Information Retrieval Satisfaction of Library Users: A BibliometricAnalysis

ABSTRACT

Information Retrieval (IR) satisfaction plays a crucial role in shaping user experiences in library systems. This study provides a comprehensive bibliometric analysis of research trends and developments in IR satisfaction from 1968 to 2024, highlighting key themes and contributions in the field.

Methods:

A comprehensive review of 155 publications from the Scopus database was conducted, using bibliometric tools to analyze publication trends, keyword frequency, author contributions, and thematic mapping.

Findings:

The study reveals a steady increase in publications from 1968 to 1994, followed by a decline after 2008 and a rise in 2019. The USA and China dominate the field, with minimal collaboration beyond these countries. The primary focus of research is on "information retrieval" and "user satisfaction." New topics include "database systems" and "websites."

Originality:

This research provides valuable insights into the evolving nature of IR satisfaction, highlighting gaps in global collaboration and the need for further exploration. The study's reliance on Scopus and keyword analysis limits its scope, excluding other databases and emerging trends. Future research should include diverse databases, explore emerging technologies, and examine long-term impacts on user

***Keywords**: Bibliometric analysis, Information retrieval, User satisfaction, library user*

1.INTRODUCTION

Libraries are regarded as the repositories of wisdom, acting as essential centers where people can obtain information, foster education, and interact with their surroundings(Singh, 2024). Institutions like libraries, museums, and archives are becoming more than just places to gather, preserve, and distribute information; instead, they are becoming hubs for social learning and places where knowledge is produced and shared (Procter et al., 1998). Knowledge sharing refers to making personal and organizational knowledge accessible by others within the firm (Sandhu & Suppiah, 2011).Libraries are urged to promote knowledge sharing in order to improve the creation of knowledge in light of the global economic and

information era (Ondieki et al., 2023). Libraries share knowledge with their users through a variety of methods such ascollection development, reference services, information literacy programs, instructional sessions, interlibrary loan and resource sharing, digital initiatives. Users can retrieve information from the library by using these methods. Information retrieval (IR) encompasses all activities related to the gathering,processing, and availability of information of any type or format within an organization (library).Users can engage with an information system or service using an information retrieval (IR) system to obtain information that suits their individual needs, whether it be text, visual images, sound recordings, or video (Chowdhury, 2010). An IR system's principal purpose is to meet the user's information need (Lancaster, 1979, 1981).
However, the main objectives of a library's facilities are to provide relevant information resources and services to its users (Abukari, 2019).A study of Al-Maskari and Sanderson (2010) found that users are usually satisfied performing search operations on a more effective system than a less effective system when they are provided with distinct systems that differ significantly in terms of effectiveness. This study suggests that a library may provide several effective IR systems to meet the user's needs. It also suggests that user effectiveness had a direct impact on user satisfaction; that is, the more relevant document obtained, the better the user satisfaction. That indicates it is good to have strong skill in the users' IR technique.In a study of Onah et al., (2020) majority of the undergraduate students, 296 (38.8%) possess average skills of information retrieval having scored between 50-59. The lack of skills in information retrieval techniques of library users can have a negative impact on satisfaction with the system. A research conducted in Nigeria examined information literacy ability rates, revealing that 40.5% of respondents can efficiently use the internet and its search engines, while 44% disagreed that they know how to use various information retrieval tools. Also, 44 (22%) and 45 (22.5%) of respondents which is relatively low, indicated strongly agree (SA) and agree (A) in terms of their awareness of information sources to consult for a certain information need (Okuonghae& Ogiamien, 2016). Earlier Aruleba et al., (2016) developed and successfully implement an IR system that reduces the hurdles associated with present system of searching in Libraries. This type of new IR system can increase the satisfaction level of the library users.

As several studies on the levels of satisfaction with IR among library users have been conducted recently. However, bibliometric analysis of users' satisfaction with retrieval of information is absent.Scholars employ bibliometric analysis for numerous objectives, such as detecting current tendencies in the performance of articles and journals, uncovering collaboration patterns, and examining the intellectual framework of a particular domain within existing literature.

In the research area there are vast number of literatures on different research topic.Therefore, it is difficult for researchers to obtain a comprehensive overview of the salient materials. In this regard, bibliometric analysis is one of the significant methods for inclusive perspective of extensive academic literaturefor the academicians and researchers (Purssell& McCrae, 2020; Cowhitt et al., 2020).

Researchers can plot the traits and advancement in the scientific result within a specific research sector through a quantitative assessment of publication data (Jia et al., 2014; Li and Hale, 2016). From the literature we have identified that there is a lot of scientific work have done in the users' satisfaction with information retrieval in libraries, but the gap has existed in terms of bibliometric analysis. Bibliometric analysis is a process that involves analyzingthe nature and trajectory of a topic in statistically, and convey into written communicating media that is positively impactful in the decision-making process of the researchers by enabling the examination, organization, and evaluation of substantial amounts of statistical data (Pritchard, 1969; Daim et al., 2006; Haque et al., 2022). This study aims to advance the understanding of the library users' satisfaction with IR and carries other relevant information regarding

Bibliometric method. The study also hunts for enhancing knowledge of the topic by exposing the evaluation of the literature of the selected area, organized by author, year, nation, key-terms.

This research follows a structured methodology aimed at ensuring a thorough reading and understanding of the study's key elements. First, the introductory section, titled *Library Users' Information Retrieval Satisfaction*, provides a comprehensive overview of the essential principles and concepts underlying information retrieval satisfaction among library users. This sets the stage for the study's main objectives, methodology, and the specific software tools employed in the analysis. Following this, the major findings are presented in detail. Key insights from the bibliometric analysis highlight critical trends in the field, including the identification of prominent authors and their production patterns. Furthermore, global collaboration networks among prolific countries reveal the extent of international partnerships driving advancements in information retrieval studies. By using authors' keywords and Keyword Plus, word clouds illustrate the most frequently occurring terms, offering a visual representation of the dominant themes. Additionally, thematic maps based on authors' keywords allow for an in-depth exploration of the field, categorizing topics into Basic, Niche, Motor, Emerging, and Declining themes. These thematic insights provide a nuanced understanding of the areas covered and their relative importance. The study concludes with recommendations for future research, offering direction for continued exploration, along with a comprehensive summary of the study's contributions and implications for library users' satisfaction in information retrieval.

