Trends in Academic Library Publications for the 2014-2023 Period in Scopus Database

Tren Publikasi Perpustakaan Perguruan Tinggi Periode 2014-2023 Pada Database Scopus

Intan Khaerani[1], Haifa Zulfani Rahmi[2]
intan@ibik.ac.id[1], haifazulfani@ipdn.ac.id[2],

e-ISSN: 2723-6234
p-ISSN: 2723-6226
Indonesian Journal of Librarianship Vol. 5 No. 2, November (2024): pp. 159-174

Submitted: Sep 12, 2024; **Revised**: Sep 27, 2024;
Accepted: Oct 10, 2024; **Online Publication**: Dec 01, 2024;

How to Cite: Khaerani, I. & Rahmi, H. Z. (2024). Trends in Academic Library Publications for the 2014-2023 Period in Scopus Database. Indonesian Journal of Librarianship 5 (2), pp.159-174. DOI: https://doi.org/10.33701/ijolib.v5i2.4682

Corresponding Author:
Email: intan@ibik.ac.id
Affiliation: Institut Bisnis dan Informatika Kesatuan, Bogor-**Indonesia**

Publisher
Library Department of Governance Institute of Home Affairs (IPDN) Jatinangor in Collaboration with Gerakan Pemasyarakatan Minat Baca (GPMB) National Library of The Republic of Indonesia
Editorial Office
Jalan Ir. Soekarno KM 20 Jatinangor, Sumedang Regency, West Java, **Indonesia** (45363)
Website: http://ejournal.ipdn.ac.id/ijolib
e-*Mail*: perpustakaan@ipdn.ac.id, ijolib@ipdn.ac.id

[1]Institut Bisnis dan Informatika Kesatuan, Jl. Rangga Gading No.01, Gudang, Bogor, West Java (16123), **Indonesia**
[2]Governance Institute of Home Affairs , Jl. Ir. Soekarno KM 20 Jatinangor, Sumedang Regency, West Java Province (45363), **Indonesia**

Abstract

Background: *Every university has a library to support the academic community. The academic library does not only function to meet the informational needs of the academic community, but also plays crucial roles in education, research, information, recreation, and preservation. The importance of the academic libraries has led to numerous studies being conducted in this field. However, research developments in the field of academic libraries are not yet comprehensive due to the limited number of studies focused on its development.* ***Purpose:*** *The purpose of this research is to identify publication trends in the field of academic libraries within the Scopus database from 2014 to 2023 and to provide recommendations for research novelty in this field. Method: The research method used in this study is bibliometric analysis. The bibliometric method employed is co-word analysis (keywords) using VOSviewer software.* ***Result:*** *The trending keywords in publications on academic libraries from 2014 to 2023 included Academic libraries, Libraries, Information literacy, Library, Academic library, Human, Collection development, University libraries, Assessment, Higher education, Covid-19, Digital libraries, and Collaboration.* ***Conclusion:*** *The trending keywords in the field of academic libraries are related to the process of library's adaptation to technological advancements, user needs, and the global impact of the pandemic. In addition to trending keywords, numerous less frequent keywords have emerged, including bibliometric analysis, digital skills, information literacy skills, digital collection, digital reference, digital repositories, technology transfer, technology adoption, remote access, information systems, library design, and academic library websites. These keywords offer valuable insights for future research in the field of academic libraries, particularly in the development of information technology in academic libraries so that libraries can continuously adapt to technological developments.*

Keywords: *Academic Library; Bibliometric; Co-word Analysis*

Abstrak

Latar Belakang: Setiap perguruan tinggi memiliki Perpustakaan untuk memberikan sarana pembelajaran kepada civitas akademika. Perpustakaan perguruan tinggi tidak hanya berfungsi untuk memenuhi kebutuhan informasi civitas akademika saja, namun memiliki beberapa fungsi lain yaitu fungsi Pendidikan, penelitian, informasi, rekreasi, dan pelestarian. Pentingnya keberadaan perpustakaan perguruan tinggi menyebabkan banyaknya penelitian di bidang Perpustakaan perguruan tinggi dilakukan. Namun, perkembangan penelitian di bidang Perpustakaan perguruan tinggi belum diketahui secara menyeluruh karena kajian mengenai perkembangannya belum banyak dilakukan. **Tujuan**: untuk mengetahui tren publikasi pada bidang perpustakaan perguruan tinggi pada database scopus di tahun 2014-2023 serta memberikan rekomendasi novelty penelitian pada bidang perpustakaan perguruan tinggi. **Metode**: Metode penelitian yang digunakan pada penelitian ini adalah analisis bibliometric. Metode bibliometrik yang digunakan adalah analisis co-word (kata kunci) dengan menggunakan perangkat lunak VOSviewer. **Hasil**: Kata kunci yang menjadi tren pada publikasi mengenai Perpustakaan perguruan tinggi tahun 2014-2013 di antaranya adalah *Academic libraries, Libraries, Information literacy, Library, Academic library, Human, Collection development, University libraries, Assessment, Higher education, Covid-19, Digital libraries,* dan *Collaboration*. **Kesimpulan**: Kata kunci yang menjadi tren pada bidang Perpustakaan perguruan tinggi

adalah terkait dengan proses perpustakaan yang beradaptasi dengan perubahan teknologi, kebutuhan pengguna, dan dampak global pandemi. Selain kata kunci yang menjadi tren, terdapat banyak kata kunci yang muncul dengan jumlah sedikit, di antaranya adalah *bibliometric analysis,* digital skills, *information literacy skills*, digital collection, *digital reference*, *digital repositories*, *technology transfer*, *technology adoption*, *digital skills*, *remote access*, i*nformation systems*, *library design,* dan *academic library websites*. Kata kunci tersebut dapat memberikan rekomendasi *novelty* penelitian pada bidang Perpustakaan perguruan tinggi khususnya pada perkembangan teknologi informasi pada perpustakaan perguruan tinggi agar perpustakaan dapat terus menyesuaikan dengan perkembangan teknologi informasi.

