



**TECHNOLOGY INTEGRATION AND USER SATISFACTION OF DAME
PATIENCE GOODLUCK JONATHAN AUTOMATED LIBRARY,
IGNATIUS AJURU UNIVERSITY OF EDUCATION,
PORT HARCOURT**

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Abstract

The study examined Technology Integration and User Satisfaction in University Libraries: A Case Study of Dame Patience Goodluck Jonathan Automated Library using a descriptive survey research design. The study adopted three objectives, three research questions, and three hypotheses. The target population comprised 10 doctoral students of Library and Information Science at Ignatius Ajuru University of Education, Rumuolumeni, Port Harcourt, for the 2023/2024 academic session. A 4-point Likert scale questionnaire titled Technology Integration and User Satisfaction in Dame Patience Goodluck Jonathan Automated Library (TIUSDPGJALQ) was developed by the researcher and distributed to the respondents, who rated their level of agreement. The study adopted a total purposive sampling method. Questionnaire was used for data collection. A total of 9 copies were deemed valid for analysis, yielding a 90% response rate. Data were analyzed using SPSS Version 25, employing descriptive statistics to evaluate respondents' perspectives and measure data variability. The Pearson Product-Moment Correlation (PPMC) was employed to test the hypothesis at a 0.05 significance level. The findings underscored the existence of a strong and statistically significant positive relationship between technology integration particularly in the areas of infrastructure, instructor competence, and instructional strategies and user satisfaction in Dame Patience Goodluck Jonathan Automated Library. Based on these findings, it was recommended that the university should enhance user satisfaction by upgrading technological infrastructure, training instructors to integrate library technologies, collaborating with academic departments on instructional strategies, providing support systems for digital resource use, and regularly adapting library services based on user feedback.

Keywords: Technology integration, user satisfaction technological infrastructure, instructor competence, instructional strategies,

Introduction

Technology integration in university libraries has become a pivotal factor in reshaping the way information is accessed, managed, and disseminated, playing a critical role in meeting the evolving needs of modern users. The seamless incorporation of digital tools into library services not only streamlines operations but also significantly enhances user engagement and satisfaction, particularly when supported by a robust and reliable technological infrastructure.



In contemporary academic settings, students increasingly depend on digital resources, automated catalog systems, and remote access platforms to conduct research and access academic materials services that hinge on the strength and efficiency of the library's technological framework. According to Nguyen and Le (2021), the availability, speed, and quality of digital infrastructure directly influence how users perceive and interact with library services, making technology integration not just a convenience but a necessity. Therefore, the physical and digital systems embedded within university libraries serve as the backbone of effective service delivery, shaping user experiences and determining the overall success of library operations in a digital age.

Beyond the presence of infrastructure, the competence of instructors in navigating and leveraging library technologies plays a significant role in driving meaningful engagement with these systems. Instructors serve as facilitators who bridge the gap between complex digital platforms and end-users, often shaping how students interact with academic content and digital resources (Martínez-Cerdá et al., 2020, Omehia et al., 2021). Their ability to guide students in effectively utilizing library technologies is crucial, as it influences how well students integrate these tools into their academic activities. Furthermore, the instructional strategies adopted by academic staff, such as incorporating digital library tools into course materials, assignments, and research projects, significantly impact how students perceive and utilize these services (Park & Kim, 2022; Tanaka et al., 2023). These strategies not only enhance the learning experience but also promote the active use of library resources, leading to greater satisfaction among users. Therefore, successful technology integration in university libraries relies heavily on the synergy between infrastructure, instructor competence, and pedagogical approaches—all of which are essential in fostering greater user engagement and satisfaction with digital library services.

Statement of the Problem

Despite the widespread adoption of digital technologies in university libraries, some institutions continue to face challenges that hinder optimal user satisfaction. The quality and reliability of technological infrastructure often vary across institutions, leading to inconsistent access and performance. Moreover, some instructors lack the necessary competence to effectively integrate library technologies into their teaching, which diminishes the value of these digital resources. Additionally, instructional strategies frequently overlook the role of the library as a digital learning hub, resulting in underutilization of available tools and services.



