

User Satisfaction and Challenges in Automated Library Research Support Services: Evidence from Nigerian Federal Polytechnics

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Abstract

Access to relevant information has changed in the last few decades due to the advent of Information and Communication Technology (ICT), especially in the context of learning and research using library facilities. The modern learning approach has drastically shifted from the old techniques to a more contemporary method, such as computerizing library activities. Typical library activities involve acquisition, serial control, cataloguing and circulation, which were conducted using manual techniques in the early days of library development. However, in recent times, automation of library services has gained incredible recognition across the world and thereby making things easier for students, teachers and researchers. Currently, many libraries across the world that have yet to embrace automation technologies are considered backwards in their operational services to their users. This study examines library users' satisfaction in the context of automation support services in Nigerian polytechnics. Some key elements and requirements for the implementation of library automation services in the learning environment that can lead to user satisfaction are covered. The study found that the different library users among the lecturers and students are highly dissatisfied with the kind of library services rendered to them by their institutions. The high level of dissatisfaction was deeply rooted in the poor nature of services or the absence of automation facilities in their institutions. In consequence, some recommendations were made for the stakeholders to invest in the development of automation facilities to encourage the use of the resources to improve the quality of services for user satisfaction.

Keywords: Automation, Lecturers, Library, Nigeria, Polytechnics, Students.

Introduction

In an academic environment, learning is a dynamic endeavour with manifold requirements to be promoted. Learning is not limited only to the classroom but also involves the utilization of library resources with the help of librarians. Therefore, the libraries have the task of meeting the requirements of the academic community. Students admitted to study in the polytechnics and universities have a range of expectations about the usage of library academic resources to complete their studies successfully. Modern libraries are expected to be equipped with emerging learning materials with creative and innovative technologies. The quest for the acquisition of new databases through evolving technologies has made libraries more complex and challenging for both learners and librarians (Khan and Shahzad, 2024; Manoharan et al., 2024). Today, library users are facing a lot of difficulties concerning

the ease of accessing relevant materials for research and learning, which is based on the fact that there are challenges in easily identifying the exact materials needed in the library and this can lead to users' dissatisfaction in academic institution libraries (Kaba et al., 2024; Kim and Kim, 2024). The availability of electronic learning resources outside the fold of conventional libraries is a major challenge to academic institution libraries because it serves as a competing information source.

Academic institution libraries are the heart of learning activities in tertiary institutions and they require strategic planning, creating and delivering service satisfaction to students and researchers. Students and researchers entering the library have different needs with different capacities for acquiring knowledge. The creation of library activities and services is expected to serve the needs of its various users based on users' desire for satisfaction. A poor library user's satisfaction brings about a negative perception of the library environment. Effective user satisfaction can pave the way for students and researchers to use the library resources more frequently, thereby positively shaping the perception of users due to service quality. The concept of service quality enables library users' satisfaction. In many research studies, library users' satisfaction and service quality have offered a unique method of assessing library performance. Library research holds a great perception of service quality and satisfaction. To ensure that service quality and satisfaction are delivered to the institutional library users, there must be efforts to provide information and research materials that encourage lifelong learning (Jin and Park, 2024). This can easily be achieved through the adoption of advancement of information technology (Rahman et al., 2024). Libraries are among the establishments that use a range of methods to automate their service delivery to users (Fadhiah et al., 2025; Rasheed and Ahmed, 2025). Automation of library services is necessary to satisfy the growing dynamism of learning in an academic environment. Thus, this proposed study aimed to determine the impact of digital research support services offered by libraries in Federal Polytechnics in Nigeria based on users' satisfaction. An evaluation of user satisfaction is necessary based on the following objectives:

1. To investigate the level of user awareness regarding the automated services that their library offers.
2. To determine the role of automation in the users' academic research activities in the polytechnics.
3. Automation's role in improving users' academic and research endeavours.

