advancement of knowledge in Library and Information Science. The high citation counts for these journals suggest that they have been instrumental in shaping the discourse within the field and have been widely referenced by researchers, further emphasizing their importance in academic literature.

| **source** | **documents** | **citations** |
|---|---|---|
| **aslib journal of information management** | **18** | **451** |
| **college & research libraries** | **20** | **496** |
| **electronic library** | **51** | **1023** |
| **journal of academic librarianship** | **54** | **1396** |
| **journal of information science** | **34** | **885** |
| **journal of librarianship and information science** | **63** | **1513** |
| **library & information science research** | **125** | **3263** |
| **library hi tech** | **55** | **1117** |
| **scientometrics** | **131** | **5495** |

***Key areas of research in LIS***

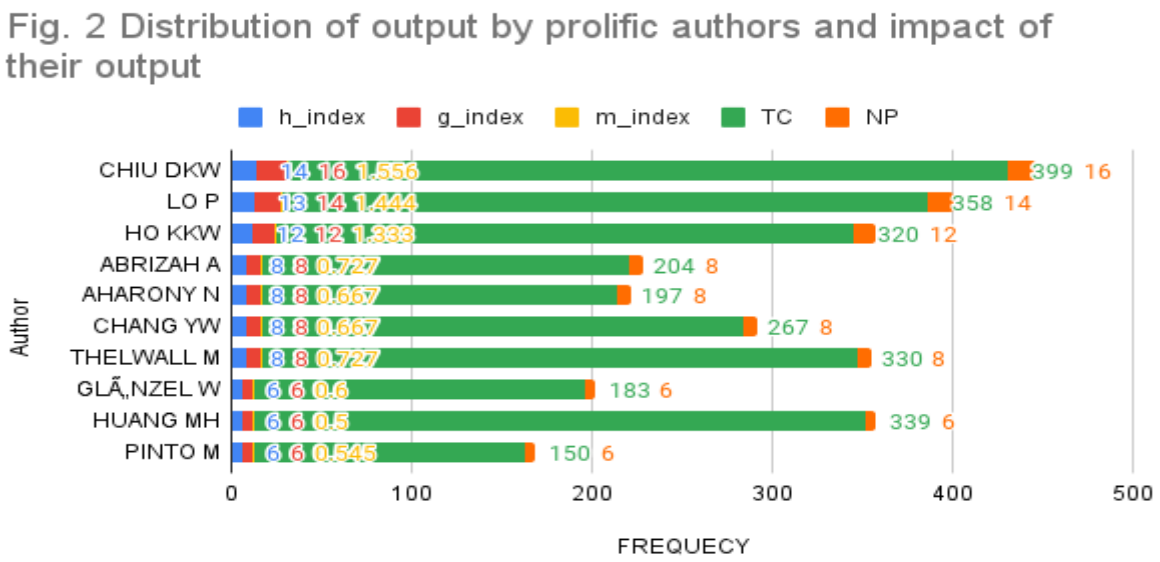
In recent years, research in the field of library and information science has focused on various key areas, reflecting the dynamic nature of information management and dissemination. Table 5 Among the prominent themes, academic libraries have garnered significant attention, with 51 articles contributing to 19.76% of the total research output. These studies delve into the evolving role of academic libraries in the digital age, exploring their functions, services, and strategies for adapting to the changing information landscape. Information literacy emerges as another critical area, comprising 42 articles and constituting 16.27% of the total research corpus. Scholars have probed the nuances of information literacy programs, their effectiveness, and the impact on users in an era characterized by information overload. Digital libraries, with 40 articles accounting for 15.50%, represent a substantial focus of research. Investigations in this domain delve into the design, management, and accessibility of digital repositories, exploring their potential to enhance information retrieval and dissemination. Content analysis, explored in 36 articles (13.95%), has been a methodological cornerstone in understanding the content and structure of information resources. Scholars have applied content analysis to evaluate the relevance, quality, and diversity of information in different contexts.The landscape of library and information science research is multifaceted, encompassing a diverse array of topics. From the traditional domains of academic libraries and information literacy to the evolving realms of digital libraries, altmetrics, and the transformative impact of the COVID-19 pandemic, researchers continue to explore and contribute valuable insights to the field.

| Key areas of research | No of articles | % of articles | Citation |
|---|---|---|---|
| **Academic libraries** | **51** | **19.76%** | **421** |
| **Information literacy** | **42** | **16.27%** | **321** |
| **Digital libraries** | **40** | **15.50%** | **210** |
| **content Analysis** | **36** | **13.95%** | **110** |
| **bibliometrics** | **25** | **9.68%** | **182** |
| **Altmetrics** | **21** | **8.13%** | **161** |
| **open Access** | **18** | **6.97%** | **52** |
| **covid 19** | **14** | **5.42%** | **186** |
| **social media** | **11** | **4.26%** | **10** |