2. OBJECTIVES

- Surveying the existing research on users' satisfaction on library's information retrieval around the world.
- Using the quantitative analysis for finding the trends and gaps in literature
- Computing the aspects such as publication output, citation patterns, country contributions, authorship contributions in terms of users' satisfaction on library's information retrieval

3. RESEARCH METHODOLOGY

As the aim of the study is to identify the current trends in the field of IR satisfaction of library users. In order to produce a map on the targeted domain, we carried out a bibliometric analysis on the community of library users' satisfaction with information retrieval. Bibliometric methods can be used by scholars to describe the scholars' works on a particular area and the connection among the works that surely contributed in the selected area(Haque et al., 2023).

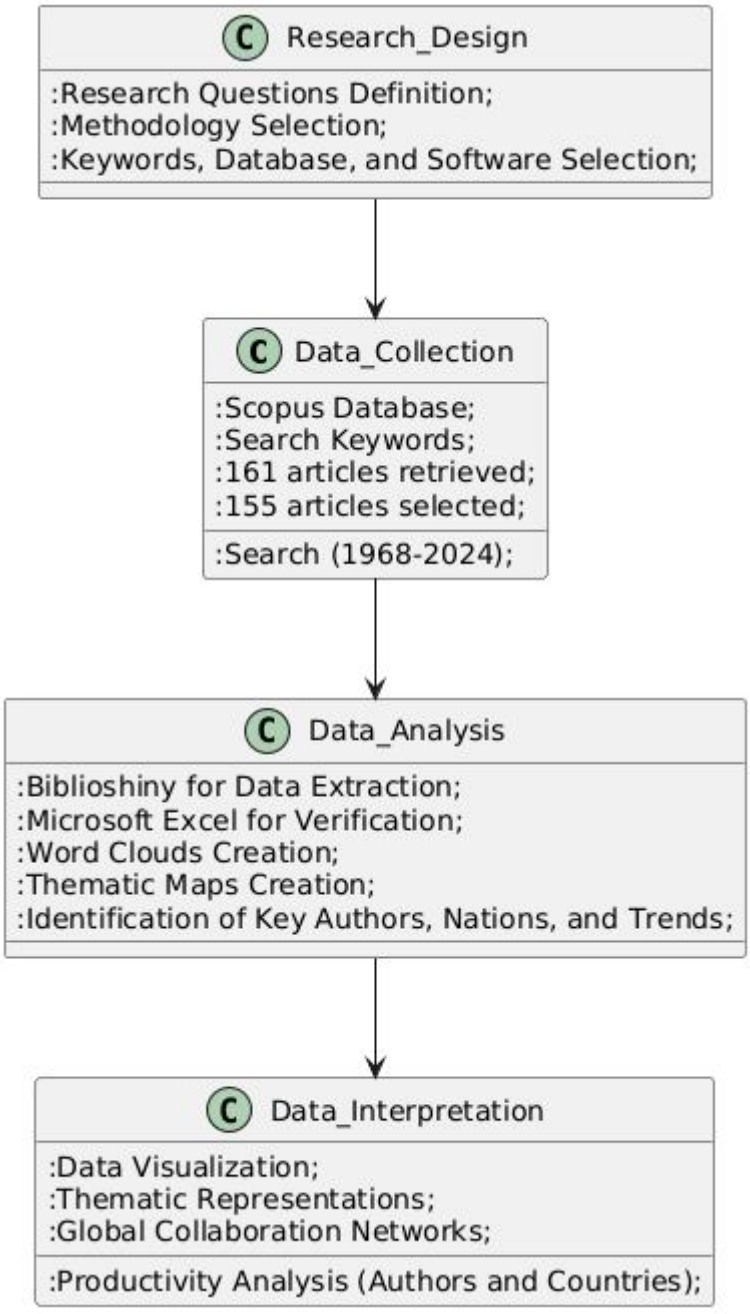

Figure 1: Flowchart of the study methodology

The results presented were attained by the study using the approaches (shown in Figure): the most cited papers, significant and reliable authors, nations, and trends terms. The research design, data collection, analysis, visualization, and interpretation are the five sections.

3.1 Research design

Determining the study's research questions and selecting the best techniques to answer them are both components of research design (Aria & Cuccurullo, 2017). To accomplish the goal of the study, further choices are made at this point about the duration, keywords, database choice, and data analysis software, among other things.

3.2 Data collection

There are several databases exist including Scopus, Pubmed, WOS, google scholar (Adekunle et al., 2021) -offer different features. Among these this study uses Scopus database. This database has been used in several previous studies for bibliometric analysis (Jin et al., 2018). It offers an extensive and updated database for the ongoing research on information retrieval in libraries.

In May 2024, for this research, the data were taken from the Scopus database covering the years 1968-2024. This database provides advanced search capabilities and covers a wide range of topics to assist researchers in creating reliable search strings, especially in large subjects (Abbas et al., 2022).Search keywords of this study included(TITLE-ABS-KEY (information AND retrieval) OR TITLE-ABS-KEY (information AND recover) OR TITLE-ABS-KEY (information AND redeem) AND TITLE-ABS-KEY (satisfaction) AND TITLE-ABS-KEY (library)AND TITLE-ABS-KEY (learners) OR TITLE-ABS-KEY (users) OR TITLE-ABS-KEY (researchers)).

From the first 161 articles obtained prior to the limiting language to English, a total of 155 articles were retrieved and taken into consideration for this investigation. To guarantee that the data gathered is in line with the study, all 155 articles were evaluated based on their title and abstract. After downloading the Scopus file, open it as a spreadsheet in Microsoft Excel and examine the articles to make sure they match information retrieval.