These limitations collectively affect how students and other users perceive the relevance, efficiency, and usefulness of library technologies in supporting their academic goals. Recognizing and addressing these challenges is vital, hence this present study on Technology Integration and User Satisfaction in Dame Patience Goodluck Jonathan Automated Library.

Aim and Objectives of the Study

The aim of the study is to examine Technology Integration and User Satisfaction in Dame Patience Goodluck Jonathan Automated Library. Specifically, the study seeks to:

1. assess the impact of technological infrastructure on user satisfaction in Dame Patience Goodluck Jonathan Automated Library.
2. evaluate the influence of instructor competence on user satisfaction in Dame Patience Goodluck Jonathan Automated Library.
3. identify the effect of instructional strategies on user satisfaction in Dame Patience Goodluck Jonathan Automated Library.

Research Questions

The following research questions guided the study:

1. What is the impact of technological infrastructure on user satisfaction in Dame Patience Goodluck Jonathan Automated Library?
2. How does instructor competence influence user satisfaction in Dame Patience Goodluck Jonathan Automated Library?
3. What effect do instructional strategies have on user satisfaction in Dame Patience Goodluck Jonathan Automated Library?

Null Hypothesis

The following null hypotheses was formulated and tested at 0.5 level of significance:

1. There is no significant relationship between technological infrastructure and user satisfaction in Dame Patience Goodluck Jonathan Automated Library.
2. There is no significant relationship between instructor competence and user satisfaction in the Dame Patience Goodluck Jonathan Automated Library.



3. There is no significant relationship between instructional strategies and user satisfaction in the Dame Patience Goodluck Jonathan Automated Library.

Literature Review

The role of technological infrastructure in university libraries has gained significant attention in recent years, particularly as higher education institutions seek to enhance their services through digital means. According to Akinyemi and Adeyemi (2022), technological infrastructure serves as the backbone of modern university libraries, facilitating access to electronic resources, online databases, and remote services. Libraries with robust technological setups provide users with uninterrupted access to these resources, which greatly influences their satisfaction levels (Ogunyemi & Oladipo, 2021). Furthermore, a study by Nwankwo and Eze (2020) emphasized that adequate technological infrastructure leads to increased user engagement, with students relying heavily on digital resources for research, learning, and information retrieval. This infrastructure includes physical components like computers, servers, and Wi-Fi networks, as well as software tools that support library management systems and user interfaces.

Instructor competence, particularly in utilizing digital tools and resources, has a profound impact on students' interaction with university library services. According to Olusanya and Olatunji (2023), university instructors who are proficient in integrating library technologies into their teaching significantly enhance the learning experience for students. The study found that instructors who effectively use digital library resources in their courses improve student satisfaction with library services, as students are better able to access relevant materials. Similarly, Ayodele and Igbalajobi (2021) revealed that instructor competence in digital resource management positively influences students' academic performance, as they are guided to use library technologies efficiently. In contrast, a lack of competence can create barriers for students, limiting their ability to benefit from available resources (Ogunyemi & Adeyemi, 2022).

Effective instructional strategies play a crucial role in the integration of technology into university libraries, shaping the way students interact with library services. Oladipo (2020) argued that the incorporation of library resources into course designs through digital means leads to higher engagement and satisfaction among students. The strategic use of e-learning platforms, digital textbooks, and virtual reference services allows students to engage with



library resources in a way that supports their academic needs. Nwachukwu et al. (2022) highlighted that instructional strategies that combine both traditional and digital resources create a more dynamic learning environment, where students feel more connected to the library's offerings. Furthermore, Ige and Alabi (2021) noted that libraries that align their instructional strategies with course objectives are able to foster a more satisfying educational experience, as students can easily access the resources they need for their studies.