Table 5

***Distribution of output by prolific authors and impact of their output***

The figure 2 presents bibliometric indicators for a selection of researchers, including their h-index, g-index, m-index, total citations (TC), and the number of published papers (NP). These metrics are widely used in the field of bibliometrics to assess the impact and productivity of researchers.Firstly, the h-index is a measure that considers both the productivity and citation impact of a researcher. It indicates that, for example, CHIU DKW has an h-index of 14, suggesting that they have 14 papers with at least 14 citations each. The g-index, another citation-based metric, is showcased in the second column. LO P, for instance, has a g-index of 14, reflecting the fact that their top 14 papers have accumulated a total of 14^2 = 196 citations.The m-index, found in the third column, is a variant that considers the h-index and the total number of papers. ABRIZAH A, with an m-index of 0.727, strikes a balance between citation impact and the number of publications. Moving on to the fourth column, the Total Citations (TC) metric provides an aggregate count of how many times a researcher's work has been cited. HUANG MH, with 339 citations, indicates a significant impact in terms of influence in the academic community. Finally, the number of Published Papers (NP) is given in the last column. This metric, combined with citation metrics, helps to gauge a researcher's overall productivity. For instance, CHIU DKW has 16 published papers.these bibliometric indicators offer a quantitative assessment of researchers' scholarly impact and productivity, providing valuable insights for academic evaluation and comparison within the academic community. Each metric contributes a different perspective on a researcher's profile, ranging from the depth of impact (h-index, g-index) to a balance of impact and productivity (m-index) and raw productivity (Total Citations, Published Papers).




***Preferred publishers and research funding in LIS research***

The Figure 3 presents the number of publications associated with various publishers, offering a glimpse into the scholarly output affiliated with each. The data includes the counts of publications from Springer, Emerald Group Publishing, Elsevier, Sage, and ACRL. Elsevier, a prominent academic publishing house, has the highest number of publications among the listed publishers, boasting a total of 179. Elsevier is widely recognized for its extensive coverage of scientific, technical, and medical disciplines, and its substantial publication count reflects its influence and prevalence in academic literature. Springer, with 131 publications, is another key player in the academic publishing landscape. Known for its diverse array of

publications spanning various disciplines, Springer's substantial contribution is evident in the provided data. The Emerald Group Publishing, represented with 124 publications, has a notable presence in academic research. Emerald Group Publishing is known for its focus on business, management, and social sciences, and its significant publication count reflects its impact in these fields. Sage, with 97 publications, is renowned for its commitment to disseminating scholarly knowledge across a broad spectrum of disciplines. Sage's diverse portfolio of journals and books contributes to its standing as a major publishing entity. The figure 4 provides a comprehensive overview of the diverse sources of research funding, emphasizing the global and multidisciplinary nature of research support. The counts indicate the level of financial backing and recognition received by researchers and institutions from various funding bodies, reflecting the dynamic and collaborative landscape of contemporary research.