3.3 Analysis of Data

Biblioshiny, a version of bIbliometrix designed for non-coders, used in this study to extract all information from the collected data.Web-based, this program integrates with several databases, including as the Cochrane library, Dimensions, Web of Science, Scopus, and PubMed. Biblioshiny was selected for its user-friendly interface, which is well-organized and intuitive, as noted by Moral-Muñoz et al. (2020).Visualization is also increasingly being adopted in various research domains (Babalola et al.,2021; Mariam et al., 2020). Biblioshiny and Microsoft Excel were used to undertake a variety of analysis in accordance with the predetermined objectives. The key objectives of these investigations were to create word clouds, create thematic maps, and determine which writers and nations were the most productive. The data from Scopus was synthesized using Excel and Biblioshiny to present key findings from bibliometric analysis, visual and thematic representations of prevalent keywords, profiles of the most productive authors and how they develop, and depictions of the leading countries and their global collaboration networks. This provided thorough perspectives into the wide range of subject matters covered.

4. INTERPRETATIONS AND DISCUSSIONS

4.1 Core Information

Figure 2: Core information (Biblioshiny processed statistics).

Figure 2 depicts the key general information on the subject of study over a period of 74 years (1968-2024). In order to provide a more thorough understanding of the continuous developments and trends in the study, the time span of 1968 to 2024 was selected including the initial publications up to the present that permit the audience to understand the development and innovation throughout the time in the field that enhance their existence knowledge.

Thus, we've observed 155 documents in all form 103 various sources such asscientific papers, text books, periodicals and so on were located, resulting in an average of 14.37 citations for each paper and a yearly rise of 2.51%.The sources "Medical Reference Services Quarterly" (8 documents), "Electronic Library" (7 documents); "Lecture Notes in Computer Science" (7 papers) stand out most notably since they each include more than three publications. "Proceedings - National Online Meeting" (4 papers), "Journal of the American Society for Information Science and Technology", "Library Hi Tech" & "Library Philosophy and Practice" contain 3 papers.

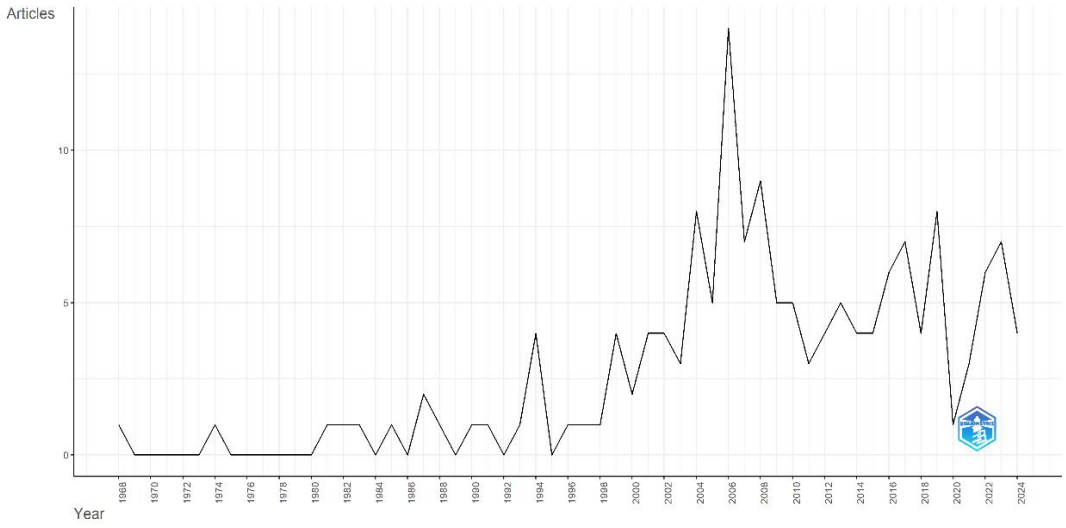

Figure 3: Annual publication trends (source: Scopus Database)

According to annual publication trends, the first moderate phase of research effort from 1968 to 1986 is followed by an ongoing increase till 1994, thereafter an enormous increase that culminates in 14 papers in 2006. A modest reduction was noted after 2008, however it rose in 2019 with 8 publications. In the year 2020, just one publication was published, most likely as a result of COVID-19 crisis changing the emphasis of research showed in figure number 3.

Moreover, subsequent sections of the paper offer a more thorough examination, focusing on key terms like author's keywords (AK) – 392 as well as keyword plus (KP) – 1175. Additional intriguing details about the writers are displayed in Figure 2, which includes the overall count of 393 authors, where 33 authors have one paper each. The average quantity of co-authors for each paper is 2.64, plus the percentage of foreign co-authorship is 7.742%.

4.2Authors

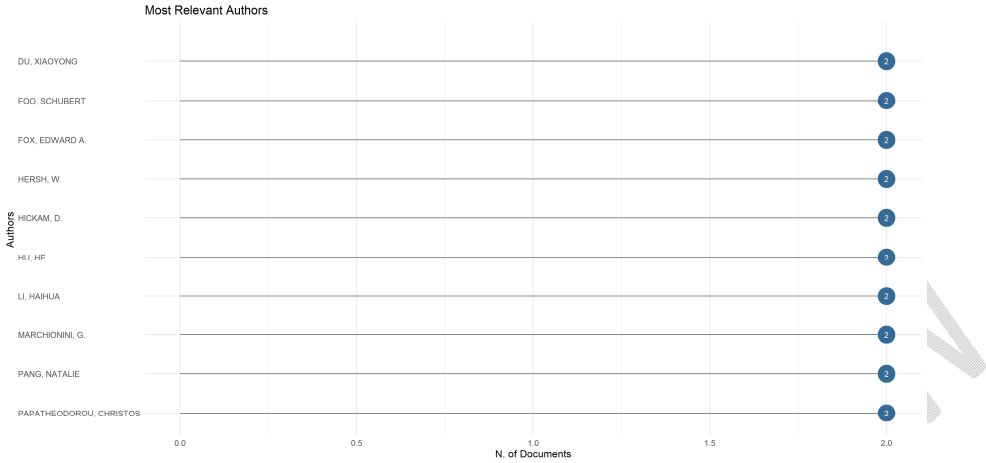

Figure 4. Authors' productivity (Operated via Biblioshiny).