Problem Statement

Maintaining a good level of service quality that guarantees the satisfaction of library users in an academic environment is a vital issue. It is absolutely important because it has the potential to help the library funding authority improve its service provider. The automation of library learning activities is a recent development that, like in developed nations, should be encouraged, supported, and financed by relevant authorities. Professional librarians in each section of the library perform several tasks to ensure that library users have access to

all the materials they need. These tasks can be performed through the computerization of library resources and the application of artificial intelligence tools (Grimes and Porter, 2024; Vasishta et al., 2024). It is considered automated when a machine, such as a computer, helps with the accomplishment of a given task. In Nigeria, there are several major challenges with the automation or digitalization of library resources. Given this, the proposed study will look at the obstacles to automation in academic libraries in Nigeria, such as poor planning, constricted budget allocation, a lack of technology, an unstable power source, and a shortage of trained personnel.

Literature review

A modern library offers different services compared to a conventional library operational system. The term "library automation" describes the use of computers to accomplish essential services (Lin et al., 2024; Majumder, 2024). Computers, databases, and other ICT facilities are some of the main technologies used to automate the library operation. A high degree of mechanisation of several repetitive and routine operations that require human performance is implied by library automation. Automating library services entails employing computers to perform typical library functions such as serials control, acquisition, circulation, cataloguing, and reference services. Routine manual labour in libraries is made less tiresome by automation. Accelerated services have been made possible through the automation of library services in different parts of the world (Adewusi et al., 2024; Priya and Ramya, 2024). Library learning resources are organized using the planning, organizing, mobilizing, and supervising processes (Zhou et al., 2024). The fundamental objective of establishing libraries is to help people become better learners. Globally, the zeal and enthusiasm of students to use the old library setting for learning is fast degenerating, considering the emergence of online resources and information technology advancements. Due to its status as a repository of knowledge and information, the library is utilised as a learning resource by educators, researchers and students (Ankamah et al., 2024).

The availability of buildings designated for library use, the presence of collections of library materials and other information sources including the officers who plan events and offer services to users, the existence of a user community, the availability of facilities and the application of a particular system for user satisfaction are all characteristics and requirements of libraries (Wong, 2016). Therefore, the integration of exceptional services that is user-focused is the key to providing high-quality library services. It is expected that libraries would be able to adapt and evolve with the times, meeting the needs of users in society at large. Libraries that prioritize the needs of their users must be prepared to embrace new technological developments, such as automation, at any point in time. The concept of library automation is not new because ICT has made it possible for computer-based library systems to operate more quickly and efficiently compared to manual system operations. For all tedious services and procedures to be completed electronically, library automation is necessary in all of its departmental units. In reality, the digitization of library

services relies on the kind of hardware and software applications, as well as the quality of internet usage efficiency. The kind of application software that is required to be purchased by the library management depends on the demand of the library users. The use of application software plays a fundamental role in library automation (Lin et al., 2024; Rathinakumar et al., 2025).

With automation, a lot of library activities are accomplished through the processes of employing computers and computer-based tools (Olagoke and Kolawole, 2019). Library activities undoubtedly can be handled by automation, through software design and with integrated hardware and the internet. The utilization of the internet is responsible for the availability of information to libraries even in remote parts of the world, thereby creating satisfaction for library users. Academic libraries employ many integrated library software systems to automate the provision of efficient services to library users. The use of software and the internet is inevitable in the projected shift from manual library operations to digital technology for quick access to information. The Internet has made it feasible to access online databases and networked information needed for contemporary research work. The utilisation of cutting-edge technological solutions in research and education is a fantastic idea in the fight to close the access gap to library information between developed and developing nations (Sarasvathy, 2018). Therefore, the Federal Polytechnic library systems in Nigeria have given less consideration to user satisfaction based on the automation of their Research Support Services (RSS). Since libraries are for the use of their users, it is equally crucial to find out how satisfied the users are with the services they receive from them. Because of this, technical institution libraries can also take the initiative to find out what users think about automated library services. Additionally, the survey will help to analyze and identify the new services and facilities that library users want to see in the current digital world.