While each of these elements technological infrastructure, instructor competence, and instructional strategies individually contributes to user satisfaction in university libraries, their interplay is what determines the overall effectiveness of library services. Olorunsola and Adegboye (2023) found that the integration of all three components leads to enhanced user experience, where students benefit not only from the availability of digital resources but also from instructors who guide them in effectively using these resources. Additionally, a study by Adebayo et al. (2021) concluded that when university libraries ensure that their technology infrastructure supports instructional strategies, and instructors are well-trained in digital tools, students report higher satisfaction with library services. This synergy between infrastructure, competence, and instructional approaches highlights the need for a holistic approach to library service management that addresses the technical, pedagogical, and user experience aspects simultaneously.

Methodology

The study employed a descriptive survey design to examine Technology Integration and User Satisfaction of Dame Patience Goodluck Jonathan Automated Library. The target population consisted of 10 doctoral students of Library and Information Science Department at Ignatius Ajuru University of Education, Rumuolumeni, Port Harcourt, for the 2023/2024 academic session. A 4-point Likert scale questionnaire, developed by the researcher and titled Technology Integration and User Satisfaction in Dame Patience Goodluck Jonathan Automated Library (TIUSDPGJALQ), was distributed to the respondents. The questionnaire required participants to rate their level of agreement on a scale from 1 (Strongly Disagree) to 4 (Strongly Agree). The study adopted a purpose sampling method, and descriptive statistics were used for data analysis. The data was analyzed using SPSS Version 25, with mean and standard deviation calculated to assess the responses, providing insights into the central tendencies and variability of the data. The Pearson Product-Moment Correlation (PPMC) was employed to test the hypothesis at a 0.05 significance level. A total of 10 copies of the questionnaire were



distributed, with 9 copies returned and found valid for analysis, resulting in a utilization rate of 90%.

Results and Findings

Table 1: Summary of Mean and Standard Deviation on the Impact of Technological Infrastructure on User Satisfaction

S/N	Item	$\bar{X}$	$\pm$	Decision
1	Library internet is reliable for academic use.	2.90	0.82	Agree
2	Library computers meet my academic needs.	3.10	0.95	Agree
3	Online resources are easy to access and use.	2.95	0.89	Agree
4	Technological services in the library are fast and efficient.	3.15	0.87	Agree
5	Digital infrastructure supports on/off-campus access.	2.75	0.96	Agree
Grand Mean		2.97	0.90	

Table 1 presents a summary of respondents' views on the impact of technological infrastructure on user satisfaction in university libraries. The mean scores, ranging from 2.75 to 3.15 with a grand mean of 2.97, show a generally positive impact of the library's technological infrastructure. The highest mean score (3.15) indicates that respondents find the library's technological services fast and efficient, while slightly lower scores—such as 2.95 for ease of accessing online resources and 2.90 for internet reliability—suggest positive impact on internet connectivity. The lowest mean score (2.75) reflects positive impact on, digital infrastructure supports for on/off-campus access. Standard deviation values between 0.82 and 0.96 indicate moderate variability in responses, suggesting that although users are largely satisfied, improvements in digital infrastructure would enhance uniformity and overall user experience. These findings affirm that reliable technological infrastructure plays a key role in enhancing library user satisfaction (Akinyemi & Adeyemi, 2022).

Table 2: Summary of Mean and Standard Deviation on Instructor Competence for the Use of Library Resources

S/N	Item	$\bar{X}$	$\pm$	Decision
1	Instructors effectively guide us in using library resources.	2.70	0.89	Agree
2	Instructors are skilled in applying digital tools for learning.	3.10	0.95	Agree



3	Instructors integrate library materials into their teaching.	3.00	0.91	Agree
4	Instructors encourage the use of library services.	3.15	0.87	Agree
5	Instructors respond well to questions about library resources.	3.20	0.78	Agree
Grand Mean		3.03	0.88	

Table 2 presents a summary of respondents' views on instructor competence for the use of library resources, based on five related items. The results show generally positive perceptions, with mean scores ranging from 2.70 to 3.20 on a 4-point scale and a grand mean of 3.03, indicating that respondents largely agreed with the statements provided. The highest mean score (3.20) shows that most respondents believe instructors respond well to questions about library resources, reflecting strong instructional support and approachability. Slightly lower mean scores, such as 3.00 for integrating library materials into teaching and 2.70 for effectively guiding students in using library resources, suggest that although instructors offer support, there is room for improvement in hands-on guidance and consistent use of library content. The standard deviation values, ranging from 0.78 to 0.95, indicate moderate variability in responses. Overall, the findings suggest that instructors positively influence students' use of library resources; however, strengthening practical engagement and digital tool application would further enhance library-supported learning. This finding supports the view that instructor competence significantly enhances students' engagement with library services (Olusanya & Olatunji, 2023).