Fig 3. Preferred publishers

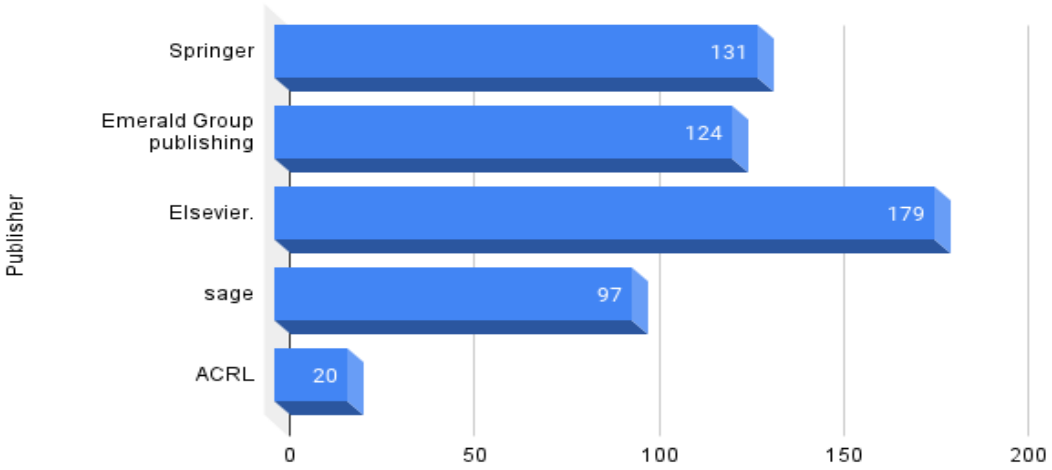
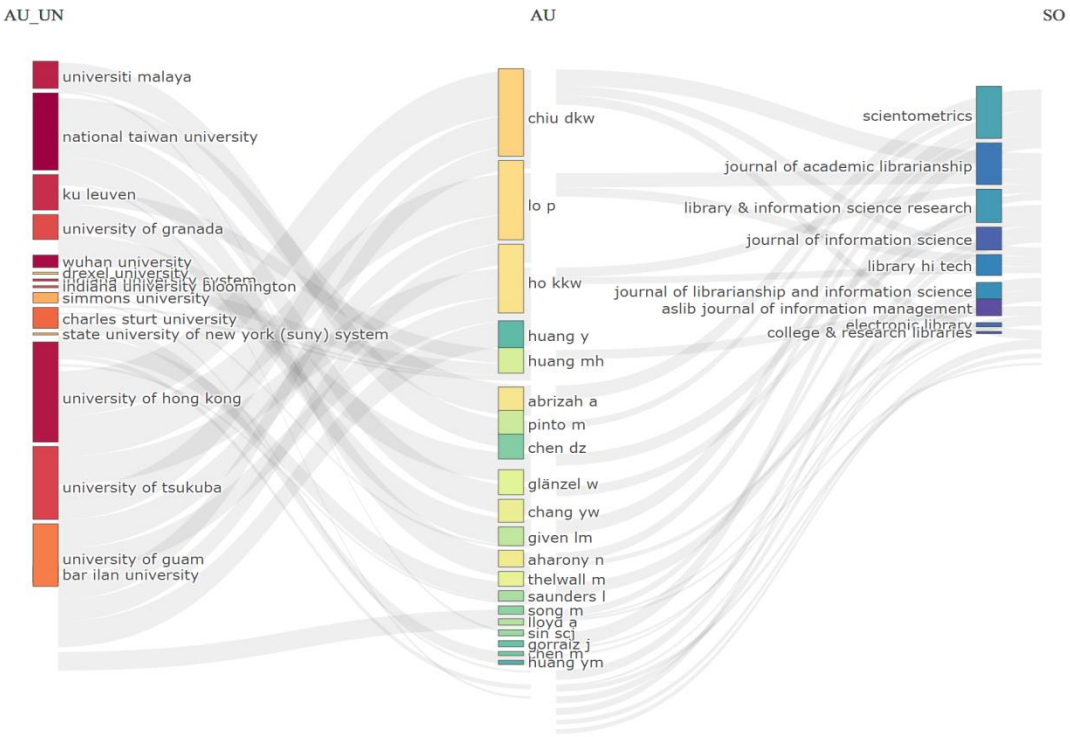



Fig. 4. Funding organisations


Figure 5. Three-field plot: universities, authors and journals

The interconnections among the universities, authors and journals can provide valuable understandings. Therefore, we present the novel three-field plot of universities, authors and journals (Figure 5). The three-field plot clearly showed the interactions among the three selected parameters, which are the most relevant: universities (left), author keywords (middle) and sources or journals (right) within the LIS research. The data highlighted that authors' from university of hong kong primarily published in Journal of academic librarianship this journal is having impact factor (IF), 2.6. An author, Huang mh , from the , national yaiwan university primarily published in scientometrics , has a very good IF of 3.9. This journal is also a leading journal shown in three-field plot. Moreover, the three-field plot showed the scattered structure; hence, it can be concluded that there is diversity in institutions

or universities, authors and journals, in publishing research.




## Conclusion and discussion

The purpose of this study was to examine bibliometric studies that were relevant to library science from a bibliometric standpoint. Although some research have evaluated bibliometric studies using bibliometric techniques, these investigations have some drawbacks. By avoiding these restrictions, including other bibliometric methodologies, and not restricting the year or language of the articles, this study attempted to give some theoretical insights. This study is unique among bibliometric studies in that it uses evaluation, relationship, and subject categorization methodologies all at once.. Furthermore, this study is thought to mainly benefit Library science scholars as it maps and evaluates the structure of bibliometric studies. Researchers can find useful information, such as cooperations between universities and countries, keywords used in publications and categorization of subjects, and plan their research accordingly. Without category and year limitations, the data were obtained from the WoS database, and 551 documents were included in the final analysis.