As previously stated, over the course of 74 years, 393 writers have contributed to research in the fields of information retrieval (IR) and library user satisfaction. Also, noteworthy that 378 writhers, or 96.12%, have only produced one paper regarding the subject on the same direction, making up a large proportion of writers. Figure 4 shows the top ten writers who have contributed at least two publications to the relevant literature. Interms of publications there are fifteen authors Du, Xiaoyong; Foo, Schubert; Fox, Edward A.; Hersh, W.; Hickam, D.; Hu, He; Li, Haihua; Marchionini, G.; Pang, Natalie; Papatheodorou, Christos; Paul, Shampa; Sesagiri Raamkumar, Aravind; Siegel, E.R.; Tian, Xuan; Wallingford, K.T. who have 2 papereach.With only one publication, other 378 writers additionally provided a contribution to the subject of studyare not included in the graphic.

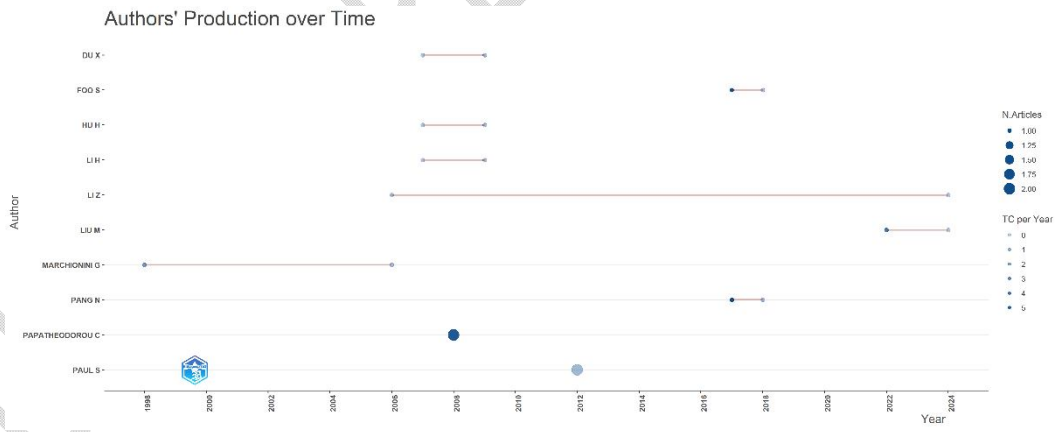

Figure 5: Authors annual productivity(Biblioshiny).

Authors production pattern throughout the years are shown in figure – 5, demonstrating that Du X, Hu H, Li H, Li Z, Marchionni G, and Papatheodorou C were the most active authors from 2006 to 2009. As the authors collection of publications published in an individual year rises, the circle gets bigger. The higher number of citations the writer earned during the relevant year, the deeper the circle.

4.3. Countries

Analysis of the information acquired indicates that the United States is the hub of the research, with the nation serving as the basis of investigation.The entire citation amount awarded to every nation is the

basis for this ranking, with the United States having the most (488) citations. That demonstrates the USA's dominance in this study sector. Asian nations also dominate in this field, with China receiving 94 citations, India receiving 88, and Malaysia and Singapore receiving 75 and 52 citations, respectively (Figure 6). Norway (110 citations), Greece (89 citations), Australia (52 citations), and the United Kingdom (42) are all in Europe.

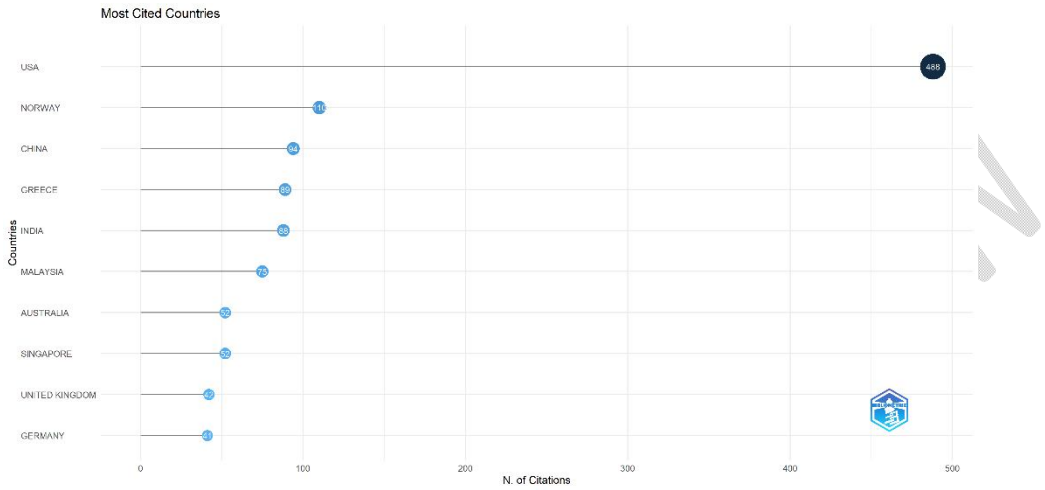

Figure 6: 10 nations with highest number of citations

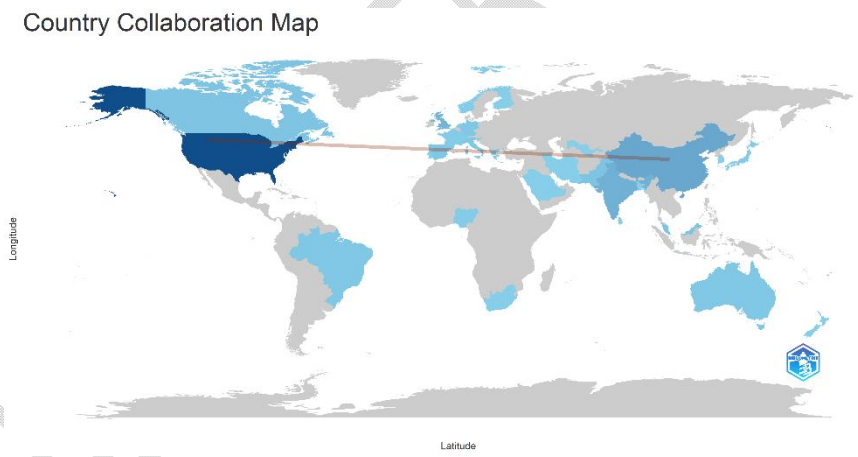

Figure 7: Nation's cooperation global map

Nonetheless, Figure 7, which represents the Collaboration World Map, demonstrates that just two nations, the United States and China, have research linkages regarding IR and IR satisfaction of library users.