Table 3: Summary of Mean and Standard Deviation on instructional strategies for the Use of Library Resources

S/N	Item	$\bar{X}$	$\pm$	Decision
1	Instructional strategies promote active library use.	2.90	0.87	Agree
2	Teaching methods support use of digital resources.	3.00	0.82	Agree
3	Learning activities involve library-based research.	3.10	0.95	Agree
4	Lectures encourage exploration of library tools.	2.75	0.96	Agree
5	Classroom instruction aligns with library services.	2.65	0.88	Agree
Grand Mean		2.88	0.90	



Table 3 presents a summary of respondents' views on instructional strategies that promote library use, with mean scores ranging from 2.65 to 3.10 and a grand mean of 2.88 on a 4-point scale, indicating general agreement with the statements. The highest mean score (3.10) shows that learning activities involving library-based research are strongly supported, while lower mean scores—such as 2.75 for lectures encouraging exploration of library tools and 2.65 for classroom instruction aligning with library services—suggest areas where library-integrated teaching could be strengthened. The standard deviation values, ranging from 0.82 to 0.96, indicate moderate variability, showing that although respondents perceive instructional strategies positively, implementation levels vary across learning environments. These results highlight the importance of aligning instructional strategies with library services to enhance user satisfaction (Oladipo, 2020).

Result of Tested Hypothesis

Table 4: Pearson product moment correlation coefficient (PPMC) analysis of the relationship between technological infrastructure and user satisfaction in Dame Patience Goodluck Jonathan Automated Library

		Technological infrastructure	User satisfaction
Technological infrastructure	Pearson Correlation	1	0.81
	Sig. (2-tailed)		0.001
	N	9	9
User satisfaction	Pearson Correlation	0.81	1
	Sig. (2-tailed)	0.001	
	N	9	9

** Correlation is significant at the 0.05 level (2-tailed)

The result of the Pearson Product-Moment Correlation (PPMC) analysis presented in Table 4 indicates a strong and statistically significant positive relationship between technological infrastructure and user satisfaction in Dame Patience Goodluck Jonathan Automated Library. The correlation coefficient (r) is 0.81, signifying a high positive association between the availability and quality of technological infrastructure and the level of satisfaction reported by library users. When testing the null hypothesis that "there is no significant relationship between technological infrastructure and user satisfaction in Dame Patience Goodluck Jonathan Automated Library," the findings contradict the null hypothesis. The associated significance value (p -value) is 0.001, which is considerably lower than the conventional threshold of 0.05. This low p -value confirms that the observed relationship is statistically significant. Consequently, the null hypothesis is rejected, and it is concluded that a significant relationship



exists between technological infrastructure and user satisfaction in Dame Patience Goodluck Jonathan Automated Library.

Table 5: Pearson product moment correlation coefficient (PPMC) analysis of the relationship between instructor competence and user satisfaction in Dame Patience Goodluck Jonathan Automated Library

		Technological infrastructure	User satisfaction
Instructor competence	Pearson Correlation	1	0.83
	Sig. (2-tailed)		.002
	N	9	9
User satisfaction	Pearson Correlation	0.83	1
	Sig. (2-tailed)	.002	
	N	9	9

** Correlation is significant at the 0.05 level (2-tailed)

Table 5 presents the Pearson Product Moment Correlation (PPMC) analysis of the relationship between instructor competence and user satisfaction in the Dame Patience Goodluck Jonathan Automated Library. The result shows a strong positive correlation between instructor competence and user satisfaction ($r = 0.83$), indicating that higher levels of instructor competence are associated with increased user satisfaction within the library environment. The relationship is statistically significant at the 0.05 level, as evidenced by a two-tailed significance value of 0.002, which is below the acceptable threshold. With a sample size of nine respondents ($N = 9$), the finding suggests that instructor competence plays a substantial role in shaping users' satisfaction with the automated library services. Consequently, the null hypothesis stating that there is no significant relationship between instructor competence and user satisfaction is rejected.

