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# TRENDS AND METHODOLOGICAL APPROACHES IN ACADEMIC LIBRARY RESEARCH: A BIBLIOMETRIC STUDY

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## ABSTRACT

*This study aimed at examining trends and methodological approaches applied in academic library research. The study examined academic library papers published in 2024 indexed in dimension database. A total of 916 publications extracted from dimension database were analyzed using bibliometric method. The study was guided by four research questions. Major findings indicated that recent academic library research has predominately concentrated on publishing, library services, bibliometric analysis, Information literacy and instruction with low emphasis given to emerging technologies (e.g., artificial intelligent), technological innovations and digital services. Different research designs were adopted in the publications; however, survey research design (*308*) was the most frequently used design. The findings also revealed that questionnaire/qualtrics (33.30%) was the most widely used method of data collection though interview (21.94%) and document analysis (16.92%) were also widely applied. Descriptive statistical method (50.11%) of data analysis was most widely used, followed by inferential statistical (*32.10%*) which was significantly applied. Conclusively, the study revealed a significant shift in research methodology with academic library research increasingly adopting interdisciplinary approaches. However, there is a notable gap in the focus area of academic library research with emerging technologies, innovation, and digital services receiving relatively less attention and emphasis in the existing body of research. Hence, future research should prioritize the exploration of emerging technologies, innovation, and digital technologies and services in academic libraries.*

**Keywords**: Academic Library, Academic Library Research, Research Methodology and Research Focus.

## Introduction

Research is a crucial driver of national development as it fosters innovation and societal progress. High quality research is essential for advancement of knowledge and the betterment of the society. The remarkable evolution of the human race and technological advancement seen over the past few decades is a direct consequence of our increasing interest and dependence on research (Ahmad, 2015). According to Sirajul and Sofiah (2020), research is the fountain of knowledge for the sake of knowledge and an important source of providing guidelines for solving different business, governmental, social and

educational problems. The pursuit for research is driven by the imperative need for empirical evidence to inform professional practices. Research plays a pivotal role in the advancement of knowledge, leading to the creation of new knowledge as well as contributing to existing knowledge (Sulo et al, 2012). Academic research constitutes the bedrock of human activity, improving our quality of life by expanding the frontiers of knowledge and enabling further research globally (Alzahrani, 2011). Through its iterative process, research drives innovation, cultivates critical thinking, and fosters a deeper understanding of complex phenomena, ultimately contributing to the betterment of society.

The primary objective of higher education institutions is to promote teaching, research and innovation with research occupying a central position. Thus, research is an integral aspect of higher education and universities play a vital role in facilitating the pursuit of knowledge, which invariably leads to research (Sultana, 2019) and its associated benefits. Rosenblit and Sawyerr (2006) at UNESCO colloquium on Research and Higher Education reported that the central premise of the colloquium was that research is a key ingredient in the institutional identity of universities and an indispensable prerequisite for a successful program of teaching. It enables one to understand the new development in one's field and as well enhances the expansion of knowledge in the field.

High quality research is essential for enhancing performance and production of quality work. A good research project, like a good financial investment, is one that yields substantial return, on a small investment with minimal risk, and in short term (Buckland, 2003). In other words, a good research project should optimize outcomes while minimizing inputs and potential drawbacks. Thus, a good academic researcher should prioritize research quality by adopting rigorous methodologies that will maximize the impact and efficiency of their projects, ultimately contributing to the advancement of knowledge and practice. Unfortunately, many studies in the field of Library and Information Science (LIS) in developing countries as observed by Zahra et al. (2019) are not that much effective and are not tailored to the needs or problems of the society. Zahra et al. (2019) added that one of the challenges in the field is weakness in the structure of research.

A number of the problems may probably be as a result of inexperience advisors and ignorance of necessary considerations for LIS research on the part of authors. Igbokwe et al. (2019) asserted that a significant proportion of librarians are not receiving adequate `research mentorship from their mentors, which adversely impacts the quality of their research outputs. Furthermore, inadequate knowledge of the research process can significantly impede the production of high-quality research output (Masango, 2015). One of the critical and evidence-based errors observables in

research articles as noted by Sun and Linton (2014) includes inability to adopt appropriate research methods in collection and analysis of data, which invariably leads to generating inconsistencies in the article, thereby undermining its validity and reliability. The research methodology delineates the procedural framework that a researcher intends to employ in conducting their investigation. It encompasses the research design, methods and procedures used to collect, analyze and interpret data. A well-defined research methodology ensures the generation of reliable and valid results that align with the researcher's aims and objectives. It is essential to possess in-depth knowledge of the research methodology specific to one's discipline in order to contribute meaningfully as a full partner in research activity (Brown et al., 2015).

