EXPLORING RESEARCH PATTERNS AND AREA OF FOCUS IN LIBRARY AND INFORMATION SCIENCE: A BIBLIOMETRIC STUDY OF SELECTED NIGERIAN FEDERAL UNIVERSITIES.

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Abstract

on areas of research by scholars in library and information science. It sought to establish the most prevalent topics and the catalyst that make researcher to concentrate their effort to advance knowledge in the area. Also, the citation pattern was evaluated to establish consistency which impacts on study quality and citation by the scholarly community. The study adopted the total enumeration method an acceptable research design in bibliometric analysis, to evaluate documents for the study in each selected university from 2013 – 2022. The use of a rationally organized checklist helped to determine the crucial information from the texts and use for further analysis. The tools were designed to thoroughly extract data based on the objective of the study. The primary data source for the research was the institutional repositories from the selected universities. The findings reveal diverse and evolving research subject areas including integration of ICT and augmented reality into library services, intellectual communication and service optimization within university libraries, with a particular emphasis on bibliometrics and citation analysis to gauge research impact systematically. Also, adoption of ICT in library operations with emphasize on e-resources and digital archives to broaden access and support research capabilities. The distinct research focuses reflect each institution's strategic priorities in advancing knowledge management, ethical information practices, and technological integration within the field of LIS.

Keywords; Research output, Research pattern, Research focus

1. Introduction

Research is a means by which a discipline can continue to grow and support the creation and use of knowledge. Additionally, research helps to expand and disseminate knowledge for the good of people and society. Scholars in the field of library and information science have frequently supported or taken part in a variety of investigations on phenomena related to the field. Most LIS research consists of summarized findings from libraries or their academic departments (Cameron. 2015). Among the subjects covered are information and knowledge management, social informatics, libraries and information services, research trends in information, information for development and change, and information and society/culture. Consequently, academic field's progress can be monitored through the use of bibliometric analysis. The approach helps in obtaining information and identifying patterns, which makes it possible to perform more methodical literature study particularly with SPSS software, researchers may quickly update data that has been imported from several sources, such a database or repository (Vogel and Güttel, 2013). The bibliometric research employs a variety of citation analysis techniques to identify the relationships between authors and their publications (Koo, 2017). To categorize authors, their institutions, the original journal in which they were published, indexing, research developing search strategies used in case of automated system, comparative evaluation of the secondary services, bibliographic control, and construction of retrospective bibliographic data.

2. Literature Review

According to Okonedo and Popoola (2012), writings and publications such as journal articles, book chapters, conference proceedings, research projects, dissertations, and thesis are all regarded as research output. The narrowing focus of research output may be used to describe this research trend. Research must produce fresh data to advance the LIS field as a whole. LIS research advances our understanding of the information society and its development in addition to assisting professionals to better interact with their workplaces, coaching practitioners, and encouraging innovation in the sector (McNicol and Nankivell 2003). Academics, researchers, and LIS professionals may be able to better understand how the field of LIS is evolving and changing by observing research patterns. It assists in identifying current research trends and brings attention to the topics on which the bulk of publications are focused. to determine the LIS research areas that receive the greatest attention (Barik & Jena, 2019).

The bibliometric analysis (Nabi and Mukhtiar 2015) of the repositories in USA revealed 42210 articles published which is equal to (48.57%) were between 1975 and 2012. The study projected that the volume of LIS literature will increase by 81.08 percent between 2012 and 2021. The University of Illinois, which produced research papers, and the University of California, which published 1797 articles, were the two most productive universities (2.06 percent). Articles account for 84773 (86.65%) of the two types of literature examined in the study, while reviews account for 2305. (2.65 percent). The library journal placed second with 4.37 percent of the articles, while Scientist grabbed first with 4.63 percent. Shukla also emphasized the achievements of LIS researchers in India throughout the period of the last 40 years, from 1980 to 2019. Publications in the field of library and information science were among these contributions. The citations, publications, and authors of each of the 4304 papers included in this study were examined. Even though there were 426928 submissions from all around the world, 4304 of the papers came from LIS specialists in India (Shukla et al., 2020).

