

## Information Communication Technology Competences of Undergraduate Students in Library and Information Science at Federal University of Lokoja, Kogi State

**ALABI, COMFORT OMETERE**

Senior Lecturer

alabicomforto71@mail.com

Department of Library and Information Science

Faculty of Social Science

Federal University Lokoja

&

**MUSA BABA ADAMU (Ph.D. CLN/MNLA)**

Lecturer I

adamu.musa@futminna.edu.ng

Department of Library and Information Science

Faculty of Education

Federal University of Technology Minna

### Abstract

*This study investigated the Information and Communication Technology (ICT) competencies of undergraduate students in Library and Information Science at the Federal University of Lokoja, Kogi State. The objectives were to determine students' levels of ICT competence, identify the ICT skills they possess, examine the impact of ICT competence on their academic work, highlight barriers to effective ICT usage, and suggest strategies for improvement. The study adopted a descriptive survey design with a population of 700 LIS undergraduates across four (4) Academic levels (100–400). Using the Krejcie and Morgan (1970) sample size table, a sample of 248 respondents was selected through a multistage sampling technique. Data were collected with a structured questionnaire and analyzed using descriptive statistics such as frequency, percentage, mean, and standard deviation. Findings revealed that LIS undergraduates generally possess moderate-to-high ICT competence, with strongest skills in basic computer operations, search engine usage, and social media for academic purposes. However, lower proficiency was recorded in troubleshooting ICT problems and using specialized library software. ICT competence was found to significantly enhance students' academic performance, research skills, problem-solving abilities, and career preparedness. Major barriers identified included limited ICT facilities, frequent power outages, inadequate ICT training opportunities, poor internet connectivity, and high costs of internet services. Recommended strategies for improvement included upgrading ICT infrastructure, expanding practical training in specialized tools, improving internet access, reducing costs of ICT resources, and fostering industry partnerships for hands-on experience. The study concludes that strengthening ICT competence among LIS students is essential for their academic success and professional readiness in an increasingly digital information environment.*

### Introduction

Information Communication Technology (ICT) has revolutionized education, particularly in fields like Library and Information Science (LIS). ICT enables the efficient creation, management, and dissemination of information, which are essential in today's knowledge-driven society. Undergraduate students in LIS programs are expected to acquire ICT competencies to remain relevant and effective in the modern workplace. These competencies include proficiency in digital tools, online information retrieval, library automation systems, and database management.

Information Communication Technology (ICT) has transformed the way information is created, stored, accessed, and disseminated in various fields, including Library and Information Science (LIS). ICT competencies are now essential for librarians and Information Professionals as digital technologies increasingly replace traditional methods of managing information resources. The ability of undergraduate students in LIS programs to acquire and apply ICT skills is crucial for their academic success and future careers in information management.

The role of ICT in LIS education cannot be overstated. In a study by Thanuskodi (2019), it was observed that students who possess ICT skills perform better academically and have increased employability in the knowledge-based economy. In the LIS profession, ICT has redefined traditional roles, introducing modern tasks such as managing electronic resources, digital archives, and virtual libraries. Universities and LIS departments globally have integrated ICT training into their curricula, aiming to prepare students for the demands of the information age. Despite the importance of ICT, the level of competency among LIS undergraduate students varies significantly. Some students demonstrate proficiency in basic ICT tools, such as Microsoft Office, email communication, and online research. However, many struggle with advanced skills, including database management, digital preservation, and the use of library automation systems such as KOHA and DSpace (Ocholla & Shongwe, 2019). This gap in ICT competency raises concerns about students' preparedness for the dynamic and technology-driven information profession. With the advent of Information & Communication Technology (ICT), the role and position of libraries has dramatically changed.

### **Statement of the Problem**

Information and Communication Technology (ICT) competence among undergraduate students in Library and Information Science (LIS) is significant because these students are expected to develop the skills needed to manage, organize, and disseminate information effectively in an increasingly digital world. ICT skill helps the student in enhancing their academic pursuit. Despite the growing integration of ICT in the LIS curriculum, evidence suggests that many undergraduate students lack the requisite ICT competencies needed for professional success. This gap in ICT competencies not only affects students' academic performance but also their employability in the competitive labor market, where digital skills are crucial. Consequently, it is imperative to investigate the extent of ICT competencies among LIS students, the barriers they face in acquiring these skills, and suggest possible ways of improving their perceptions of the importance of ICT in their field.