Nevertheless, Murugaih and Murugan (2016) highlighted the prevalent reliance on descriptive data among researchers in Library and Information Science. They argued that the profession must transcend its current dependence on descriptive data and establish principles and theories on which libraries and information systems and services can be based. Earlier study by Busha and Harter (1980) posits that the nascent state of research in Librarianship is a significant factor contributing to the historical limitations of library-related research. According to them, the development of clear research goals, objectives and methodologies in library science is still in its formative stages. They added that the future of library and librarianship research lies in the integration of methodologies from other areas of social sciences and humanities including sociology, psychology, economics, linguistics and history. This interdisciplinary approach and collaboration is highly imperative as it will enable LIS researchers to tackle the complex problems facing libraries today with more rigorous and generalizable methodologies.

Furthermore, LIS is an interdisciplinary field that does not operate in isolation. Its development and design are deeply rooted in the absorption of knowledge, skills and methodologies from related disciplines. The interdisciplinary nature of LIS revolved around the acquisition of insights from diverse fields to empower librarians and information scientists in delivering effective information services to all users, in their desired formats. Therefore, LIS is a field that develops its strength and relevance to man's information environment by incorporating, principles, practices and methodologies from different disciplines, either because of their interrelationships or by entirely relinquishing its own domain and boundaries in order to gain insights, perspectives and information that will be beneficial to prudent, efficient and effective information management and handling in libraries, information and documentation institutions (Sulyman et al., 2021).

Academic library is a specialized sub-discipline within the large domain of LIS. This sub-discipline is characterized by a

specific set of principles, practices and research agenda that are tailored to the unique information needs and scholarly endeavors of academic communities. As a sub-discipline, academic library draws on the theoretical foundations and methodological approaches of LIS, while also maintaining a focused emphasis on the development and delivery of information services in academic setting. Prior research has extensively explored the research focus and methodological approaches applied in Library and Information Science (Chu, 2015; Murugaih & Murugan (2016 Togia & Malliari, 2017). However, a significant gap exists in the current body of knowledge regarding the research focus and methodological approaches employed in the specialized area of academic library.

This study, therefore, examined academic library publications indexed in dimension database in order to provide a comprehensive overview of recent trends and methodological approaches in the field. Exploring emerging trends and approaches in academic libraries can provide valuable insights into recent developments as well as providing meaningful information for conducting appropriate research by researchers in academic library and other related areas of research. It will also help to identify areas of future research.

**Purpose of the study**

This study aimed at investigating the research trends and approaches adopted in academic library research. Specifically, the study examined:

1. The focus areas of research in academic library
2. The research design adopted in academic library publications
3. The data collection methods adopted in academic library publications
4. The statistical methods used for data analysis in the academic library publications

**Research questions**

The following research questions will guide the study

1. What are the primary focus areas of research in academic library?
2. What type of research designs are commonly adopted in academic library publication?
3. What are the prevalent data collection techniques in academic library research?
4. What statistical methods are commonly used for data analysis in academic library research publications?

**Literature Review**

**Related empirical studies**

Ayanoğlu (2022) studied a content analysis on the Journal of Research in Educational Administration and Leadership (REAL). The study aimed at examining and evaluating the articles published in REAL Journal from 2016 to 2021. A total of 90 articles published in 14 issues of REAL from 2016 to 2021 were analyzed. The research method adopted for

this study was qualitative research with document (bibliometric) analysis method. The findings show that the articles published in the REAL journal are mostly studies conducted with an empirical approach and most of the empirical articles (54 articles) published in the REAL journal did not specify the sampling method. The research findings also revealed that qualitative research methods are the most used methods in the research of the articles published in the REAL journal and that most of the articles published in the REAL journal do not provide information about the model/design of the research.

Saeed and Shehryar (2021) conducted a study on Library and Information Science Research in Pakistan. The study aimed at examining the most common methods and data collection tools used by research scholars of Library and Information Science (LIS) in Pakistan. A quantitative research method was adopted using document analysis method. A total of 1,128 research articles retrieved from the Google Scholar were analyzed. The findings revealed that Majority (532) of the researchers adopted quantitative methodology, followed by qualitative method (403). The research also revealed that only 82 researches were carried out using mixed method while 111 researches follow other methods.

Ma and Lund (2020) studied the evolution of LIS research topics and methods from 2006 to 2018. Content analysis method of data analysis was adopted. The research found that in LIS research, experiment was the most popular method in 2006, 2012 and 2018 with a total of 30%. The second in popularity was survey which increased from about 19% to 25%. Citation analysis was the third with about 13% to 14%. Experiment was the most common method adopted in Information Repository and information seeking, while citation analysis dominated in scholarly communication, and survey in Library and Information services.