The Library and Information Science Journal articles and Ph.D. thesis are helpful resources for understanding research trends in library and information science. Using journal papers indexed in LISA Abstracts between 1990 and 2019, Mittal (2021) conducted co-word analysis. Based on a co-word analysis of the 4735 descriptor terms, the bulk of research conducted in India on library and information science (LIS) focuses on topics such as cataloguing, information retrieval, university libraries, digital libraries, and institutional repositories. For a research on LIS research trends in Africa, Dora and Kumar examined 3713 papers from 14 LIS journals between 2004 and 2020. (2021). Further research revealed that other enterprises, the majority of which were tech-related, witnessed development, including a digital library, electronic resources, and electronic periodicals. China, the United States, and England produce the most often cited articles (Wusu and Lazarus, 2018). Two of the top 25 African producers of LIS research are South Africa and Nigeria. With a total of 51,589 citations, 2016 produced the most publications. Additionally, they show how developments in LIS-related fields, academic libraries, information literacy, citation analysis, open access, and other factors are all taken into consideration in LIS research.

The discipline of library and information science and people who work in it are dedicated to providing knowledge, information, academic, and educational resources for the improvement of learning, human, and economic development. They must study, share the findings in scholarly journals, and actively contribute to the body of knowledge in their field. Academics contend that even though there are many knowledgeable librarians, research is not given a high priority by librarians (Marjorie, 2000; Verzosa, 2007; Sitienei and Ocholla, 2010; Ocholla, Ocholla, and Onyancha, 2012). Academic librarians must do research before sharing it. Publications on it and actual research go hand in hand. Academic research outputs ought to be of the highest calibre, published only after thorough peer review, and presented in a way that has gained the support of the academic field as a whole. The development of librarianship depends on librarians participating in research writing. To diversify academic viewpoints and encourage effective use of research output, the discipline of library and information science is structured to frequently produce papers, research articles, dissertations, theses, and books.

Library management, information retrieval, databases, cataloguing, automation of libraries, use of technology, and research techniques are a few of the LIS topics that might be researched. Additional issues facing LIS include censorship, security in libraries, archives, special services and acquisitions, collective bargaining, technical services, librarianship, serials, collection expansion, reference, library finances, networks, and public library administration (Aharony, 2022). All of the aforementioned academic disciplines were built upon the foundation of library and information science. Davarpanah and Aslekia (2008) identified global trends in LIS research using data from 56 international LIS publications and discovered that information technology for communication, computerized information storage and retrieval, and library usage were all themes addressed in their analysis. According to Mittal, Indian academics studying library and information science are especially drawn to open access, Web 2.0, the Internet, and other cutting-edge research disciplines (2020). A separate study over the previous ten years by Kawalec (2013) revealed trends in Spanish LIS research. Additionally, libraries, archives, and collection extensions are extensively covered in Spanish LIS literature. Information technology, rural libraries, and the function and reputation of librarians were discovered to be the three main subjects of the LIS study. The three topics most often researched in Africa were information seeking, library history, and library and information service operations. Data from 56 international LIS publications were combined by Davarpanah and Aslekia (2018) to show global trends in LIS research. Rochester (2016) claims that information technology—which encompasses social media, the Internet, online public access catalogues, and CD-ROMs—is the most frequently studied subject. None of the MLIS students studied cataloguing and classification, documentation, cooperation, indexing and abstracting, or the history of libraries.

The research areas would be categorized as a key entry or topic area under the following Library of Congress Topic Headings (LCSH) entries: library management, user services, ICT in library science, library organization, library education, and library history. The area of interest or emphasis of the research would also be the subject of a bibliometric analysis. Quantity indicators distinguish between the typical number of citations in domestic publications from the same year, same topic area, and same document format as performance indicators that reflect the impact of research, and other categories are structural indicators that show the relationship between publications, authors, and research areas, necessitating more thorough analysis to uncover patterns in the research output.