Materials and Methods

The methodology adopted in this study is quantitative. The decision was made to employ the questionnaire as a means of gathering information from the intended participants. For gathering information from a large population, it is an excellent instrument. A questionnaire is a meticulously crafted instrument that comprises statements and questions intended to collect data directly from the participants, according to Kasomo (2006). There are both closed-ended and open-ended questions on a questionnaire. When asking open-ended questions, the researcher gives participants the freedom to respond fairly and in their perception. Closed-ended questions restrict the participant's ability to respond freely. Therefore, a closed-ended questionnaire was used in this investigation. Numerical data were gathered and analysed using quantitative research methodology to find trends and extrapolate findings on a broader perspective. Systematic techniques were employed to identify the trending scenario based on numerical analysis. As shown in Fig. 1, the quantitative research method used in this study is based on the quantification of a problem and graphical data representation. Data were collected through a structured

questionnaire, which was distributed physically to the participants. The participants selected were given the questionnaire and guided accordingly. Federal Polytechnic Nasarawa (FPN), Auchi Polytechnic (Auchi Poly), Kaduna Polytechnic (Kadpoly), Federal Polytechnic Idah (FPI), and Federal Polytechnic Bida (FPB) are the five focal tertiary institutions chosen for the survey. Forty (40) selected participants are 20 faculty lecturers and 20 student library users to provide feedback and opinions on the various library services currently provided by their libraries.



Fig. 1: Quantitative research methods (Lazaraton, 2005)

Data Analysis

The data study illustrates how library users are satisfied with automation services in the selected polytechnics in Nigeria. The statistics obtained and presented in the framework of this study determine how the selected library users feel about their satisfaction with the automated library services provided by their institutions based on the available facilities.

Result Discussions

A. Level of Automated Services and Facilities in the Library

One of the library users' satisfaction indicators is the degree of automated services and amenities offered. Different libraries in various locations provide varied levels of automated services and facilities, from basic to fully automated systems. Automation typically means employing technology to speed up serials control, acquisition, circulation, and cataloguing. The productivity of librarians, users' satisfaction and the overall effectiveness of library services can all be impacted by the level of automation. According to Fig. 2, the majority of library users who responded from among students and lecturers were dissatisfied with the quality of automated services and facilities that their polytechnic libraries offer to them. For instance, the majority of respondents who were Auchipoly students (18), FPB students (18), FPI students (18), FPN students (20) and Kadpoly students (19) expressed dissatisfaction with the automated services and facilities in their libraries across all five of the chosen institutions. Among the student body at each institution, this amounts to at least 90% of

the responders. The unsatisfactory opinion was also supported by at least 19 of the 20 participating lecturers in each of the five institutions. The information above demonstrates how dissatisfied lecturers and students are with the quality of automated services and resources offered by their polytechnic libraries.

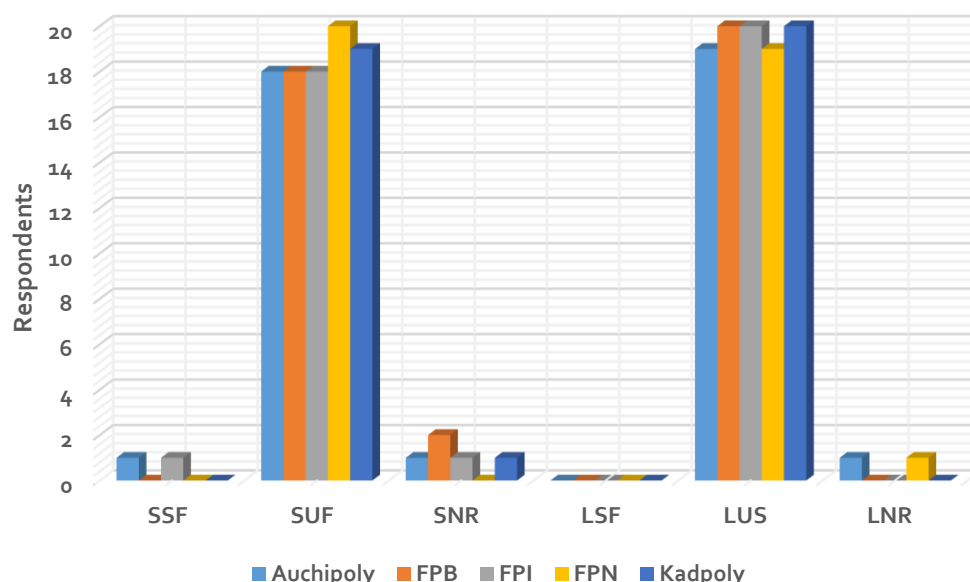


Fig. 2: Level of automated services and facilities in the library

Note: SSF = Student Satisfactory, SUF = Student Unsatisfactory, SNR = Student No Response, LSF = Lecturer Satisfactory, LUF = Lecturer Unsatisfactory, LNR = Lecturer No Response