Han (2020) investigated LIS evolution by analyzing journal articles using Latent Dirichlet Allocation. The explored period was from 1996 to 2019. A total of 14,053 articles were analyzed. The periods were divided into five sub-periods. For each period, 10 highest scoring LIS journals in journal ranking (JCR) were selected for analysis which focused on title, abstract and keywords in each article. Ten clusters in each period were chosen for final analysis. The results show that topics related to library services disappeared after 1996–2005, while topics in Information Repository proliferated during 2000–2010. Various topics in citation analysis and bibliometrics were well represented during the years.

Ullah and Ameen (2018) provided a meta-analysis of methods applied in LIS research based on 58 documents published from 1980 to 2016. A quantitative research approach was used, and a document analysis method was adopted to synthesize findings across different studies. They created unifying categorizations of variables by re-coding method variables in the source publications.

They found that empirical, descriptive and quantitative methods were used in most LIS research. Survey was the most popular strategy and descriptive statistics mostly used for data analysis.

Hou, Yang and Chen (2018) analyzed the structure of information science research from 1996 and 2016 applying document co-citation analysis methods. They selected ten representative journals for the years 2009 to 2016. The results showed that the core topics from 1996 to 2008 were Information Repository, webometrics and citation behaviour, while in the latter period scientometric indicators, citation analysis, scientific collaboration and information behavior, and particularly science evaluation indicators formed the core. Thus, the core topics in information science have developed towards scientific and professional communication. Aspasia and Afrodite (2017) conducted a study on Research methods in Library and Information Science. The patterns of LIS research activity as reflected in the articles published between 2011 and 2016 in five well-established, peer-reviewed journals were described and analyzed. LIS literature addresses many diverse topics. Information retrieval, information behaviour, and library services continue to attract the interest of researchers as they are core areas in library science. With regard to research methodologies, the present study seems to confirm the well-documented predominance of survey in LIS research. Quantitative approaches, which dominate, tend to rely on frequency counts, percentages, and descriptive statistics used to describe the basic features of the data in a study. Fewer studies used advanced statistical analysis techniques, such as t-tests, correlation, and regressions, while there were some examples of more sophisticated methods, such as factor analysis, ANOVA, MANOVA, and structural equation modeling.

## Research Method

The study adopted bibliometric research design. Bibliometrics as a quantitative method of analyzing and measuring published literature provides a suitable framework for examining the trends and methodological approaches. A total of 916 academic library articles published in 2024 were extracted from dimension database. The instrument for data collection were document analysis form, for collecting data on methodological approaches and filtration/extraction technique, which was used for collecting data on focus area of academic library research. For research question one, a search strategy was employed to retrieve relevant publications, using keywords such as “Academic Library” or “University Library” with specific research category of Library and Information Studies. Data collected for research question 1 was analyzed with the aid of Vosviewer network analysis. For research questions 1, 3 and 4, data was collected and organized manually. The data collected for this study were analyzed in line with the research questions using tables, charts, frequency counts, and Vosviewer network analysis.

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## Result Presentation

**Research Question 1:** What are the primary focus areas of research in academic library?

Table 1: Focus areas of research in academic library

| S/N | Focus Areas | Frequency | Relevance |
|---|---|---|---|
| 1 | Publishing | 178 | 1.55 |
| 2 | Library services | 157 | 0.69 |
| 3 | Bibliometric analysis | 155 | 2.57 |
| 4 | Information literacy and instruction | 100 | 0.55 |
| 5 | Archives | 94 | 0.27 |
| 6 | Academic Librarians | 81 | 0.53 |
| 7 | Academic community | 79 | 0.49 |
| 8 | Information resources | 72 | 0.56 |
| 9 | Librarianship | 72 | 0.40 |
| 10 | Artificial intelligent technology | 70 | 1.01 |
| 11 | Social Media | 62 | 0.38 |
| 12 | Library staff | 61 | 0.34 |
| 13 | Library resources | 47 | 0.80 |
| 14 | Library user | 45 | 1.04 |
| 15 | Resource acquisition | 45 | 0.40 |
| 16 | Library professionals | 42 | 0.83 |
| 17 | Scholarly communication | 42 | 0.61 |
| 18 | Information need | 39 | 0.88 |
| 19 | Library system | 38 | 0.34 |
| 20 | Library management | 37 | 0.79 |
| 21 | Reference services | 35 | 0.89 |
| 22 | Digital literacy | 35 | 0.54 |
| 23 | Digital technology | 35 | 0.29 |
| 24 | Library collection | 35 | 0.32 |
| 25 | Services delivery | 33 | 1.00 |
| 26 | User satisfaction | 33 | 0.90 |
| 27 | Systematic literature review | 33 | 0.31 |
| 28 | Communication technology | 32 | 0.37 |
| 29 | Digital transformation | 31 | 0.41 |
| 30 | Citation analysis | 28 | 0.96 |
| 31 | Digital resources | 28 | 0.49 |
| 32 | Collection development | 28 | 0.42 |
| 33 | Information professionals | 27 | 0.46 |
| 34 | Information literacy skill | 22 | 0.78 |
| 35 | User need | 19 | 0.47 |
| 36 | Knowledge sharing | 19 | 0.36 |
| 37 | Digital collection | 19 | 0.32 |
| 38 | Knowledge management | 18 | 0.67 |
| 39 | Information literacy instruction | 16 | 0.96 |
| 40 | Data management | 16 | 0.46 |
| 41 | Digital preservation | 11 | 0.62 |
| 42 | Information study | 11 | 0.59 |
| 43 | Digital information | 10 | 0.68 |
| | | 2090 | 28.3 |