Siwach and Satish (2015) looked at the research that the Rohtak-based Maharshi Dayanand University published between 2000 and 2013 and was included in the Scopus database. The top collaborating organizations, the distribution of papers by subject, the journals utilized for communication, the most popular journals for publishing, the authors with the greatest rates of citation, and the overall number of citations were all factors that the study's researchers looked into. Gupta et al. were given the duty of analyzing the research output created by the University of Jammu fourteen years from 2010 to 2019 in 2021. 1641 records in total were deleted from the Incites database over the analyzed 10-year period. The research productivity of these works was examined using a variety of bibliometric approaches, including publication growth trends, publishing modes, citation patterns, prolific authors, preferred journals, authorship patterns, collaboration patterns, etc., to determine the topics covered, the emergence of new research fields, the standard and calibre of publications, and the scope of research applications. A few prestigious universities in Nigeria will conduct the bibliometric examination of research papers.

Gujarat is the state that generates the most, and Dr. M. K. Prajapati has overseen the most thesis, according to Pandita and Singh (2017). According to Chaman Sab (2016), the year that yielded the most fruit was 2002. Similar findings were reported by Singh (2015), who also noted Jiwaji University Gwalior's position at the top of the list of institutions, the state of Karnataka's role as the largest donor, and the years 1993–1995 as the most influential. Lotka's Law is applicable, certain writers are extraordinarily productive, and there are more solo contributions than collaborative ones, according to Ghai (2001). The majority of citations are said to come from Indian periodicals, then those from the United States and the United Kingdom, respectively. He has also emphasized the multidisciplinary character of the study and demonstrated that many of his citations are from recent studies that are less than 19 years old. The research undertaken during the review

year only indicated the most prolific year and the pattern of citations; it did not tell whether citations were produced using internet resources (ICTs) in the field of library and information science.

Research in the subject of library and information science often involves bibliometric investigations. The bulk of the papers, however, were only abstracts of original research that had been published in the top journals in the field (Swain and Panda, 2012). Based on data from the ISI Web of Science (Ahmad et al., 2019). According to academic study in the field of library and information science (LIS), the United States published the most number of scholarly articles of any nation (2019). In terms of publications, 2016 was the most productive year, while in terms of citations, 2017 was the most successful year.

3. Problem Statement

New ideas and technologies are continually being developed in the field of library and information science (LIS). This integration can be complex and requires a deep understanding of each discipline. This can make it difficult to identify and prioritize research areas, as well as to develop methodologies that can keep pace with the changes. In addition, a lack of coherence and clarity in values might make it challenging to recognize and respond to the most important research topics. Moreover, the discipline can suffer with a vague study aim, which could cause research efforts to lack direction and emphasis.

4. Study Objective

To establish the research subject focus areas of LIS research output

5. Research Methodology

Bibliometric analysis was done on the research documents and the data gathered analyzed using SPSS. The total of (1,204) LIS research papers from 2013 to 2022 in the institutional repositories of the three selected Universities in Nigeria made up the study's population. Total enumeration approach was used, to help evaluate available documents for the study in each selected university. Checklist that is rationally organized to determine the crucial information bibliometrically from the texts and use for further analysis was used. The primary data source   for the research was the institutional repositories of the selected universities. The tools were designed to thoroughly extract data based on the objective of the study.

6. Theoretical Framework

A theory is a group of coherent ideas used to explain a situation. To be tested for output, social theories seek to comprehend and explain the social environment. A framework of connected abstractions or ideals known as a theory is used to organize knowledge about the social environment and aid in resolving societal issues. System theory is applied in this study (Hayajneh 2007). According to Wersig (2019), the area of information science (IS) requires a unified design of inter-conceptual foundations or a "conceptual navigation system" to overcome issues that have been caused by traditional sciences and technology. Therefore, system theory would be adopted for this study based on the fact that at all level of information generation, production and dissemination undergo the process of input, processing, and output as purported by system theory
 Institutional repositories give academic institutions the possibility to provide worldwide open access to the knowledge that is created inside that institution. According to Holderied (2009) to create another knowledge document in the required format and standard for usage through the provision of access either manually or electronically, it important to display how information is acquired from several sources and put into writing through logical and technical procedures.

7. Findings

Research subject focus areas of LIS research output between 2013 and 2022 in the selected universities.