B. Awareness of Automated Services in the Library

In any academic setting, knowledge of the automation services being implemented in libraries is quite important. Students, lecturers and researchers alike need to be aware of any academic automated services in the library as a means of encouraging their interest in the usage of the services. Compared to traditional library services, where searching procedures are laborious because of the time-consuming circumstances involved, automated library services are generally helpful and easily accessible. Most contemporary library users are aware that automated libraries provide quick and precise access to information. In consequence, as one of the elements influencing library users' satisfaction, it is imperative to look into the level of awareness regarding automated services in institutional libraries. The core of automated library services is the ability to quickly access and retrieve information, which tends to save time and provide accurate information. Students' and lecturers' perceptions of the automated services in the libraries of the selected institutions are displayed in Fig. 3. The respondents from the Auchipoly (16 students), FPB (18 students), FPI (19 students), FPN (18 students), and Kadpoly (17

students) all presented inadequate knowledge of automated services in their school libraries. The percentages of the respondents correspond to 80%, 90%, 95%, 90%, and 85% of the student body, respectively. According to the respondents from the lecturer cadre, Auchipoly, FPB, FPI, FPN, and Kadpoly have the following percentages of dissatisfied lecturers: 100%, 100%, 90%, 95%, and 75% respectively. These high percentages are based on the knowledge of the automated service at their polytechnic libraries, thus demonstrating a high degree of discontent.

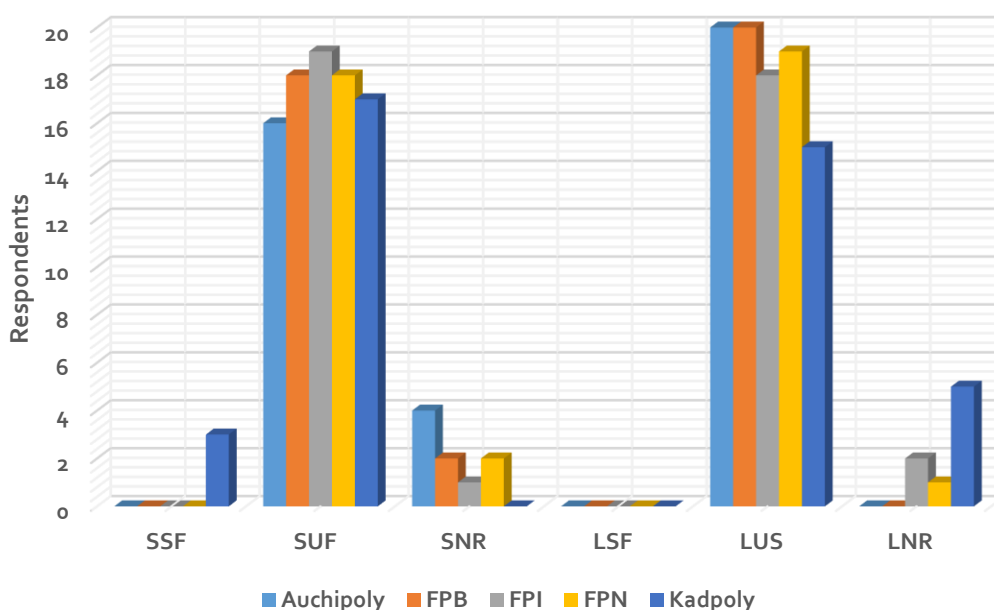


Fig. 3: Awareness of automated services in the library

C. Orientation About Library Automation Services

One of the most crucial services that librarians are supposed to provide to library users is an orientation programme. Depending on the user's needs, orientation is a type of training programme that must be planned for both new and old library users. New automated library service mechanisms are occasionally introduced. According to Fig. 4, a significant portion of respondents expressed dissatisfaction with the orientation provided by their institutions' library automation services to both lecturers and students. For students, the percentage of dissatisfied respondents falls between 75% and 100%, whereas for lecturers, it falls between 60% and 95%. There were some intriguing situations brought about by the lower percentage of unsatisfactory results based on the lecturers' responses as opposed to the students' results. For example, some of the lecturers in FPI, FPN, and Kadpoly, in their respective percentages of 30%, 40%, and 40%, gave neutral answers, meaning they had no answer to the question posed. The majority of Nigerian academic institutions have the general issue of not offering library orientation programmes to their students, while only a limited number of programmes are offered to academic staff. The fact that a sizable portion of lecturers chose to remain neutral in response to the question may indicate that they were

not aware of any orientation sessions their institution had conducted about library automation services. When library orientation programmes are offered in certain Nigerian tertiary institutions, very few people are often chosen to participate.