Kata kunci: Perpustakaan Perguruan Tinggi; Bibliometrik; Analisis Co-word

I. INTRODUCTION

Background. Education is one of the key investments in preparing human resources (HR). Higher Education Institutions (HEIs) play a significant role in developing high-quality human resources (Hikmah, 2015).

Each higher education institution is required to have a library which serves as a key learning resource for the academic community. This is based on Law No. 2 of 1989 concerning the National Education System, Article 55, which states that one of the requirements for establishing a higher education institution is the presence of a library. The library within a higher education institution plays a crucial role in supporting the achievement of the institution's vision and mission, in alignment with the *Tri Dharma* of Higher Education, which includes education, teaching, research, and community service (Suharso et al., 2020a)

In addition to addressing the information needs of the academic community, higher education libraries play several other roles, including supporting education, research, information dissemination, recreation, and preservation. This aligns with the Regulation of the Head of the National Library of Indonesia No. 13 of 2017 concerning the National Standards for Higher Education Libraries (Rahayu, 2017).

Problems. The importance of academic libraries has led to numerous studies or publications on academic libraries. However, the overall progress of research or publications on academic libraries remains largely unknown, as studies on their progress have not been extensively carried out. In order to gain deeper insights into the productivity of research or publications and to identify the direction of future research and methodological advancements, a bibliometric analysis through keyword mapping can be conducted (Destari & Hidayat, 2014). Bibliometric analysis provides detailed information about a publication, including authors, keyword frequency, and citations (Rusly et al., 2019).

Previous Literature Review. Numerous studies have been conducted on academic libraries and bibliometrics. One such study was carried out by the 2021-22 ACRL Research Planning and Review Committee in 2022, titled "Top Trends in Academic Libraries." The trending topics in academic libraries included issues related to COVID-19, library staff challenges, space managements, collaborative collection development and the growth of shared prints, open access, artificial intelligence (AI), and big data ("Top Trends in Academic Libraries: A Review of The Trends and Issues," 2022).

The next research is related to mapping the literature on Artificial Intelligence in academic libraries from 2002–2022 using bibliometric analysis tools, such as Biblioshiny,

VOSviewer, and BibExcel. The results of this study show that the highest number of publications occurred in 2022, with a total of 64 publications. Conference papers were the most common type of publication, China emerged as the leading contributor, and Wuhan University was the most frequent affiliation (Hussain & Ahmad, 2024).

The next research presents a bibliometric analysis of studies on security issues in academic libraries. The data for this research was drawn from the Scopus database, consisting of 440 articles published over the past two decades. The results of the study indicate that library security is a topic that attracts the interest of academics. The research field focuses on the identification of digital services, computer simulation, and web interfaces (Chander et al., 2022).

The next study focuses on the development of smart academic library services using Internet of Things (IoT) technology in Hong Kong. This research examines perceptions of IoT technology implementation in libraries, challenges related to IoT, and potential improvements in its application. The benefits of using IoT include enhancing library operations and services. However, concerns regarding privacy and security remain challenging. To address these issues, the study recommends advancements in facial recognition, RFID, and collection identification technologies (Cheung et al., 2023)

The next study examines the development of literature on digital and online resources in higher education libraries from 1981 to 2020 using bibliometric analysis. The data are collected from the Science Citation Index (SCI) and Web of Science (Core Collection) and visualized using VOSviewer. The findings indicate that e-books and articles are the most frequently used topics. The United States is the leading country in terms of publications. The most cited article is titled “E-books or textbooks: Students prefer textbooks” (Aslam et al., 2021).

The next study presents a bibliometric analysis of Open Educational Resources (OER), Open Textbooks, and university librarians from 2002 to 2022. The data for this research was collected from the Web of Science (WOS) database. The findings indicate that research on OER has steadily increased since 2002, with a significant rise in the last six years. The trending topics in this research are primarily focused on education and scholarships related to Library and Information Science (LIS) (Chandler, 2023).

The next study focuses on college library services in response to the COVID-19 pandemic, conducted in 2020. The results indicate a need for virtual library services through the implementation of digital libraries. These services aim to provide information support for research for both students and faculty by offering subscriptions to journal databases and e-books. This objective can be achieved through interlibrary cooperation (Suharso et al., 2020b)

Following this, research was conducted on the role of mobile applications in enhancing library-related tasks, carried out in 2024. The results indicate that mobile applications play crucial roles in advancing library services. In the future, the implementation of mobile technology is viewed as a sustainable solution for libraries to offer easily accessible services, leverage digital resources, and provide a more engaging experience for users. Libraries should establish standard guidelines for selecting library service applications that are compatible across various devices. Additionally, librarians or library staff are expected to possess the necessary skills to understand, operate, and manage mobile applications to improve library services. (Tripathi & Ansari, 2024)

Next is a study on the use of Instagram by university libraries conducted in 2024. The results show that on average, university libraries upload content to Instagram approximately 12.5 times per month. The results show that shorter text correlates with

higher engagement, and the use of hashtags positively influences interaction ratios, evidenced by the presence of emojis in the text. (Drivas & Vraimaki, 2024)

The following research focuses on collaboration in college libraries, conducted in 2024. The findings indicate that collaboration is still an underdeveloped concept in library literature. More research is needed to guide professional research in the future. (Andres & Usova, 2024)

State of The Art. The research conducted by the author differs from previous studies in several key aspects. These include the data sources used, the data analysis techniques applied, the time frame of the research object, the visualization tools employed, and the recommendations for research novelty in the field of academic libraries.

Purpose. This research aims to identify publication trends in the field of academic libraries within the Scopus database from 2014-2023 and offer recommendations for research novelty in the field of academic libraries..

II. METHODS

This research employs bibliometric analysis as the research method. The data was collected from the Scopus database. Bibliometrics is a statistical method that provides the necessary information to analyze publications in a particular field (Muhammad & Yolanda, 2022). As described by Asmawanti S & Soya (2023), bibliometrics is a quantitative method that analyzes bibliographic data from journals or articles (Arwanto & Wigati, 2024). Additionally, Hakim (2020) stated that bibliometric analysis is used to answer research questions by examining the development of research and the associated literature (Tenribali & Nur, 2023).