4.4. Word Cloud

One drawback is that the Scopus database does not have easily available abstracts as well as AK which is elaborated as authors keyword, KP which is elaborated as keyword plus.However, all of the relevant keywords based on AK and KP were discovered using Biblioshiny for this study (Figure 8).Information

Retrieval (IR) (AK-20; KP-90)is an extremely often used term in connection to the paper's topic, digital libraries (AK-10, KP-46) comes next. "digital library" (AK-8)and "user satisfaction" (AK-6; KP-8) play central roles in IR satisfaction research field.As the word cloud evaluation demonstrates, information retrieval is a primary emphasis of the examined ideas, emphasizing "user satisfaction" "human" (KP-34), "article" (KP-27), and "search engine" (KP-23).Termswhich are also frequently addressed, including "library"(KP-27), "libraries" (AK-5; KP-15), and "internet" (AK-5). This seems obvious as IR influences the growth of "satisfaction" (KP-13) and "consumer satisfaction"(KP-19), along with "customer satisfaction" (AK-5; KP-8).

Figure 8. Word cloudformed with Authors keyword and keyword plus (Biblioshiny)

Each term or phrase in the word cloud has a size that corresponds to its frequency since it's a visual that shows how frequently words occur. With 20 instances, the phrase "information retrieval" is the most prevalent and dominates the AK word cloud. Due to its high frequency, "information retrieval" is shown in a font size that is significantly bigger than that of the other phrases, particularly those with less than three occurrences, which makes them less noticeable. "Academic libraries," "information services," "library users," "personalization," "usability," and "user studies" are among the 50 most frequent AK phrases that appear fewer than five times. Additionally, eight terms—"e-learning," "evaluation," "higher education," "information seeking behavior," "metadata," "service quality," "students," and "user interfaces"—have three occurrences that are comparable. All the remaining 29 terms have correspondingly 2 occurrences each which are – "academic digital library search" represents the recent digitalization in academic libraries for the learners. Terms like "cancer", "controlled laboratory study","design", "domain", "ontology", "electronic resources", "exploratory search", "information-seeking behavior", "information sources", "information storage and retrieval", "interactive information retrieval", "knowledge management", "librarians", "lifelong learning", "medline", "meta-analysis", "performance measures", "public libraries", "recommender system", "recommender systems", "reference services", "semantic web", "social tagging", "systematic review", "university libraries", "user behaviour", "user modeling", "video retrieval" and "website design".

4.5. Thematic Map

Five theme clusters based on the authors' keywords (AK) are displayed in Table 1. The arrangement of those clusters inside the four-quadrant themed map as described by six distinct features: Name, Callon Centrality, Callon Density, Rank Centrality, Rank Density, and Cluster Frequency. The thematic map's four quadrants correspond to the five clusters that have been found, based on the values of Rank Density

(which varies from 1 to 5) and Rank Centrality (which varies from 1 to 5). The term that each cluster is automatically given is determined by whatever notion occurs in it the most frequently. "Information retrieval" (695), "digital libraries" (327), "adult" (107), "database system" (33), and "academic digital library search" (16) are the titles of the corresponding clusters.

Cluster	CallonCentrality	CallonDensity	RankCentrality	RankDensity	ClusterFrequency
digital libraries	14.831	85.466	3	2	327
information retrieval	26.627	155.238	5	4	695
academic digital library search	0.75	165.625	1	5	16
database systems	3.162	84.896	2	1	33
adult	18.292	150.909	4	3	107

Table 1 – Thematic Cluster formed with authors keyword (Biblioshiny).

The study subject's thematic map is depicted in Figure 9, which uses Rank Density and Rank Centrality measurements to graphically display the notions. It is important to emphasize that density relates to the level of development, but centrality describes the level of significance. Basic Themes, Motor Themes, Niche Themes, and Emerging or Declining Themes are the four quadrants that make up the map. The choice to show the top three keywords in each cluster was selected during the creation of the themed map. As can be seen, the 5 cluster' proportions throughout each quarter are:
The Basic Themes quadrant does not have a cluster, and themes have a centered location rather than being confined to their individual quadrants. One cluster and three exemplary keywords are included in the Niche Themes quadrant :(1) academic digital library search, controlled laboratory study and controlled laboratories; The Emerging and Declining Themes quadrant contains one cluster and tree keywords:(2) database systems, bibliographic retrieval system and websites; and The Motor Themes quadrant also has one cluster and three keywords: (3) information retrieval, human and article;The two clusters in terms of development degree and relevance degree are located in the middle of the diagram, comprising assets in every single quadrant. The development degree has three representative keywords: (4) adult, female and Cochrane library; on the other hand, relevance degree has: (5) digital libraries, search engine and libraries.