The examination of the research subject areas in Library and Information Science (LIS) from 2013 to 2022 at Ahmadu Bello University (ABU), the University of I The institution referred to as Ahmadu Bello University (ABU) of Nigeria, Nsukka (UNN), offers valuable insights into the thematic orientations of these institutions. During this era, there have been notable advancements in the discipline of library and

information science (LIS), with each university making a distinct University of Nigeria, Nsukka (UNN) base. This section focuses on the main research themes and trends found in the LIS research outputs of these universities.

Table 1

<div align="center">Research subject Focus Area</div>

University	Research Subject Focus Areas	Number of Publications
ABU	Digital Libraries and Information Systems	80
	Information Literacy and User Education	85
	Knowledge Management	90
	ICT in Libraries, Augmented Reality	70
	Library Management and Administration	75
UI	Information Retrieval and Access	50
	Academic Libraries and Services	45
	Bibliometrics and Citation Analysis	40
	Library User Behavior	35
	Preservation and Conservation	50
UNN	ICT Adoption	60
	Library and Information Science Education	55
	E-Resources and Digital Repositories	50
	Public Libraries and Community Services	40
	Information Policy and Ethics	30

Sources: Universities Repository, 2022

From the finding on Table 1, a substantial proportion of the research conducted at Ahmadu Bello University has been dedicated to the study of digital libraries and information systems. Research in this field has examined the execution, difficulties, and advantages of digital libraries in enhancing information accessibility (Ola & Osagie, 2011). The incorporation of digital technology in library administration has been a crucial topic, mirroring the wider trend of digital transformation in the LIS profession. Also, ABU has conducted extensive research in the fields of information literacy and user education. Researchers have focused on improving the information-seeking habits and abilities of library users, namely students, in order to efficiently utilize library resources (Oyelude & Fabunmi, 2010). The university's focus on user education underscores its dedication to enhancing the proficiency of library users.

Knowledge management is a significant area of emphasis, involving research on how knowledge is generated, shared, and used in libraries and information centers to enhance organizational effectiveness and the provision of services (Adetimirin & Ojetola, 2012). Moreover, there has been substantial study on the incorporation of information and communication technology (ICT) in library services. This research has focused on the acceptance, difficulties, and impact of ICT on library operations and services (Hamzat & Otulugbu, 2020). Moreover, much study has been conducted on library management and administration, specifically focusing on leadership, strategic planning, and the efficient allocation of library resources and personnel (Kutu & Ayo, 2019). These studies offer helpful perspectives on the efficient management of library services.
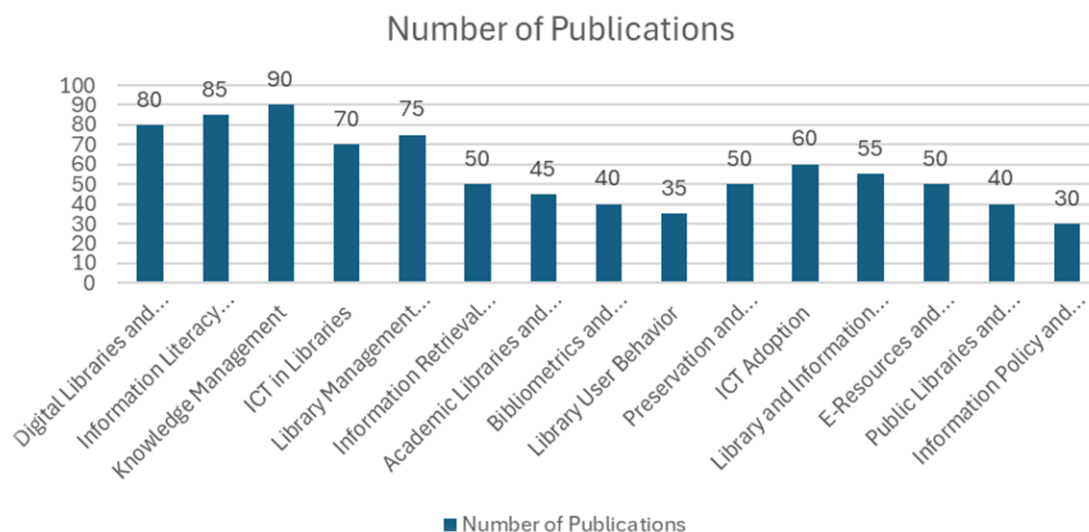
Meanwhile, The University of Ibadan has made substantial contributions to the enhancement of information retrieval systems and the facilitation of user access to information. Research in this field encompasses investigations into search algorithms, user interfaces, and the efficacy of retrieval systems (Adeyemi & Oluwabiyi, 2013). The emphasis on information retrieval is vital for enhancing the effectiveness and availability of library resources. Additionally, the academic libraries and their services have been a significant area of research at UI. Research has examined the functions, services, and contributions of academic libraries to the academic community, with a focus on their assistance in teaching, learning, and research endeavors (Oyelude & Akin-Fakorede, 2019). This underscores the crucial function that academic libraries fulfill within the educational ecosystem.