The bibliometric method employed is co-word (keyword) analysis using VOSviewer software. VOSviewer is used to analyze, visualize, and evaluate information related to the collected publications, such as author collaboration, country collaboration, institutional collaboration, journals, and keywords (Eck & Waltman, 2023). Co-word analysis in VOSviewer is derived from co-occurrence analysis, which can display a network visualization of related keywords (Fadhilah & Rahmi, 2023).

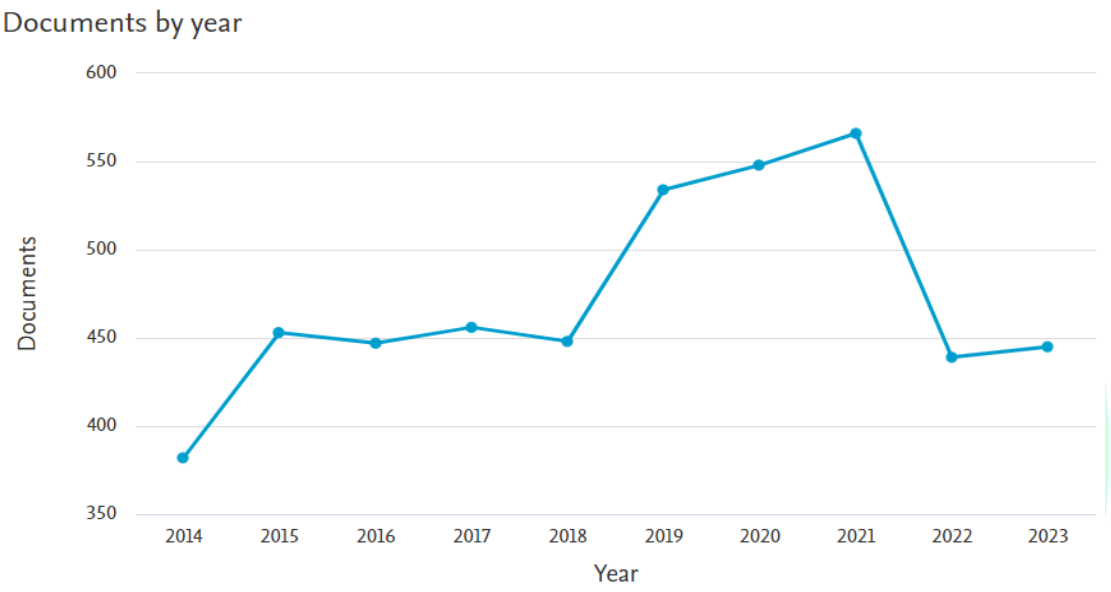
In this study, the population consists of all scientific publications on the subject of "academic library" within the Scopus database, collected on September 4, 2024, with a total of 13,597 publication documents. The sample was selected through purposive sampling. The criteria is publications from 2014 to 2023, article-type documents, sources from journals, and publications in English. As a result, 4,718 publication documents were found. The Boolean formula used is TITLE-ABS-KEY ("academic library") AND PUBYEAR > 2013 AND PUBYEAR < 2024 AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (SRCTYPE, "j")) AND (LIMIT-TO (LANGUAGE, "English")).

III. RESULTS AND DISCUSSION

To understand the trends in academic library publications for the 2014-2023 period in the Scopus database, the author needs to review the results of the Annual Growth in the Number of Publications and Trends in Publication Topics Based on Keyword Mapping, as outlined in the following subsections.

Annual Growth in The Number of Publications. The number of peer-reviewed publications serves as an indicator of research development within a specific field (Van Nunen et al., 2018).

Figure 1.
Annual Growth in The Number of Publications



Source: Research Data, 2024

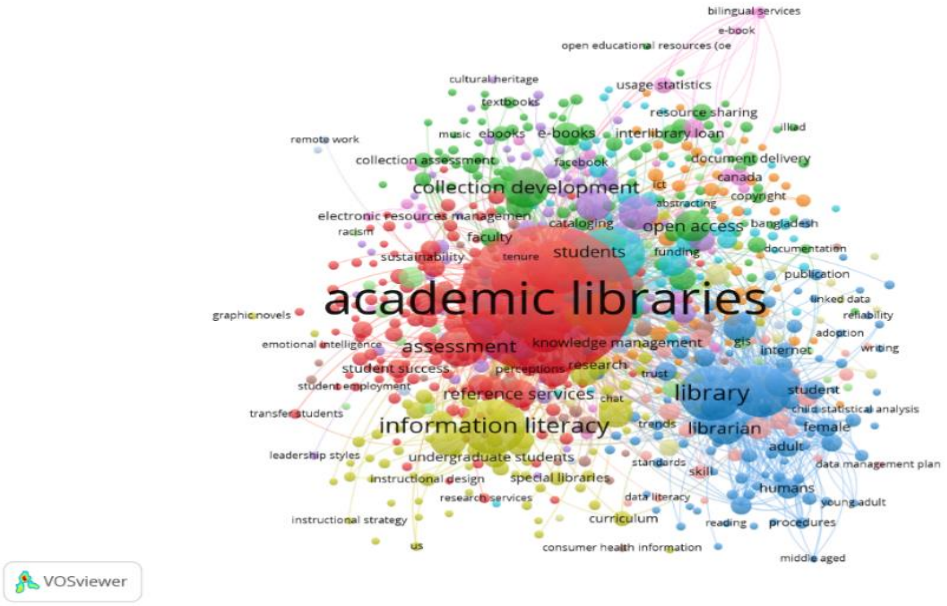
The more publications in a given year, the more topics are explored. The following data shows the number of publications related to 'academic library' in the Scopus database from 2014 to 2023:

Figure 1 illustrates the number of publications on academic libraries from 2014 to 2023. The data shows fluctuations in publication numbers over the years. The highest number of publications occurred in 2021, with a total of 566 documents. A steady increase in publications is observed from 2019 to 2021, followed by a decline in 2022 and 2023.

Figure 1 illustrates the number of publications on academic libraries from 2014 to 2023. The data shows fluctuations in publication numbers over the years. The highest number of publications occurred in 2021, with a total of 566 documents. A steady increase in publications is observed from 2019 to 2021, followed by a decline in 2022 and 2023.