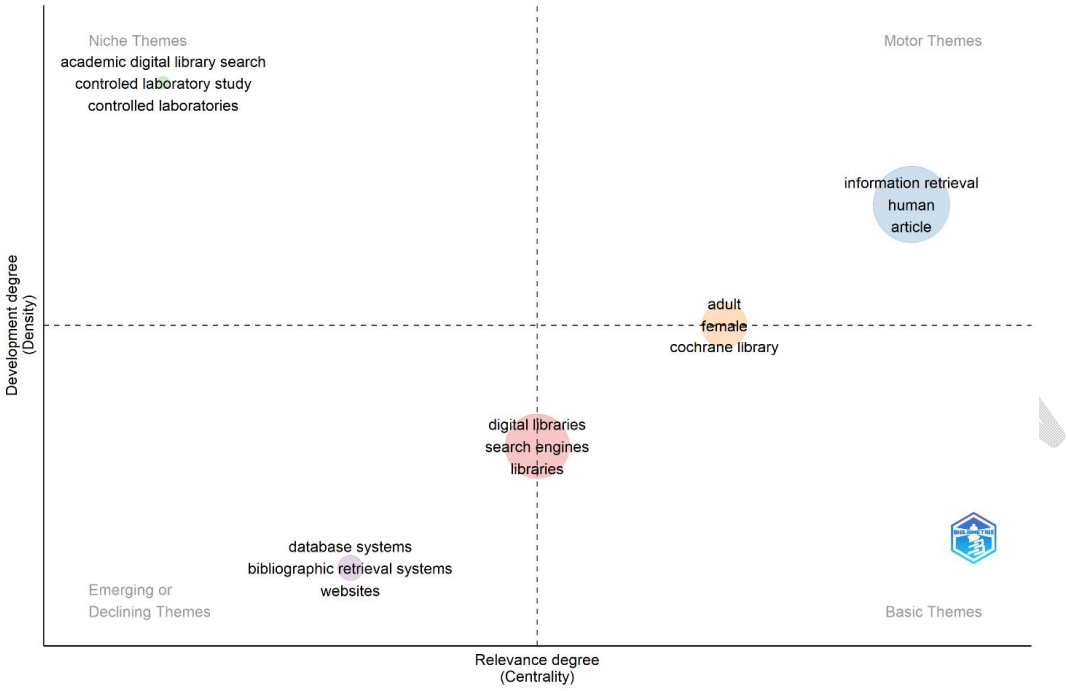

Figure 9: Thematic map formed with Authors Keyword (Biblioshiny).

The Information Retrieval Cluster, with a frequency - 695 and a Rank Centrality - 5(strong significance), is the biggest and strongest cluster in the Motor Theme quadrant. The 3 significant terms in the cluster are "human" (32) and "article" (27), in alongside the notion of "Information retrieval" (87).The cluster also contains associated terms "internet" (14), "library" (25), and "consumer satisfaction" (19). The *Digital libraries Cluster*, located in the centrally relevance degree, is noteworthy for having a reasonably large frequency (327) and an excellent centrality (3).The leading three ideas in the collection contain "search engines" (22) and "libraries" (15), in addition to the notion of "digital libraries" (46). Additional terms include "webwide web" (10), "information services" (13), and "customer satisfaction" (8).The Academic Digital Library Search Cluster, which has the greatest Rank Density (5), is a tiny cluster (16) located within the Niche Themes sector.The cluster is based on the idea underlying “academic digital library search” (2), with another closely related concept, “controlled laboratory study” (2) and “controlled laboratories”(2) serve as significant inside the cluster.In contrast, the Database Systems Cluster has Rank Density - 2 and Cluster Frequency - 33, making it a bigger cluster. Together with "bibliographic retrieval systems," the ideas of "websites" (4) and "online searching" (3) are presented in this cluster. Furthermore, situated in the development degree quadrant the *Adult Cluster* (RankCentrality4; RankDensity3) has three representative keywords: “adult” (10), “female” (9) and “Cochrane library” (9).

5.CONCLUSION

This study conducted a comprehensive review encompassing 155 publications sourced from the Scopus database, Information Retrieval Satisfaction of library users. From our analysis we have found the continuous developments and trends in the field of the study’s time span was of 1968 to 2024 that permit the audience to understand the development and innovation throughout the time in the field that enhance their existence knowledge. According to annual publication trends, the first moderate phase of research

effort from 1968 to 1986 is followed by an ongoing increase till 1994, but a modest reduction was noted after 2008, however it rose in 2019 and in the year 2020, just one publication was published, most likely as a result of COVID-19 crisis changing the emphasis of research showed. There are 393 writers have contributed to research in the fields of information retrieval (IR) and library user satisfaction. And top ten writers among them who have contributed at least two publications to the relevant literature included, Du, Xiaoyong; Foo, Schubert; Fox, Edward A.; Hersh, W.; Hickam, D.; Hu, He; Li, Haihua; Marchionini, G.; Pang, Natalie; Papatheodorou, Christos; Paul, Shampa; Sesagiri Raamkumar, Aravind; Siegel, E.R.; Tian, Xuan; Wallingford, K.T. In the context of the country, the USA dominance the field and not except China from the Asian part of the world. Even these two nations have research linkages regarding IR and IR satisfaction of library users. Except these two countries, there is no other collaboration has been found regarding this topic. The keyword analysis revealed that “information retrieval” is a highly utilized word, more often than “humans”, “libraries”, “, “digital libraries” and other terms. “Digital libraries”, “libraries”, “search engine” had a major influence on IR studies with “database system”, “bibliometric retrieval system”, and “websites” emerging as novel topics. The paper's primary area of interest is "information retrieval," and "user satisfaction" is another significant subject they cover. Five groups spread across four sections were identified using thematic map evaluation. 3 discrete cluster centered around the terms "adult," "female," and "Cochrane library" are shown inside the Basic Themes section. Moving to the Niche Themes quadrant, three clusters are observed, encompassing “academic digital library”, “controlled laboratory study”, and “controlled laboratory”.

As the present bibliometric study demonstrates, author’s concerns on the topic are growing minimally, it is still an issue that needs more effort and time to be implemented. Arguments for this are as follows: there are few countries showing solid scientific concerns for the topic, and the level of awareness for the importance of the topic at the individual level (student, teacher, or community member) is still quite low. Educational institutions can develop in the level of user satisfaction through an integrated approach to Information retrieval starting from the creation and shaping of innovative IR system, their effective implementationin the usage of various technologies.A wealth of new information has been gleaned from the examination of library user satisfaction in the field of information retrieval via the application of bibliometric analysis (Ding et al, 2001). In addition to adding to the body of knowledge on library user satisfaction among academics, this research has given library practitioners practical advice. It heralds a future in which libraries continue to develop into user-centered information ecosystems, in which every search result in a discovery that inspires a fresh line of inquiry. As we come to the end of this chapter, we are reminded that improving library user happiness is an ongoing process that is fueled by the human desire for knowledge and the dynamic nature of information retrieval (Bar-Illun et al., 2017). Furthermore, this study encompasses word clouds, thematic maps, and determined most productive writers and nations. The information from Scopus was assembled via Biblioshiny for the purpose to present key findings from bibliometric examination, portrays of significant productive writers and their growth paths, depiction of the major countries and their international cooperation relationships, and sight and thematic depictions of prevalent key phrases.

The policy areas and recommendations for enhancing Information Retrieval (IR) satisfaction among library users focus on strategic advancements. Promoting international collaboration through research networks will foster global knowledge exchange. Strengthening research capacity is essential, with a focus on improving skills and infrastructure. Upgrading digital library infrastructure is necessary to meet the evolving demands of technology and user requirements. Conducting regular user feedback and satisfaction studies will allow for continuous service refinement, ensuring alignment with user expectations. Implementing targeted awareness and training programs will enhance information literacy, while supporting diverse research themes in IR will encourage innovation. Finally, establishing standardized metrics for measuring IR satisfaction will provide a foundation for ongoing improvements.