In order for knowledge to advance, citations are crucial (Aksnes 2003). Because there may be a connection between the high number of citations and the caliber of the papers, the review of highly referenced works is intriguing (Levitt and Thelwall 2009). A bibliometric study can be used to assess highly cited works.The term bibiliometrics was coined in 1969 by Alan Pritchard to mean the application of mathematics and statistical methods to assess books and other communication media . Bibliometrics is a method in Library and Information Science and is a quantitative scale for examining various aspects of a scientific field and determines the growth and dynamism of knowledge in that field (Udo-Anyanwu 2018). Bibliometrics is the statistical analysis of academic publications used by researchers to discover their impact in a particular scientific field (Mohammed et al. 2017). Citation rate is widely used as an indicator of the impact of papers and journals on science (Hutchins et al. 2016). Authors of highly cited papers tend to attract citations for a long time through international collaborations (Miyairi and Chang 2012).IN the present study A total of 551 highly cited articles were published in the five journals for the period of 2012-2023, and majority of the articles were appeared in journals that have top impact factor. The provided figures and tables offer a detailed insight into various aspects of research in the field of Library and Information Science (LIS). Figure 1, which illustrates the trends in the number and percentage of highly cited articles over the years, reveals a dynamic pattern. The initial upward trend until 2015, marked by a peak in both absolute numbers and percentages, suggests a period of heightened impact and recognition within the field. However, the subsequent decline, especially noticeable from 2016 onwards, prompts considerations about potential shifts in research focus, evolving criteria for highly cited articles, or changes in the significance of specific topics within LIS.Table 1 delves into specific articles and their citation metrics, emphasizing the impact of certain works within the LIS domain. The presence of articles such as "The bibliometric analysis of scholarly production" by O. Ellegaard with a high citation rate of 97.33 per year underscores the influence of certain seminal works. The publication venues, represented by the Impact Factor (IF) column, indicate the prestige of the journals where these impactful articles are published.

The exploration of highly cited papers across different countries (Table 2) further broadens the perspective, showcasing the global distribution of research impact. The USA and China emerge as significant contributors, reaffirming their substantial roles in shaping the landscape of LIS research.

This table highlights the collaborative nature of research as depicted by the total link strength, emphasizing the importance of international research networks. Table 3, focusing on institutions, provides a granular view of the prolific contributors within LIS research. The varied contributions from institutions like Wuhan University and the National Taiwan University showcase the diverse landscape of research institutions involved in LIS research. The data brings attention to the varying levels of impact and output across different organizations. Table 4 emphasizes the role of journals in LIS research, underscoring the impact of specific journals with high citation counts. Journals like "Library & Information Science Research" and "Scientometrics" are pivotal in disseminating influential research within the LIS community. Table 5 identifies key research themes within LIS, shedding light on the diverse array of topics explored by researchers. Academic libraries, information literacy, and digital libraries emerge as dominant themes, showcasing the evolving nature of information management and dissemination. Lastly, Figure 2 provides a bibliometric analysis of prolific authors, showcasing their h-index, g-index, m-index, total citations, and published papers. These metrics collectively offer a comprehensive understanding of the scholarly impact and productivity of individual researchers, contributing to the broader assessment of research excellence.

***Conclusion***

The data provides a comprehensive overview of the landscape of LIS research, encompassing trends, impactful articles, global contributions, institutional involvement, journal influence, key research themes, and the scholarly impact of prolific authors. The dynamic nature of research output, with fluctuations in citation patterns and shifts in focus over the years, underscores the need for ongoing investigation into the factors influencing the field. The collaborative nature of research is evident in the global distribution of highly cited papers and the diverse contributions from institutions across the world. The prominence of certain journals and prolific authors emphasizes the key players and influencers within the LIS research community. Additionally, the identified research themes reflect the evolving challenges and opportunities within the field.This comprehensive analysis contributes valuable insights for researchers, institutions, and policymakers in understanding the dynamics and impact of LIS research. It provides a foundation for further exploration, encouraging continuous investigation into emerging trends, evolving research priorities, and the evolving landscape of scholarly impact within Library and Information Science.

## Limitation and future research

The most prominent limitation of this study is that only one database (WoS) was used to obtain data. Future research can use multiple databases, like SCOPUS and Google Scholar in addition to the WoS. The number of the studies to be analyzed can be increased by this means. The results prove that although evaluative techniques are highly addressed, measures such as co-authorship, co-citation and bibliographic coupling are rarely used in bibliometric studies. Researchers can include these analyses to differentiate their work and add value to their studies in future.. Lastly, in accordance with the purpose of the study, the analysis was confined to the studies related to LIS only. Therefore, this study can be repeated with bibliometric studies from different research fields.

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