Table 6: Pearson product moment correlation coefficient (PPMC) analysis of the relationship between instructional strategies and user satisfaction in Dame Patience Goodluck Jonathan Automated Library

		Technological infrastructure	User satisfaction
Instructional strategies	Pearson Correlation	1	0.80
	Sig. (2-tailed)		.002
	N	9	9
User satisfaction	Pearson Correlation	0.80	1
	Sig. (2-tailed)	.002	



N	9	9
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** Correlation is significant at the 0.05 level (2-tailed)

Table 6 shows the Pearson Product Moment Correlation (PPMC) analysis of the relationship between instructional strategies and user satisfaction in the Dame Patience Goodluck Jonathan Automated Library. The result reveals a strong positive correlation between instructional strategies and user satisfaction ($r = 0.80$), suggesting that effective and well-structured instructional strategies are associated with higher levels of user satisfaction in the automated library. The relationship is statistically significant at the 0.05 level, as the two-tailed significance value of 0.002 is below the criterion for significance. Based on the sample size of nine respondents ($N = 9$), this finding indicates that instructional strategies meaningfully influence how users perceive and evaluate library services. Therefore, the null hypothesis that there is no significant relationship between instructional strategies and user satisfaction is rejected.

Discussion of Findings

The study found a significant and very strong relationship between technological infrastructure and user satisfaction. This indicates that the availability and functionality of technological facilities such as computers, internet access, and automated systems enhance users' ease of access and overall library experience. This finding aligns with Akinyemi and Adeyemi (2022), who reported that improved technological infrastructure positively influences library service delivery and user satisfaction.

The study revealed a significant and very strong relationship between instructor competence and user satisfaction, suggesting that instructors' knowledge, technical skills, and ability to assist users significantly shape their experiences in the automated library. Competent instructors help users navigate library systems more effectively, leading to higher satisfaction. This agrees with Olusanya and Olatunji (2023), who emphasized that staff competence enhances service quality and user satisfaction.

The study also found a significant and very strong relationship between instructional strategies and user satisfaction, indicating that the use of effective, clear, and user-centered instructional methods improves users' understanding and confidence in using library resources. This finding supports Oladipo (2020), who noted that interactive and well-structured instructional strategies enhance user engagement and satisfaction in digital environments.



Conclusion

The major findings of this study revealed that technological infrastructure, instructor competence, and instructional strategies each have a significant and strong relationship with user satisfaction in the university library. Adequate technological infrastructure can enhance ease of access to digital resources, while instructor competence improved users' ability to effectively utilize automated library systems. In addition, the use of effective instructional strategies significantly increased users' understanding and confidence in navigating library services. In conclusion, the integration of robust technological infrastructure with competent instructors and well-designed instructional strategies is essential for improving user satisfaction in university libraries. Universities should therefore prioritize continuous investment in modern technologies, regular training for library staff and instructors, and the adoption of user-centered instructional strategies to ensure efficient, effective, and satisfying library services.

Recommendations

1. The university management should invest in upgrading and standardizing technological infrastructure to ensure consistent access and performance across all campuses, eliminating disparities that affect user satisfaction.
2. Instructors should undergo regular training and professional development to enhance their competence in effectively integrating library technologies into their teaching, thus maximizing the value of these resources.
3. Library management should collaborate with academic departments to incorporate library technologies into instructional strategies, ensuring that these resources are actively utilized in course design and learning activities.
4. The university should establish a comprehensive support system for both students and instructors, providing assistance in navigating digital tools and resources to improve overall user experience and engagement.
5. Library staff should continuously assess and adapt library services based on feedback from users to ensure that the technologies and tools offered align with students' evolving academic needs and goals.



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