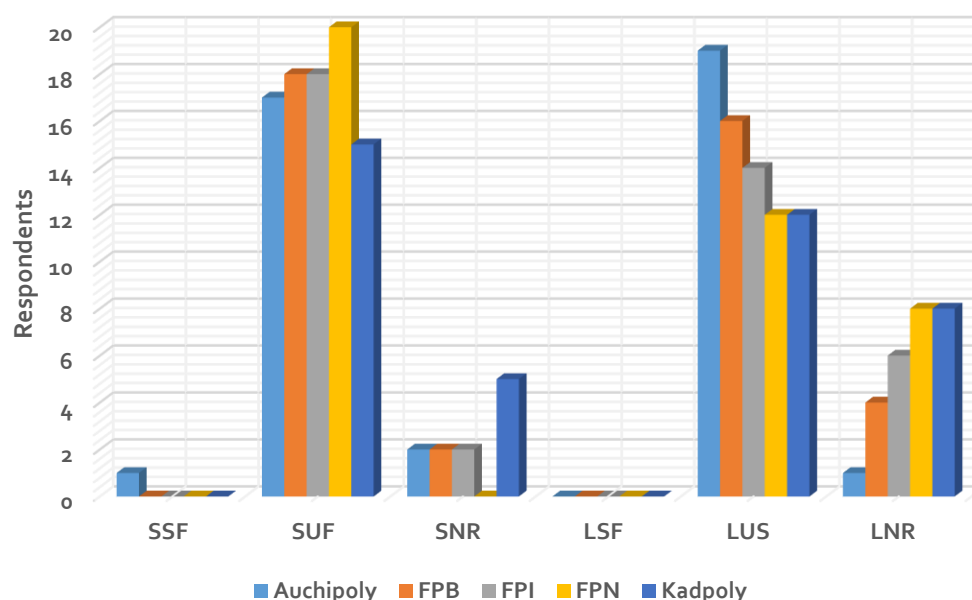


Fig. 4: Orientation about library automation services

D. Understanding of the Roles of Library Automation in Learning and Research through the Institution

The functions of library automation in education and scholarly research must be understood by the users of libraries. It is desirable for an institutional library to promote the understanding of the users' awareness of the functions of library automation in learning and research activities. Users can make effective and efficient use of the library's resources if they have a proper awareness of the roles that automation plays in library services. Being aware of the automation of the systems utilised in their libraries is essential to comprehending the functions of library automation. Between Auchipoly and FPI, the majority of student responses (80% to 95%, respectively) expressed dissatisfaction with their understanding of the roles of library automation in learning and research through the institution (Fig. 5). The percentage of unsatisfactory responses from the lecturers who participated in the survey ranges from at least 60% to as much as 80% for Auchipoly and Kadpoly, respectively. A percentage of 70% of the lecturers in the FPB and FPN expressed dissatisfaction with the institutional libraries' contributions to their understanding of the functions of library automation, whereas 65% of the lecturers in the FPI expressed the same sentiment. However, it was noted that seven lecturers who participated in Auchipoly's survey expressed satisfaction with their understanding of the functions of library automation in research and learning in their institution. The fact that certain polytechnic librarians do host library usage orientations for academic staff members may be the key to

this. In a different scenario, seven FPI lecturers who responded to the survey did not answer any questions about their knowledge of the library's functions in research and education at their university.