UI has demonstrated exceptional performance in bibliometric studies, particularly in citation analysis, which facilitates the comprehension of research influence and patterns. The studies have played a vital role in

evaluating the academic productivity and impact of scholars and institutions (Ola & Osagie, 2011). In addition, studies on library user behavior have investigated user satisfaction, use patterns, and the determinants of library service utilization, offering valuable insights into how libraries might enhance their provision of services to their clientele (Ilesanmi, 2016).

From the finding, the preservation and conservation of library resources, ICT and Library Information Artificial Reality have emerged as significant fields of research, encompassing studies that concentrate on strategies to safeguard and maintain both physical and digital collections (Oyelude & Akin-Fakorede, 2019). This study is crucial for guaranteeing the durability and availability of library materials. Similarly, the University of Nigeria, Nsukka, has prioritized the implementation of information and communication technology (ICT) in libraries, just like ABU. Studies have investigated the ways in which information and communication technology (ICT) tools and platforms may enhance library services and increase the availability of information (Kutu & Olajide, 2018). This is in line with the worldwide trend of using digital technology in library services.

Furthermore, UNN has prioritized the education and training of professionals in the field of library and information science (LIS). Research has evaluated the curriculum, instructional techniques, and the readiness of graduates in Library and Information Science (LIS) for employment, emphasizing the significance of a strong LIS education (Usman & Ewulum, 2018). Furthermore, there has been substantial study conducted on the advancement and administration of electronic resources and digital repositories. This research has focused on resolving concerns related to accessibility, utilization, and the influence of these resources on academic research (Okoroma, 2023).

Graph showing Publication focus according to university

The University of Northampton has also placed emphasis on public libraries and their contribution to community development. Studies have investigated the role of public libraries in promoting literacy, education, and social cohesion, highlighting their significance in the progress of society (Kutu, 2020). Moreover, research on information policy and ethics has examined issues such as data privacy, intellectual property, and information governance, offering a structure for the ethical administration of information (Anunobi & Udem, 2015).

The research findings from ABU, UI, and UNN from 2013 to 2022 demonstrate a wide-ranging and thorough approach to tackling many difficulties and breakthroughs in the field of library and information science. Every university has made distinct contributions, which reflect their own strengths and areas of specialization. These study endeavors not only augment the theoretical comprehension of LIS but also offer pragmatic resolutions to increase library services and information management in Nigeria and other regions. The emphasis on digital libraries, information literacy, knowledge management, ICT integration, and library administration at these colleges underscores the dynamic and ever-changing nature of the LIS discipline.

Emerging new areas of study of LIS research output between 2013 and 2022 in the selected universities.

Table 2. Emerging Areas of LIS Research

1. Integration of Information and Communication Technology (ICT)
2. Information Literacy
3. Open Access and Scholarly Communication
4. Role of Libraries in Education and Research
5. Digital Scholarship and Data Management
6. Library Management and Administration
7. Social media and Library Services

Source: University Repositories, 2022

Results in Table 4.5 shows the emerging publications from 2013 to 2022 in the field of library and information science (LIS) research in Nigerian universities, particularly at the University of Nigeria, Nsukka (UNN), Ahmadu Bello University (ABU), and the University of Ibadan (UI). The findings indicate that LIS publications have undergone substantial development with emergence of novel research areas. The emerging trend which signifies a prevalent subject in library operations and services is the incorporation of information and communication technology (ICT). Researchers have explored the impact of ICT improvements on library administration, digital library projects, and the availability of electronic materials. Research conducted by these academic institutions has examined the utilization of digital technologies, such as online catalogs (OPACs), and the establishment of digital libraries to improve information accessibility (Eserada & Okolo, 2019).