Trends in Publication Topics Based on Keyword Mapping. The author used VOSviewer to visualize the publication trend map, and the trends in publication topics based on keyword mapping are illustrated in Figure 2. This mapping provides a detailed overview of the most frequently used keywords and their connections in academic library publications over the specified period. By examining the clusters and relationships of these keywords, the figure highlights key areas of focus within the field, reflecting shifts in research interests and emerging themes in academic library studies. The visualization not only shows the frequency of particular topics but also reveals evolving trends and areas of growing scholarly attention.

Figure 2.
Co-occurrence Network Visualization



Source: Research Data, 2024

Co-occurrence network visualization can display the relationships between keywords that frequently appear together in the analyzed documents. Keywords with stronger connections are grouped into the same cluster. Based on Figure 2, there are 13 distinct clusters related to the subject of 'academic library.' Below are the details of the keywords in each cluster:

- Cluster 1 consists of the following keywords: *academic librarian, academic libraries, academic library, academic staff, access services, advocacy, assessment, best practice, bibliometric, book reviews, career development, case studies, case study, change, change management, circulation, collaboration, collection, collections, college libraries, college students, community engagement, community outreach, continuing professional development, cooperation, creativity, critical information literacy, culture of assessment, data, design, digital library, digital skills, effectiveness, electronic databases, emotional intelligence, ethnography, exhibits, experiential learning, facilities, faculty collaboration, faculty members, Greece, higher education, impact, implementation, india, information commons, information literacy skills, information systems, information technology, innovation, interviews, Kazakhstan, kenya, knowledge, leadership, learning analytics, learning commons, learning spaces, leisure*

reading, librarianship, library anxiety, library as place, library assessment, library buildings, library design, library directors, library education, library employees, library facilities, library personnel, library planning, library policy, library renovation, library resources, library security, library space, library spaces, library staff, library staffing, library student workers, library use, library users, library value, lifelong learning, makerspaces, measurement, mental health, mentoring, mentorship, metrics, navigation, online databases, organizational change, organizational culture, outreach, outsourcing, participatory design, partnerships, perceptions, performance measurement, planning, policies, private universities, professional development, programming, project management, public services, reference desk, reference services, research productivity, research services, resources, return on investment, service delivery, services, south Africa, space, space planning, strategic management, strategic plan, strategic planning, student assistants, student employees, student employment, student engagement, student experience, student learning, student library assistants, student success, student workers, sustainability, sustainable development goals, text analysis, training, transfer students, types of libraries and information providers, uk, undergraduates, university students, usage, user services, user studies, value, well-being, and *workplace*. In this cluster, there are thematic or conceptual connections in publications or research related to the role of academic libraries in supporting higher education, library collaboration, teaching and learning activities between faculty and students, as well as the design and use of library spaces to facilitate learning.

- Cluster 2. *access to information, acquisitions, affordability, analytics, association of research libraries, automation, bibliometric analysis, bibliometrics, big deals, books, browsing, cataloguing, cataloguing, children's literature, citation analysis, classification, collection analysis, collection assessment, collection building, collection development, collection development policy, collection evaluation, collection management, collections management, computer applications, consortia, consortium, copyright, copyright law, course reserves, curricula, deselection, digital resources, discovery, discovery tools, document delivery, documentation, e-books, ebooks, economics, electronic books, electronic journals, electronic publishing, engineering, faculty, google scholar, high educations, illiad, information organization, information science, information seeking, information seeking behavior, information-seeking behavior, interlending, interlibrary lending, interlibrary loan, interlibrary loans, journals, library collection, library consortia, library cooperation, media, mergers and acquisitions, multimedia, music, music libraries, open access, open access publishing, open educational resources (oer), partnership, patron-driven acquisitions, preservation, print books, print collections, publishing, research support services, resource sharing, sales, scholarly communication, scholarly communications, science, scopus, search engines, selection, social network analysis, spain, special collections, stem, streaming video, streaming videos, Tanzania, technical service, technical services, technology, tenure, textbook affordability, textbooks, user behavior, user preferences, user surveys, video, weeding,* and *young adult literature*. In Cluster 2, there are connections among the keywords related to the themes of information access, collection management, the role of technology in supporting access and distribution of information, library technical services, resource management, collaboration, and library users behaviors.
- Cluster 3. *Academic, administrative personnel, adoption, adult, attention, awareness, career, case report, child, clinical article, college, conceptual framework, consultation, controlled study, conversation, data analysis, data base, data collection, decision making, e-mail, education, education and training, employee, exploratory research,*

female, financial management, follow up, gender, health science, health sciences libraries, health services research, human, human experiment, humans, information center, information dissemination, information processing, information service, information storage and retrieval, information system, internet, interview, language, learning, librarian, libraries, medical, library, library administration, library science, literature, male, manager, medical libraries, medical research, middle aged, model, needs assessment, nursing, organization, organization and management, organizational case studies, perception, personnel, physician, policy, practice guideline, predatory journals, procedures, psychology, publication, qualitative analysis, quantitative analysis, questionnaire, reading, reference service, reliability, responsibility, scientist, semi structured interview, social network, sociology, software, standards, statistical analysis, statistics, student, student retention, surveys and questionnaires, systematic review, teaching, thematic analysis, trends, undergraduate student, united kingdom, universities, university, university hospital, writing, and *young adult*. Cluster 3 combines keywords related to the contexts of education and learning, research and analysis, the role of libraries in supporting medical research and health information management, library management and organization, information processing and dissemination, as well as user behavior and social aspects.