This bibliometric analysis has some drawbacks, including a reliance entirely on Scopus, which may remove valuable material from other databases and languages. The emphasis on keyword research and theme mapping may ignore developing trends or complex conversations. While the research spans 1968 to 2024, it may not completely account for post-2020 alterations caused by the COVID-19 pandemic. The minimal collaboration between the United States and China also demonstrates a gap in worldwide research efforts. Future study should employ more varied databases, investigate the influence of future technologies on IR satisfaction, and look at long-term implications across user groups and locations.

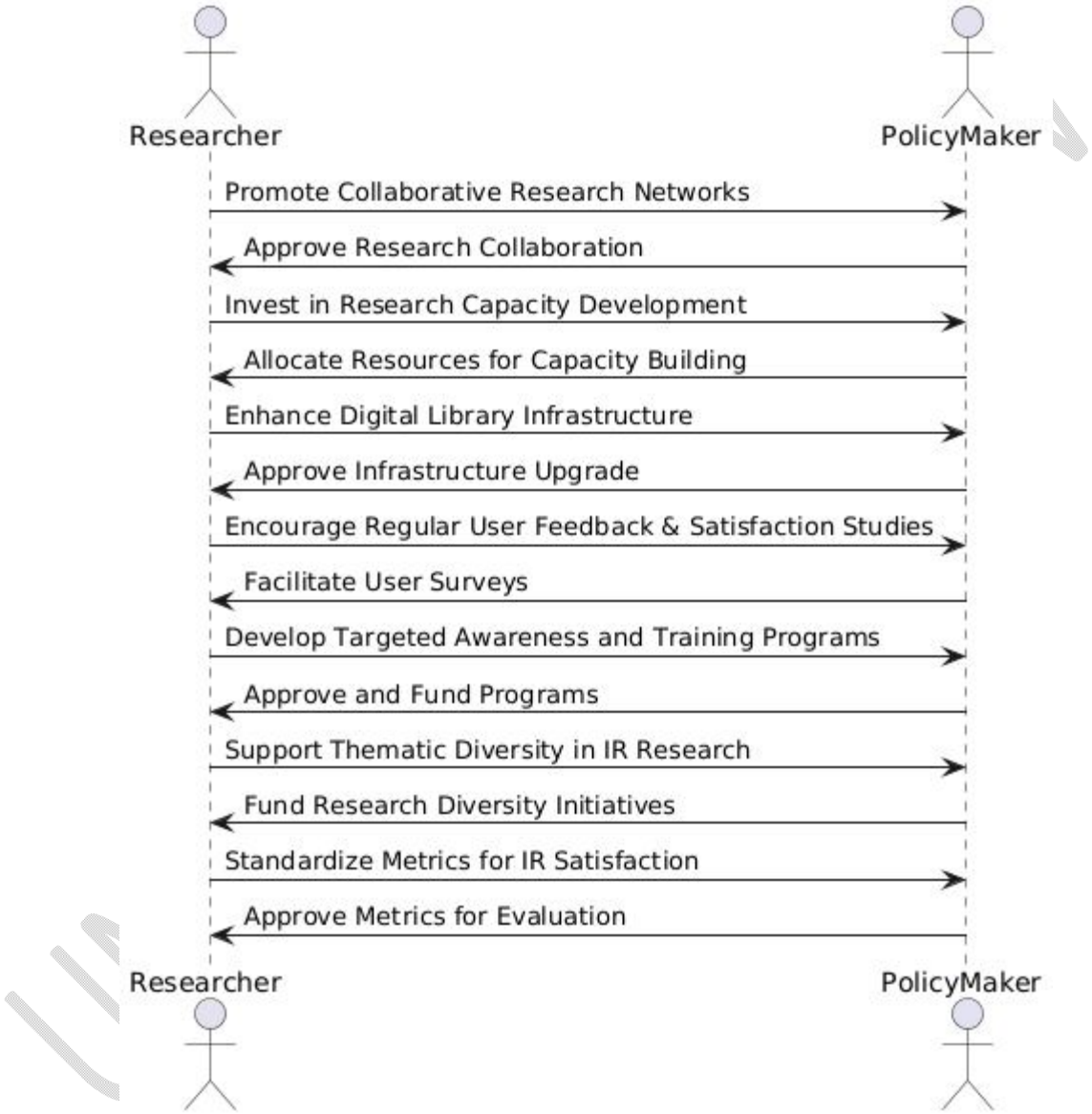

Figure 10: Policy recommendation

References:

Abbas, A. F., Jusoh, A., Mas' od, A., Alsharif, A. H., & Ali, J. (2022). Bibliometrix analysis of information sharing in social media. *Cogent Business & Management*, *9*(1), 2016556. https://doi.org/10.1080/23311975.2021.2016556

Abukari, Z. (2019). User satisfaction of resources and services of libraries: A case study of the Narh-Bita College, Tema, Ghana. *Library Philosophy and Practice*, *2743*.

Adekunle, S. A., Aigbavboa, C. O., Ejohwomu, O., Adekunle, E. A., & Thwala, W. D. (2021). Digital transformation in the construction industry: a bibliometric review. *Journal of Engineering, Design and Technology*, *22*(1), 130-158. https://doi.org/10.1108/JEDT-08-2021-0442

Adekunle, S. A., Aigbavboa, C. O., Ejohwomu, O., Adekunle, E. A., & Thwala, W. D. (2021). Digital transformation in the construction industry: a bibliometric review. *Journal of Engineering, Design and Technology*, *22*(1), 130-158.

Aria, M., & Cuccurullo, C. (2017). Bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics, 11*(4), 959-975. https://doi.org/10.1016/j.joi.2017.08.007

Aruleba, K. D., Akomolafe, D. T., & Afeni, B. (2016). A full text retrieval system in a digital library environment. *Intelligent Information Management*, *8*(01), 1.