Where frequency = Number of occurrences of a keyword,
Relevance = co-occurrence frequency/Total frequency x Importance weight

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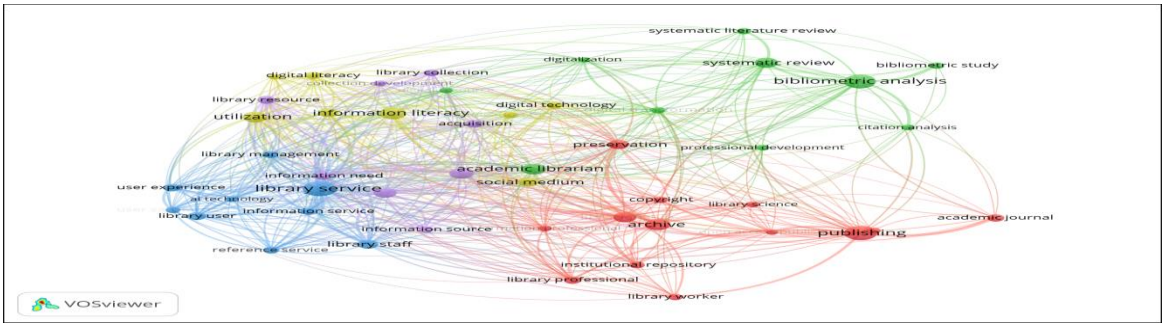



**Figure 1:** Network Visualization of primary focus areas of research in academic library

The Vosviewer analysis reveals the pattern of keyword occurrences in academic library research. The minimum number of occurrences of a keyword was 10. The resultant network comprised 44 keywords, yielding a total of 2090 occurrences and 28.3 relevance score.

It could be observed that publishing is a dominant area in academic library with frequency of 178. Its relevance indicated 1.55 connections with other keywords. The next prominent area in academic library was library services with frequency of 157 and 0.69 connection with other keywords. This is followed by Bibiometrics with 155 frequency and strongest (2.57) connection with other keywords. Information literacy has a frequency of 100 with 0.55 relevance score. The remaining keywords have frequency ≤100 with relevance score ≤ 1.04.

**Research Question 2:** What type of research designs are commonly adopted in academic library publication?

Table 2: Research design adopted in the publications

| S/N | Research design | Frequency |
|---|---|---|
| 1 | Survey research design | 308 |
| 2 | Mixed-design (quantitative/qualitative) | 267 |
| 3 | Qualitative research design | 167 |
| 4 | Bibiometric research design | 154 |
| 5 | Content analysis study | 65 |
| 6 | Correlational research design | 55 |
| 7 | Case study research design | 53 |
| 8 | Literature review study | 43 |
| 9 | Exploratory research design | 32 |
| 10 | Exploratory software development research | 22 |
| 11 | Project base conceptual research | 14 |
| 12 | Phenomenological research design | 12 |

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It could be observed from table 2 that survey research design was most commonly used research design in academic library research publications indexed in dimension database. This method was adopted by 308 publications. The next most commonly adopted research design was Mixed-design (quantitative/qualitative) which was adopted in 267 papers. This is followed by Qualitative research design which was applied in 167 publications. Bibiometric research design was adopted in 154 publications. Other research design applied in academic library research were content analysis study (65), correlational research design (55), case study research design (53), literature review study (43), exploratory research design (32), exploratory software development research (22), Project base conceptual research (14) and phenomenological research design (12)