- Cluster 4. *academic librarians, academic librarianship, academic library websites, accreditation, acquisition, acrl framework, active learning, Australia, bibliographic instruction, blended learning, burnout, college and university libraries, community colleges, competencies, curriculum, digital badges, distance education, distance learners, distance learning, distance library services, doctoral students, embedded librarian, embedded librarians, embedded librarianship, evidence-based practice, faculty development, faculty-librarian collaboration, first-generation students, first-year students, focus groups, graduate students, graphic novels, grounded theory, hong kong, information behavior, information literacy, information literacy instruction, information needs, information resources, information use, information-seeking behaviour, instruction, instructional design, instructional strategy, international students, learning management system, learning management systems, liaison librarians, librarians, library 2.0, library instruction, library instruction west, library orientation, library outreach, lis professionals, millennials, nigerian universities, nontraditional students, online education, online instruction, online learning, online tutorials, plagiarism, professional practice, qualitative data, reference, research, research consultations, research skills, school libraries, skills, social work, special libraries, subject librarian, subject librarians, survey, teaching and learning, teaching methods, undergraduate students, us, usa, user study,* and *world wide web*. Cluster 4 focuses on the role of academic librarians in promoting information literacy, supporting distance (online) learning and teaching, designing and implementing innovative teaching methods, understanding the needs of academic library users, and fostering the professional development of librarians.
- Cluster 5. *academic publishing, analog to digital conversion, archives, attitudes, china, communication, community, community college libraries, content analysis, cultural heritage, data mining, diffusion of innovations, digital collection, digital collections, digital curation, digital humanities, digital libraries, digital preservation, digital storage, digitization, electronic theses and dissertations, employment, engagement, facebook, games, gamification, government information, history, human resource managemen, human resources, information professionals, information resource, information sources, Instagram, institutional repositories, job advertisements, job*

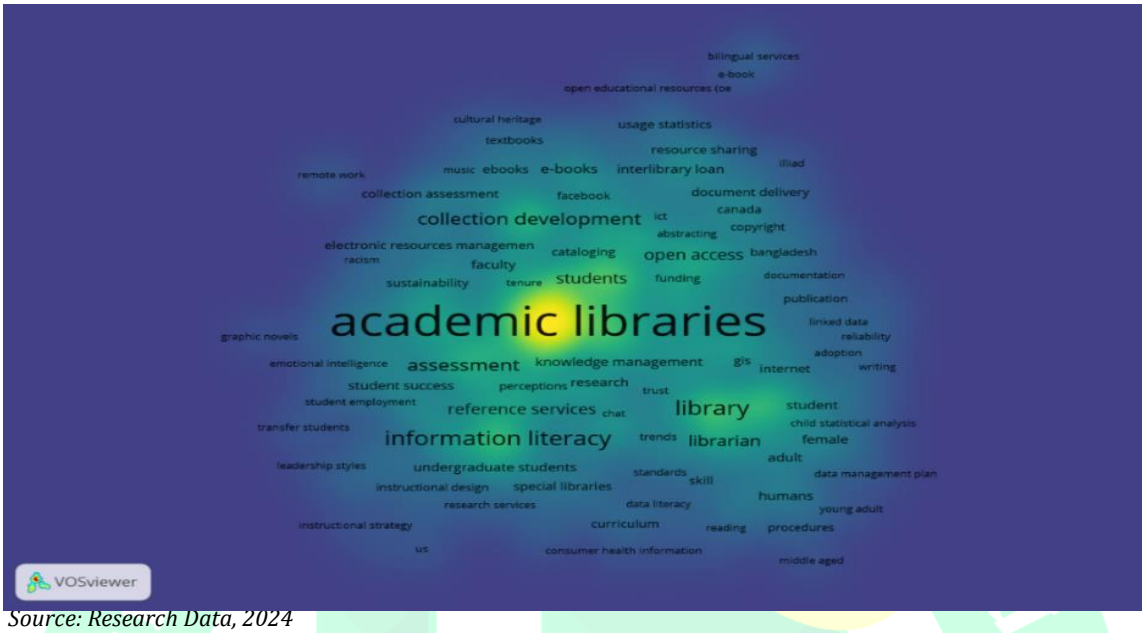
satisfaction, leadership styles, library development, library leadership, library management, library marketing, library professionals, library promotion, library research, management, managers, marketing, motivation, Pakistan, promotion, public libraries, public relations, recruitment, retention, sense of belonging, social capital, social media, social networking, social networking (online), social networking sites, social networks, societies and institutions, succession planning, sustainable development, text mining, trust, twitter, user engagement, video games, Vietnam, dan *workflows*. Cluster 5 addresses themes related to digital transformation, social media, library management, human resources in the context of libraries and information, as well as library marketing and promotion.

- Cluster 6. *Abstracting, academic library services, Bangladesh, budget, budget control, challenges, comparative study, computer aided instruction, copyrights, cost effectiveness, costs, customer satisfaction, database systems, descriptive statistics, design/methodology/approach, developing countries, development, disaster management, disaster preparedness, e-learning, electronic document exchange, electronic information resources, engineering education, evaluation, evidence based practice, funding, higher education institutions, humanities, Indonesia, information need, information services, institutional repository, knowledge base, learning environment, libqual+, libraries, library and information science, library buildings and space, library collections, library materials, mobile learning, mobile services, Nigeria, openaccess, performance, personnel training, Philippines, postgraduate students, researchers, roles, service evaluation, service quality, servqual, social sciences, sri lanka, strategy, structural equation modelling, students, survey research, surveys, technology transfer, university libraries, user satisfaction, users,* and *web of science*. The keywords in Cluster 6 related to academic library services, service evaluation and quality, library service budgeting and cost-effectiveness, development and training, user information needs, technology in education, service performance evaluation, as well as research and data analysis.
- Cluster 7. *Africa, apps, bibliographies, capacity building, cloud computing, college library, digital literacy, disinformation, ethics, fake news, ghana, ict, information behaviour, information communication technology, information retrieval, information skills, information technologies, integrated library system, integrated library systems, internet of things, iot, iran, koha, Kuwait, library automation, library services, library software, library website, lis education, Malawi, media literacy, migration, mobile devices, mobile library services, mobile phones, mobile technology, opac, open source software, public library, qr code, quality, robots, satisfaction, scholarly publishing, smartphone, smartphones, staff training, tablets, undergraduate research, university library, user education,* and *visual literacy*. The keywords in Cluster 7 related to the themes of Information and Communication Technology (ICT), digital library services, integrated and automated library systems, digital and media literacy, professional development and education for librarians, as well as user quality and satisfaction.
- Cluster 8. *Accessibility, artificial intelligence, assistive technologies, assistive technology, behavioral research, benchmarking, best practices, chat, chat reference, chatbots, consumer health information, covid-19, design thinking, digital reference, disability, efficiency, emerging technologies, genetic transcription, libguides, library technology, library websites, machine learning, mobile application, natural language processing, online resources, online services, research guides, research methods, service design, staffing, subject guides, usability, usability testing, user experience, user research, user-centered design, virtual reference, virtual reference services, wcag, web 2.0, web accessibility, web analytics, web design, web-scale discovery, website design,*

and *websites*. The keywords in cluster 8 are related to library technology, artificial intelligence and the latest technology in libraries, reference services and digital resources, library websites, as well as libraries during the COVID-19 pandemic