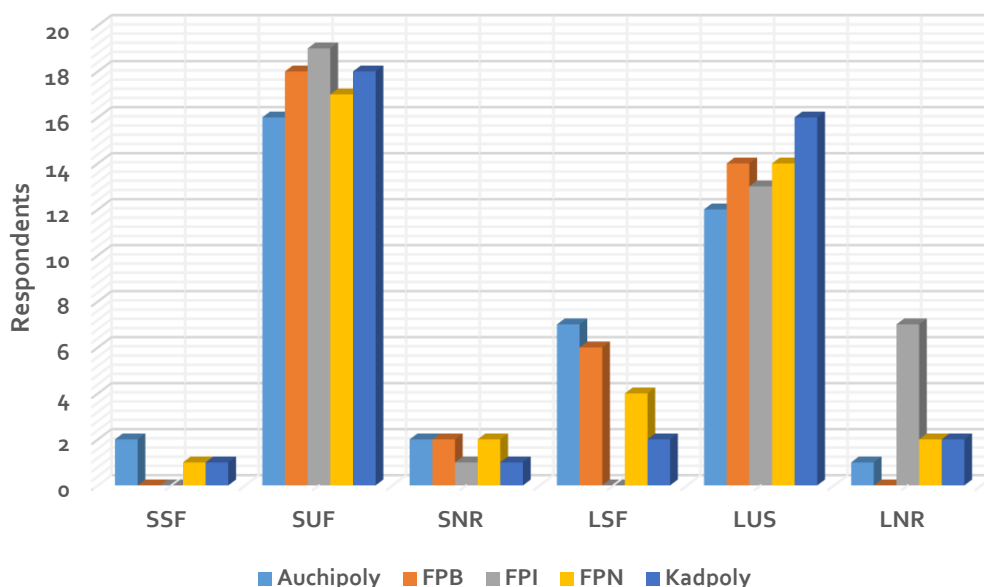


Fig. 5: Understanding of the roles of library automation in learning and research through the institution

Discussion of Findings

Undoubtedly, the automation of library services has an enormously favourable impact on library users' research and learning activities. Automation of services and facilities can help library users obtain accurate and quick access to real information. The majority of library users are not aware of the automation system in their libraries, according to the results obtained. In agreement with the study, the majority of library users are extremely dissatisfied with the automated services and facilities offered by their institutions, awareness of the services, orientation of library automation services, and comprehension of the roles that library automation plays in research and education at their institutions. Based on the findings in this study's framework, it has been noted that library users in some of the polytechnics in Nigeria are currently dissatisfied with the automation system of library services because either the services are unavailable or users lack awareness of the existence of the library's resources due to inadequate orientation. Because of the tendency to raise awareness among library users, orientation and training programmes are seen as crucial activities for establishing a scenario in which users are satisfied. Additionally, orientation and training programs can help users better understand how library automation supports their learning and research. Additionally, how satisfied or unsatisfied users are with the library depends on the quality of automated services and amenities offered. Because automation facilities are either non-existent or in poor condition, most users of all

polytechnic libraries are dissatisfied with the services and resources offered by their institutional libraries.

Conclusion

The ideas of library use and user satisfaction are complex. The traditional operational mechanism of library systems using nondigitized systems lacks a suitable approach to information acquisition. Automation services in a library include automated book collection, bibliographic search, circulation, book renewal, reservation, and others. To meet the information needs of its users, a library offers a wide range of resources, events, and services, making it a service institution. It is a service institution that provides a variety of information. Meeting users' information needs is the goal of every academic library. Managing information and adjusting to new user preferences, hiring highly qualified and educated library staff and utilizing technology and social media are the things that a library must do to thrive in the modern era for user satisfaction. In this study, the level of unsatisfactory responses obtained indicated that users in all the libraries are facing many challenges, which may be due to a lack of automation facilities in the libraries or the absence of amenities for Information and Communication Technology (ICT) coupled with poor internet connectivity. This study demonstrates that users in all the libraries investigated are extremely dissatisfied with the available services.

Recommendations

The following recommendations are made based on the outcome of this study:

- i. The polytechnic libraries should increase their efforts toward the deployment of automation-based library services.
- ii. Library stakeholders must conduct orientation and training programmes for library automation services for users from time to time.
- iii. The government should provide adequate funding for the development of automated services in the polytechnic libraries.

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References

- Adewusi, M. A., Kazibwe, S., Odekeye, O. T., & Egbowon, S. E. (2024). Augmented reality in the library automation: students' perception. *Educational perspectives*, 12(1), 199-210.
- Ankamah, S., Gyesi, K., & Amponsah, V. (2024). Use of electronic resources in research and learning in a health sciences library in Ghana: An analysis of awareness and perception of users. *Information Development*, 40(2), 202-219.