**Research Question 3:** What are the prevalent data collection techniques in academic library research?

Table 3: Data collection methods adopted in academic library publications

| S/N | Method of Data Collection | Frequency | % |
|---|---|---|---|
| 1 | Questionnaire/ Qualtrics | 305 | 33.30 |
| 2 | Interviews | 201 | 21.94 |
| 3 | Document guide | 155 | 16.92 |
| 4 | Interviews and questionnaire | 77 | 8.41 |
| 5 | Questionnaire and document guide | 44 | 4.80 |
| 6 | Document guide and interview | 40 | 4.37 |
| 7 | Observation and interview | 37 | 4.04 |
| 8 | Literature search | 34 | 3.71 |
| 9 | Literature Search and interview | 23 | 2.51 |
| | | 916 | 100 |

From table 3, the dominant method of data collection in academic Library research was questionnaire/qualtrics. About 305(33.30%) research publications adopted this method. Interview was the next frequently used method and it was adopted in 201(21.94%) research publications. The next commonly used method of data collection was document guide (155 or 16.92%) followed by combination of Interviews and questionnaire (77). Other data collection methods adopted in academic library research were combination of questionnaire and document guide (44), document guide and interview (40), observation and interview (37), literature search (34), and literature search and interview (23).

**Research Question 4:** What statistical methods are commonly used for data analysis in academic library research publications?

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Table 4: Statistical methods used for data analysis in the academic library publications

| S/N | Statistical method for data analysis | Frequency | % |
|---|---|---|---|
| 1 | Descriptive statistics | 459 | 50.11 |
| 2 | Inferential statistics [correlation (275), ANOVA (56), regression (45) and chi-square (14)] | 294 | 32.10 |
| 3 | Mixed method (combining Descriptive statistics and inferential statistics) | 145 | 15.83 |
| 4 | Principal Component Analysis (PCA) and Analytic Hierarchy Process (AHP) | 18 | 1.97 |
| | | 916 | 100 |

It could be observed from table 4 that the statistical method of data analysis most commonly used in academic library research was descriptive method which was adopted in 459(50.11%) publications. This was followed by inferential statistical method (294 or 32.10%) which includes correlation (179), ANOVA (56), regression (45) and chi-square (14). Two hundred and forty-five (145 or 15.83%) publications applied mixed statistical methods while only 18 publications applied PCA and AHP.

**Discussion of Findings**

The result of the study showed that recent research in academic library has predominantly concentrated on publishing, Library services and bibliometric analysis. This finding is notably distinct from recent findings of Quigley et al. (2024) and many others who observed that artificial intelligence and other emerging technologies such as digital technologies, technological innovations etc., have gained momentum in recent time. Other most explored areas were information literacy and instruction, archives and academic librarians.

It is worthy to note that recent academic library research employed diverse research design such as survey, mixed-design, qualitative, bibiometric, content analysis, correlation, case study etc. However, survey research design has become the prevailing research design adopted in academic library. Interestingly, recent studies in academic library research have incorporated methodologies from different disciplines such as social sciences and education. These methods include Tromso Information Literacy Suite (TILS), Individual Verbal Protocol (IVP), LibQUAL questionnaire, Analytic Hierarchy Process (AHP) and many others.

The use of questionnaire/qualtrics has been a prevalent method of data collection in academic library research, although interviews, document analysis and mixed methods approaches are also widely employed. It is worthy nothing that significant number of the analyzed academic library publications intensively explored the methodology section. The research design, sampling technique and method of data

analysis were clearly and extensively stated in methodology section of the articles. This is quite different from other reviewed studies. For example, Ayanoğlu (2022) revealed that great percentage of articles published in the journal studied did not specify the sampling methods.

Furthermore, from the findings of the study, it was observed that descriptive statistical method of data analysis was most widely applied. However, inferential statistical methods such as correlation, ANOVA, regression techniques are gaining increasing value in academic library research. This finding is in line with the findings of Ullah, Jan and Shehryar (2021), Aspasia and Afrodite (2017), and many others who observed that descriptive statistical method is predominantly applied in academic library research.

## Conclusion

This study has yielded valuable insight into the methodology and focus of academic library research. The findings revealed a significant shift in research methodology with academic library research increasingly adopting interdisciplinary approaches. However, there is a notable gap in focus area of academic library research with emerging technologies, innovation, and digital services receiving relatively less attention and emphasis in the existing body of research.

## Recommendation

To address the gap, future research should prioritize the exploration of emerging technologies, innovation, and digital technologies and services in academic libraries.

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