- Cluster 9. *bilingual services, Canada, case-studies, coronavirus, covid-19 pandemic, databases, decision-making, e-book, e-journals, e-resources, electronic resource management, electronic resources, electronic resources librarianship, electronic resources management, english-language, erm, expectation, french-language, library systems, licensing, occupation, pandemic, privacy, remote access, resource management, staff, troubleshooting, usage statistics,* and *workflow*. The keywords in cluster 9 are related to the management of electronic resources such as e-books, e-journals, e-resources, other digital assets, library services during the pandemic, bilingual services in university and national libraries, as well as the management of library systems and workflows.
- Cluster 10. *current, academic institutions, big data, business, data analytics, data curation, data librarianship, data literacy, data management, data management plan, data repositories, data science, data services, data sharing, digital repositories, entrepreneurship, information management, life cycle, Malaysia, open science, research data, research data management, research data managements, research data services, research libraries, research support, skill,* and *skills development*. The keywords in cluster 10 are related to research data management, library support for research data, as well as data skills and literacy in higher education.
- Cluster 11. *academic performance, academic research, access, area studies, critical thinking, diversity, equity, gis, inclusion, information, literacy, literature review, map, mapping, mobile technologies, neoliberalism, pedagogy, racism, social justice, spatial data, technology adoption, united states,* and *university sector*. The keywords in cluster 11 are related to education, social inclusion, as well as technology and information literacy.
- Cluster 12. *3d printing, augmented reality, collaborative learning, customer service, data visualization, digital scholarship, knowledge creation, knowledge management, knowledge sharing, library innovation, makerspace, oer, onboarding, open educational resources, organizational structure, quantitative study, remote work, service innovation, staff development, use, virtual reality,* and *visualization*. The keywords in cluster 12 are related to technological innovation in libraries, collaborative learning, knowledge management in libraries, staff and work environments development, as well as data usage and visualization
- Cluster 13. *Attitude, developing country, empiricism, finland, job performance, library data, library usage, linked data, major clinical study, metadata, Norway, qualitative research, quality control, quality of service, semantic web,* and *structural equation modelling*. The keywords in cluster 13 focus on research related to library service quality, the use of linked data, and data technology.

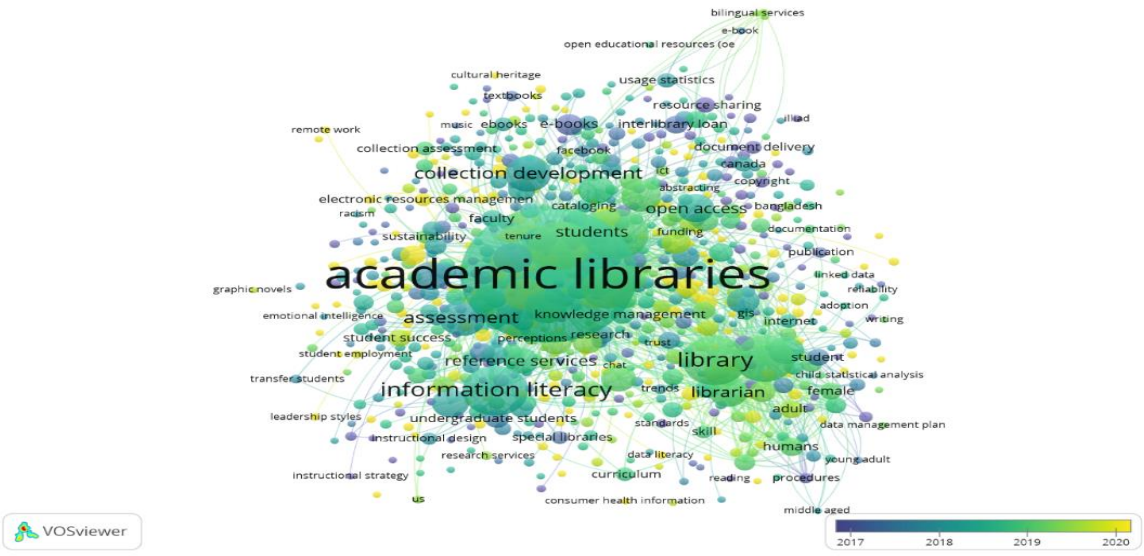
Figure 3.
Co-occurrence Density Visualization



Source: Research Data, 2024

Co-occurrence density visualization effectively illustrates the keywords that frequently appear in the analyzed documents. The brighter the color of a keyword item (the more yellow or red it is), the more often that keyword appears in publications. Conversely, keywords that appear in shades of blue signify a lower frequency of occurrence. The prominent keywords highlighted in yellow include: Academic libraries, Libraries, Information literacy, Library, Academic library, Human, Collection development, University libraries, Assessment, Higher education, Covid-19, Digital libraries, and Collaboration.

Figure 4.
Co-occurrence Overlay Visualization



Source: Research Data, 2024

Co-occurrence overlay visualization illustrates the frequency of keywords along with trends in publication years. The publication year is distinguished by color. Keyword items in blue indicate that the keywords in those publications are generally older, while keyword items in yellow suggest that the keywords are more recently published. The details of the co-occurrence overlay visualization can be seen in Table 1.

Table 1.
Trends in Publication Topics in the Field of Higher Education Libraries.