- Fadhliah, L., Malik, I., & Musrizal, M. (2025). Analysis of user satisfaction on the implementation of crm, tqm and service quality (Case Study of UNIKI Bireuen Library Users–Aceh Province). *IndOmera*, 6(11), 51-59.
- Grimes, N. D., & Porter, W. (2024). Closing the digital divide through digital equity: The role of libraries and librarians. *Public Library Quarterly*, 43(3), 307-338.
- Jin, E., & Park, E. (2024). Analyzing the Impact of Information Literacy Education on Learners' Educational Satisfaction and Loyalty: A Case Study of K University Library. *Journal of the Korean BIBLIA Society for library and Information Science*, 35(4), 203-221.
- Kaba, A., Aburezeq, I. M., Dweikat, F., & ElRefae, G. A. (2025). The impact of users' experience and satisfaction on users' intention to use digital library resources. *Performance Measurement and Metrics*, 26(1), 1-16.
- Kasomo, D. (2006). Research Methods in Humanities and Education Statistics, Measurement, Evaluation and Testing.
- Khan, S. A., & Shahzad, K. (2024). Key features of digital library management system (DLMS) for developing digital libraries: An investigation from LIS practitioners in Pakistan. *Journal of Librarianship and Information Science*, 56(1), 29-42.
- Kim, B., & Kim, H. (2024). A Study on the Effect of Public Library Users' Anxiety on User Satisfaction and Loyalty. *Journal of the Korean Society for Library and Information Science*, 58(4), 251-276.
- Lazaraton, A. (2005). Quantitative research methods. In *Handbook of research in second language teaching and learning* (pp. 209-224). Routledge.
- Lin, C. H., Chiu, D. K., & Lam, K. T. (2024). Hong Kong academic librarians' attitudes toward robotic process automation. *Library Hi Tech*, 42(3), 991-1014.
- Majumder, S. B. (2024). Digital Transformation: A Case Study of Munshi Premchand Mahavidyalaya Library Automation. *Library Waves*, 10(2), 167-178.
- Manoharan, G., Ashtikar, S. P., & Nivedha, M. (2024). Integrating Artificial Intelligence in Library Management: An Emerging Trend. *AI-Assisted Library Reconstruction*, 144-157.
- Olagoke, D. P., & Kolawole, J. A. (2019, May). Effect of library automation on performance of librarians in private universities in South-West Nigeria. In *Information and Knowledge Management* (Vol. 9, No. 5, pp. 1-11).
- Priya, S., & Ramya, R. (2024). Future trends and emerging technologies in AI and libraries. *Applications of artificial intelligence in libraries*, 245-271.
- Sarasvathy, P. (2018). Users perception on library automation in the University libraries a comparative study in Karnataka and Tamil Nadu. *International Journal of Library and Information Studies*, 8(2).
- Rahman, M. H., Ahmad, A. B., & Mohamed Sawal, M. Z. H. B. (2024). The influence of personal factors on resistance to technology adoption in university libraries in Bangladesh. *Information Development*, 02666669241257196.
- Rasheed, T., & Ahmed, S. (2024). Online information retrieval self-efficacy of library professionals: a predictor of patrons' satisfaction in university libraries. *Digital Library Perspectives*, 40(2), 264-281.
- Rathinakumar, P., Prathyusha, S., & Mirsha, R. (2025, January). SmartLib: Automated Library Management with RFID and Mobile Alerts. In *2025 IEEE International Students' Conference on Electrical, Electronics and Computer Science (SCECS)* (pp. 1-4). IEEE.
- Twum, K. K., Adams, M., Budu, S., & Budu, R. A. A. (2022). Achieving university libraries user loyalty through user satisfaction: the role of service quality. *Journal of Marketing for Higher Education*, 32(1), 54-72.
- Vasishta, P., Dhingra, N., & Vasishta, S. (2024). Application of artificial intelligence in libraries: a bibliometric analysis and visualisation of research activities. *Library Hi Tech*.
- Wong, E. Y. (2016). Librarianship studies & information technology blog: <http://librarianshipstudies.blogspot.com>. *Technical Services Quarterly*, 33(2), 202-203.

Zhou, Z., Duan, Y., Qiu, J., & Yang, L. (2024). The influence of organizational learning on library service innovation. *Library Hi Tech*, 42(3), 765-781.