Another significant field of study is information literacy, which examines the extent to which students are able to learn and utilize information-seeking abilities in academic settings. Researchers have analyzed methods to improve information literacy programs and their influence on students' capacity to assess and employ information resources in a critical manner. This emphasis highlights the crucial role that libraries play in cultivating research abilities and promoting academic achievement among students. Moreso, the Nigerian LIS research community has shown an increasing interest in open access and scholarly communication. Research has examined the execution of open access policies, institutional repositories, and the distribution of research products. This exemplifies a wider worldwide pattern of making academic content readily available without charge and highlights the role of libraries in promoting the transmission of open knowledge (Krolak, 2006).

Furthermore, studies have examined the changing function of libraries in providing assistance for education and research. This includes research on the efficacy of library services, levels of user satisfaction, and the congruence between library resources and academic programs. Researchers have analyzed the ways in which libraries enhance teaching, learning, and research results, emphasizing their significance as essential elements of the academic environment.

In addition, the digital revolution has prompted inquiries concerning digital academic research and the handling of data within university libraries. Research has mostly concentrated on the library's capacity to effectively handle digital collections, facilitate research data management, and promote collaborative digital research settings.

This space exemplifies how libraries have adjusted to the digital era and their changing obligations in safeguarding and facilitating access to digital academic materials (Cheng, 2014). Furthermore, the incorporation of social media platforms into library services has become a prominent area of research. Research has investigated the ways in which libraries employ social media to reach out to people, communicate with users, and interact with the academic community. This study emphasizes the significance of social media in increasing the exposure of libraries, marketing their services, and fostering relationships between libraries and their different user groups. It also highlights the importance of libraries adapting to technological advances and trends in order to remain relevant in a digital age (Kwon & Wen, 2010).

Overall, the research conducted by UNN, ABU, and UI in the field of Library and Information Science (LIS) from 2013 to 2022 demonstrates a dynamic environment characterized by progress in integrating information and communication technology (ICT), a focus on promoting information literacy, support for open access, evolving roles of libraries in education and research, initiatives for digital scholarship, and the incorporation of social media in library services. These growing sectors not only demonstrate the changing nature of library activities but also emphasize the crucial role that libraries play in promoting academic excellence and research progress in Nigerian universities.

Throughout the designated period, libraries have played an increasingly important role in academic settings, especially in Nigerian universities. These emerging areas represent a major focus of research within the field of library and information science.

8. Discussion
Research Subject Focus Areas
The analysis of LIS research output between 2013 and 2022 in selected Nigerian universities, namely Ahmadu Bello University (ABU), the University of Ibadan (UI), and the University of Nigeria, Nsukka (UNN), reveals diverse and evolving research subject areas. ABU has demonstrated a strong focus on integrating advanced technologies like ICT and augmented reality into library services, underscoring its commitment to digital infrastructure development and enhancing user experiences. Meanwhile, UI has prioritized intellectual communication and service optimization within university libraries, with a particular emphasis on bibliometrics and citation analysis to gauge research impact systematically. UNN, on the other hand, has taken a proactive stance in adopting ICT in library operations, emphasizing e-resources and digital archives to broaden access and support research capabilities. These distinct research focuses reflect each institution's strategic priorities in advancing knowledge management, ethical information practices, and technological integration within the field of LIS.

9. Conclusion
The study highlights the dynamic and evolving areas of research within the field of Library and Information Science (LIS). It emphasizes the critical role of ICT integration, augmented reality, and digital archives in advancing library services and enhancing access to resources. Additionally, the focus on bibliometrics and citation analysis underscores the importance of assessing research impact and scholarly communication. The findings reveal that strategic institutional priorities, such as knowledge management, ethical information practices, and technological innovation, significantly influence research directions. By employing total enumeration and bibliometric analysis, this study demonstrates how institutional repositories serve as vital tools for uncovering trends and fostering advancements in LIS research. These insights are instrumental in shaping policies and strategies to promote innovation, collaboration, and knowledge dissemination in the academic library landscape.

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