Key Words	Number of Occurance	Year
Academic libraries	2156	2018
Libraries	309	2018
Information literacy	302	2018
Library	293	2018
Academic library	281	2019
Human	255	2018
Collection development	153	2018
University libraries	152	2018
Assessment	149	2018
Higher education	126	2018
Covid-19	121	2021
Digital libraries	114	2019
Librarians	110	2019
Collaboration	110	2017

Source: Research Data, 2024

Discussion of Research Findings. The trending keywords in the field of Academic Libraries are related to library processes adapting to technological changes, user needs, and the global impact of the pandemic.

The integration of technology in libraries has become essential as they adapt to the demands of the fourth industrial revolution (Industry 4.0). Information technology has been widely implemented in libraries, including Radio Frequency Identification (RFID), Line Following Robots, Artificial Intelligent Libraries, Library Retrieval Systems (LRS), Control Robot Network Assistant (CORONA), Shelf-Reading Robots, and others (Nurqolbi, 2023).

Technological advancements give new challenges for libraries, impacting both their operations and the role of librarians. In library management, robotic technologies can be integrated across various functions, including services, cataloging, classification, book returns, digital libraries, the implementation of the Internet of Things (IoT), and more. While these innovations are intended to enhance library operations, librarians risk becoming obsolete if they do not update their skills to adapt to the evolving landscape. This aligns with Daryono's (2016) assertion that librarians face several challenges in the information technology era, including the emergence of new professions such as line specialists and information brokers, and others. Moreover, there is a shift in the librarian's role towards assisting users to access information. Furthermore, Azmar (2018) states that librarians must equip themselves with knowledge, skills in technology, information, communication, and

social aspects in the information technology era. Librarians are also expected to possess knowledge and skills in information technology to assist patrons in conducting efficient, accurate, and timely information searches. Librarians with such competencies are referred to as Cyber Librarians (Cybrarians) (Yasinta et al., 2018). Some of the key skills that a cybrarian should possess include visual literacy, digital literacy, ICT literacy, and information literacy (Samosir, 2016).

In this digital era, libraries are required to foster cooperation and collaboration (Hapsari, 2019). Collaborative activities among libraries can involve resource sharing, where libraries share and use resources such as information, collections, and staff (Suharso et al., 2020b). This resource sharing can be achieved by creating databases that contain digital collections, making it easier for users to access and find information they need through these digital collection systems (Ponser, 2017).

The COVID-19 pandemic had a significant impact on library services. Libraries have had to adapt to pandemic conditions, resulting in changes to their services. At the onset of the pandemic, both academic and public libraries temporarily closed to transition to virtual services. However, libraries continued to offer information services by innovating and leveraging technological advancements. These changes significantly affected librarians, leading to a reevaluation of existing regulations and the ability to work virtually or remotely. This resulted in innovative services focused on digital literacy, the development of digital collections, and providing virtual reference assistance ("Top Trends in Academic Libraries: A Review of The Trends and Issues," 2022).

In addition to the trending keywords, there are several other keywords that appeared with lower frequencies, including bibliometric analysis with an occurrence value of 9, digital skills with an occurrence value of 8, information literacy skills with an occurrence value of 5, digital collection with an occurrence value of 5, digital reference with an occurrence value of 5, digital repositories with an occurrence value of 6, technology transfer with an occurrence value of 5, technology adoption with an occurrence value of 7, digital skills with an occurrence value of 8, remote access with an occurrence value of 5, information systems with an occurrence value of 9, library design with an occurrence value of 8, and academic library websites with an occurrence value of 5. These keywords can provide recommendations for research novelty in the field of academic libraries, particularly concerning the development of information technology in academic libraries to ensure they remain aligned with technological advancements

Research Limitations. This study is still limited to the Scopus database. A more thorough analysis could be achieved by incorporating additional databases such as Science Direct, PubMed, and others.

IV. CONCLUSION

The trending keywords in the field of academic libraries are related to how libraries adapt to technological changes, user needs, and the global impact of the pandemic. Additionally, several less frequent keywords appeared, including bibliometric analysis, collections, information literacy skills, information systems, library design, library education, library staff, library policies, academic library websites, and library development. These keywords can provide recommendations for research novelty in the field of academic libraries, particularly regarding the implementation of information technology advancements in academic libraries. However this study is still limited to the Scopus database and focuses on the past 10 years. A more comprehensive study could be achieved by using multiple databases, such as Science Direct, PubMed, and others, as well as expanding the time frame to include earlier periods.

IV. ACKNOWLEDGEMENTS

Our sincere thanks to all those who contributed to the development of this article, including the library of Institute of Business and Informatics of Kesatuan , the Institute of Home Affairs (IPDN), and all the authors of publications on academic libraries from various countries available in the Scopus database.

V. REFERENCES

Andres, A., & Usova, T. (2024). A Conceptual Analysis of Collaboration in Information Literacy Librarianship. *The Journal of Academic Librarianship*, *50*(5), 102934. https://doi.org/10.1016/j.acalib.2024.102934

Arwanto, A., & Wigati, D. E. (2024). 75 Years Smart Library Research on Scopus Database: A Bibliometric Analysis and Information Mapping. *Indonesian Journal of Librarianship*, 15–28. https://doi.org/10.33701/ijolib.v5i1.4152

Aslam, S., Naveed, M., & Ali, N. (2021). Research on Digital and Online Resources of Academic Libraries from 1981 to 2020: A Bibliometric Analysis. *Library Philosophy and Practice* , 1–17. https://doi.org/10.1109/ICISE.2018.00020

Azmar, N. J. (2018). Masa Depan Perpustakaan Seiring Perkembangan Revolusi Industri 4.0: Mengevaluasi Peran Pustakawan. *Jurnal Iqra'*, *10*(01), 33–41. http://dx.doi.org/10.30829/iqra.v12i1.1818

Chander, R., Dhar, M., & Bhatt, K. (2022). Bibliometric analysis of studies on library security issues in academic institutions. *Journal of Access Services*, *19*(2–3), 86–104. https://doi.org/10.1080/15367967.2022.2118058

Chandler, R. (2023). Bibliometric Study of Open Educational Resources, Open Textbooks, and Academic Librarianship: Assessing Trends and Scholarly Productivity in Library and Information Science. *Journal of Open Educational Resources in Higher Education*, *2*(1). https://doi.org/10.13001/joerhe.v2i1.7877