Babalola, A., Musa, S., Akinlolu, M. T., & Haupt, T. C. (2023). A bibliometric review of advances in building information modeling (BIM) research. *Journal of Engineering, Design and Technology*, *21*(3), 690-710. https://doi.org/10.1108/JEDT-01-2021-0013

Bar-Ilan, J., John, M., Koopman, R., Wang, S., Mayr, P., Scharnhorst, A., & Wolfram, D. (2016). Bibliometrics and information retrieval: Creating knowledge through research synergies. *Proceedings of the Association for Information Science and Technology*, *53*(1), 1-4.https://doi.org/10.1002/pra2.2016.14505301023

Chowdhury, G. G. (2010). *Introduction to modern information retrieval*. Facet publishing.

Cowhitt, T., Butler, T., & Wilson, E. (2020). Using social network analysis to complete literature reviews: a new systematic approach for independent researchers to detect and interpret prominent research programs within large collections of relevant literature. *International Journal of Social Research Methodology*, *23*(5), 483-496. https://doi.org/10.1080/13645579.2019.1704356

Daim, T. U., Rueda, G., Martin, H., &Gerdsri, P. (2006). Forecasting emerging technologies: Use of bibliometrics and patent analysis. *Technological forecasting and social change*, *73*(8), 981-1012.

Ding, Y., Chowdhury, G. G., & Foo, S. (2001). Bibliometric cartography of information retrieval research by using co-word analysis. *Information processing & management*, *37*(6), 817-842. https://doi.org/10.1016/S0306-4573(00)00051-0

Donthu, N., Kumar, S., & Pandey, N. (2020). A retrospective evaluation of Marketing Intelligence and Planning: 1983–2019. *Marketing Intelligence & Planning*, *39*(1), 48-73.

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of business research*, *133*, 285-296

Donthu, N., Kumar, S., Pandey, N., & Lim, W. M. (2021a). Research constituents, intellectual structure, and collaboration patterns in Journal of International Marketing: An analytical retrospective. *Journal of International Marketing*, *29*(2), 1-25.

Griffiths, J. R., Johnson, F., & Hartley, R. J. (2007). User satisfaction as a measure of system performance. *Journal of Librarianship and Information Science*, *39*(3), 142-152.

Haque, A., Hasan, M. N., & Any, F. I. (2022). Library services during COVID-19 pandemic: a bibliometric analysis and knowledge mapping. *Library Philosophy and Practice*, 1-27.

Haque, M. A., Rahman, Z., Pervez, A. K. M., Banik, P., Aziz, D. A. B., Sarker, B., & Bhuiyan, M. F. K. (2023). Knowledge sharing and students' development: R-based bibliometric study. *Asian Journal of Education and Social Studies*, *48*(1), 144-165.

Jia, Z. J., Hong, B., Chen, D. M., Huang, Q. H., Yang, Z. G., Yin, C., ... & Liu, J. M. (2014). China's growing contribution to global intracranial aneurysm research (1991–2012): a bibliometric study. *PloS one*, *9*(3), e91594.

Jin, R., Gao, S., Cheshmehzangi, A., & Aboagye-Nimo, E. (2018). A holistic review of off-site construction literature published between 2008 and 2018. *Journal of Cleaner Production, 202*, 1202-1219. https://doi.org/10.1016/j.jclepro.2018.08.195Get rights and content

Lancaster, F.W. (1969). MEDLARS: Report on the evaluation of its operating efficiency. *American Documentation*, 20(2), 119–142.

Li, J., & Hale, A. (2016). Output distributions and topic maps of safety related journals. *Safety science*, *82*, 236-244.

Mariam, A. T., Olalusi, O. B., & Haupt, T. C. (2021). A scientometric review and meta-analysis of the health and safety of women in construction: structure and research trends. *Journal of Engineering, Design and Technology*, *19*(2), 446-466.

Moral-Muñoz, J. A., Herrera-Viedma, E., Santisteban-Espejo, A., & Cobo, M. J. (2020). Software tools for conducting bibliometric analysis in science: An up-to-date review. *Profesional de la información/Information Professional*, *29*(1). https://doi.org/10.3145/epi.2020.ene.03

Okuonghae, O., & Ogiamien, L. O. (2016). Information literacy skills as correlates of library user satisfaction among undergraduates in Nigeria. *Information Impact: Journal of information and knowledge management,* 7(2), 46-55.

Onah, J. C., Adayi, I. O., Okonkwo, E. A., & Onyebuchi, G. U. (2020). Information retrieval skills as it correlates to undergraduate use of library information resources at a Nigerian university. *Library Philosophy and Practice*, *4586*.

Ondieki, J. L., Maina, J., & Macharia, S. (2023). Knowledge sharing methods among library information science professionals in improving service delivery in public universities libraries in Kiambu County, Kenya. *African Journal of Emerging Issues*, *5*(2), 53-70.

Pritchard, A. (1969). Statistical bibliography or bibliometrics. *Journal of documentation*, *25*(4), 348-349.

Procter, R., Goldenberg, A., Davenport, E., & McKinlay, A. (1998). Genres in support of collaborative information retrieval in the virtual library. *Interacting with Computers*, *10*(2), 157-175. https://doi.org/10.1016/S0953-5438(97)00021-0

Purssell, E., & McCrae, N. (2020). *How to perform a systematic literature review: a guide for healthcare researchers, practitioners and students*. Springer Nature.

Rodrigues, S. P., Van Eck, N. J., Waltman, L., & Jansen, F. W. (2014). Mapping patient safety: a large-scale literature review using bibliometric visualisation techniques. *BMJ open*, *4*(3), e004468.

Singh, Y. (2024). Managing the Heart of Knowledge: Strategies for Library Administration and Management. *IJSRED-International Journal of Scientific Research and Engineering Development*, *7*(2), 337-343.

Suppiah, V., & Singh Sandhu, M. (2011). Organisational culture's influence on tacit knowledge-sharing behaviour. *Journal of knowledge management*, *15*(3), 462-477. https://doi.org/10.1108/13673271111137439

Verma, S., & Gustafsson, A. (2020). Investigating the emerging COVID-19 research trends in the field of business and management: A bibliometric analysis approach. *Journal of business research*, *118*, 253-261.

Zhou, Z., Goh, Y. M., & Li, Q. (2015). Overview and analysis of safety management studies in the construction industry. *Safety science*, *72*, 337-350.