Cheung, H. C., Lo, Y. Y. M., Chiu, D. K. W., & Kong, E. W. S. (2023). Development of smart academic library services with Internet of Things technology: a qualitative study in Hong Kong. *Library Hi Tech*. https://doi.org/10.1108/LHT-06-2023-0219

Daryono. (2016). Pustakawan Masa Depan dan Pengembangan Teknologi Informasi . *Jurnal Pustaka Ilmiah*, *2*(2), 190–199. https://doi.org/10.20961/jpi.v2i2.33658

Destari, D., & Hidayat, N. R. (2014). Produktivitas Penelitian Pendidikan dalam Pemetaan Kata Kunci: Analisis Bibliometrik. *Sanskara Ilmu Sosial Dan Humaniora*, *1*(02), 95–103. https://sj.eastasouth-institute.com/index.php/sish/article/view/380/170

Drivas, I., & Vraimaki, E. (2024). Unveiling The Feed: Academic Libraries' Instagram Unpacked. *The Journal of Academic Librarianship*, *50*(5), 102924. https://doi.org/10.1016/j.acalib.2024.102924

Eck, N. J. van, & Waltman, L. (2023). *VOSviewer Manual* . Universiteit Leiden.

Fadhilah, H. A., & Rahmi, H. Z. (2023). Unveiling Research Trends in Good Governance. *Indonesian Journal of Librarianship*, 41–58. https://doi.org/10.33701/ijolib.v4i1.3373

Hapsari, D. (2019). Tantangan Perpustakaan Perguruan Tinggi di Era Disrupsi. *Pustakaloka*, *11*(1), 151. https://doi.org/10.21154/pustakaloka.v11i1.1599

Hikmah, D. N. (2015). Hubungan Implementasi Budaya Akademik dengan Sikap Ilmiah Mahasiswa Universitas Negeri Malang. *Manajemen Pendidikan* , *24*(6), 483–490. http://ap.fip.um.ac.id/wp-content/uploads/2015/05/02-dwi-nur-nikmah.pdf

Hussain, A., & Ahmad, S. (2024). Mapping the Literature on Artificial Intelligence in Academic Libraries: A Bibliometrics Approach. *Science & Technology Libraries*, *43*(2), 131–146. https://doi.org/10.1080/0194262X.2023.2238198

Muhammad, I., & Yolanda, F. (2022). Minat Belajar Siswa Terhadap Penggunaan Software Adobe Flash Cs6 Profesional Sebagai Media Pembelajaran. *JIPM (Jurnal Ilmiah Pendidikan Matematika)*, *11*(1), 1. https://doi.org/10.25273/jipm.v11i1.11083

Nurqolbi, A. F. (2023). Penerapan Robotika Dalam Perpustakaan Masa Depan. *UNILIB : Jurnal Perpustakaan*, *14*(1). https://doi.org/10.20885/unilib.Vol14.iss1.art6

Ponser, B. (2017). Library information sharing: Best practices and trends, Challenges and prospects. *Biblioteka I Edukacja*, *12*. https://academicworks.cuny.edu/gc_pubs/401/

Rahayu, S. (2017). Mengenal Perpustakaan Perguruan Tinggi Lebih Dekat. *Buletin Perpustakaan*, 103–110. https://journal.uii.ac.id/Buletin-Perpustakaan/article/view/9109

Rusly, F. H., Ahmi, A., Talib, Y. Y. A., & Rosli, K. (2019). Global Perspective on Payroll System Patent and Research: A Bibliometric Performance. *International Journal of Recent Technology and Engineering*, *8*(2S2), 148–157. https://doi.org/10.35940/ijrte.B1028.0782S219

Samosir, F. T. (2016). Cybrarian (Cyber Librarian)Dalam Rangka Menghadapi Pengguna di Era Net Generation yang Memiliki Gaya Hidup Hedonisme. *JIPI Jurnal Ilmu Perpustakaan Dan Informasi* , *1*(02), 146–155. https://jurnal.uinsu.ac.id/index.php/jipi/article/view/556

Suharso, P., Arifiyana, I. P., & Wasdiana, M. D. (2020a). Layanan Perpustakaan Perguruan Tinggi dalam Menghadapi Pandemi Covid-19. *Anuva: Jurnal Kajian Budaya, Perpustakaan, Dan Informasi*, *4*(2), 271–286. https://doi.org/10.14710/anuva.4.2.271-286

Suharso, P., Arifiyana, I. P., & Wasdiana, M. D. (2020b). Layanan Perpustakaan Perguruan Tinggi dalam Menghadapi Pandemi Covid-19. *Anuva: Jurnal Kajian Budaya, Perpustakaan, Dan Informasi*, *4*(2), 271–286. https://doi.org/10.14710/anuva.4.2.271-286

Tenribali, D., & Nur, H. (2023). A Bibliometric Analysis on Authoritarian Parenting Style Research in the Period 2018 to 2023. *Indonesian Journal of Librarianship*, 199–212. https://doi.org/10.33701/ijolib.v4i2.3333

Top Trends in Academic Libraries: A Review of The Trends and Issues. (2022). *College & Research Libraries News*, *83*(6). https://doi.org/10.5860/crln.83.6.243

Tripathi, S., & Ansari, M. S. (2024). Application of Mobile Technology for Stock Management in Academic Libraries. *DESIDOC Journal of Library & Information Technology*, *44*(4), 234–241. http://dx.doi.org/10.14429/djlit.44.4.19650

Van Nunen, K., Li, J., Reniers, G., & Ponnet, K. (2018). Bibliometric analysis of safety culture research. *Safety Science*, *108*, 248–258. https://doi.org/10.1016/j.ssci.2017.08.011

Yasinta, L. F., Khotimah, E. R. K., & Refina, D. (2018). Cybrarian: Menjawab Tantangan Era Disrupsi di Perpustakaan . *Seminar Nasional Prodi Ilmu Perpustakaan UM*, 52–59. https://repository.um.ac.id/873/1/4.pdf