Addressing this problem is crucial for preparing LIS undergraduates at Federal University of Lokoja to meet the professional demands of digital literacy, data management, and information dissemination effectively. It is on this premises that the researcher is embarking on this study ICT competencies of Undergraduate Students at Federal University of Lokoja Kogi State, examine the challenges they encounter and propose strategies to enhance ICT training in the department.

### **Objectives of the Study**

The main objectives of the study include the following:

- Determine the level of competence of undergraduate students of LIS in use of ICT in Federal University of Lokoja.
- Ascertain ICT skills possess by undergraduate students in LIS at Federal University of Lokoja.
- Examine the impact of ICT competence of undergraduate students in LIS at Federal University of Lokoja.

- Identify barriers to effective use of ICT amongst undergraduate students in LIS at Federal University of Lokoja.
- Suggest ways of improving ICT Competence amongst undergraduate student at Federal University of Lokoja.

### Research Questions

In line with the stated objectives of the study, the following research questions were raised to guide the study:

1. What is the level of competency of undergraduate students of LIS in use of ICT in Federal University of Lokoja?
2. What ICT skills do undergraduate students of LIS possess in Federal University of Lokoja?
3. What is the impact of ICT competence of LIS undergraduate in Federal University of Lokoja?
4. What are the barriers to effective use of ICT by LIS undergraduate students in Federal University of Lokoja?
5. What are the ways to improving ICT competence and skills among LIS undergraduate in Federal University of Lokoja?

### Concept of Information Communication Technology Competence

ICT competency refers to the knowledge, skills, and attitudes required to effectively use digital technologies for learning, research, and professional activities. In the context of LIS education, ICT competencies enable students to manage digital libraries, access online resources, and use information management tools (Redecker, 2017). ICT competency refers to the ability to use digital technologies effectively in academic and professional settings. According to UNESCO (2021), ICT competency encompasses knowledge, skills, and attitudes necessary to utilize digital tools for learning, problem-solving, and innovation. Several models exist for understanding ICT competencies in higher education. The Digital Competence Framework for Educators (DigCompEdu) (Redecker, 2017) highlights key areas such as digital resource management, communication, information retrieval, and content creation. LIS education and ICT competencies entail the ability to utilize library management software, digital repositories, online databases, and automated cataloging systems. The integration of ICT in LIS programs ensures that students are equipped to manage digital information resources effectively.

### Concept of Library and Information Science (LIS)

Library and Information Science (LIS) is an interdisciplinary field that focuses on the organization, management, preservation, and dissemination of information in both traditional and digital formats. It integrates principles from library science, information technology, knowledge management, and digital curation to support efficient information retrieval and use. According to Bawden and Robinson (2022), LIS is evolving rapidly due to technological advancements, with modern libraries transitioning from physical book collections to digital information hubs that provide access to electronic databases, online journals, and automated cataloging systems. The importance of LIS in today's digital world is evident in its role in facilitating knowledge access, supporting academic research, and promoting digital literacy. With the rise of big data, artificial intelligence, and machine learning, LIS professionals are increasingly required to possess advanced ICT skills, including expertise in library automation, electronic resource management, and digital preservation (Ocholla & Shongwe, 2022).

## Empirical Review

Empirical studies on ICT competencies among undergraduate students in Library and Information Science (LIS) have highlighted the importance, challenges, and impact of ICT skills on academic and professional success. Research findings indicate that practical ICT training, access to digital infrastructure, and curriculum integration play significant roles in shaping students' digital literacy and information management capabilities. Several recent studies have examined the state of ICT competencies among LIS students, offering insights into their levels of proficiency, the barriers they face, and strategies for improvement.

A study by Ocholla and Shongwe, (2022) on ICT skills among LIS students in South Africa found that hands-on training and exposure to digital library technologies significantly improve students' competencies in electronic resource management, library automation, and digital archiving. Their research revealed that students who received structured ICT training performed better in online information retrieval, cataloging, and digital content management than those with limited exposure. This study underscores the need for universities to incorporate practical ICT courses into LIS curricula to enhance students' digital skills and employability.

Ani and Edem (2020) investigated the challenges of ICT adoption among LIS students in Nigerian universities. Their findings indicated that lack of access to modern ICT infrastructure, insufficient training, and financial constraints hinder students' ability to develop ICT competencies. The study also found that many students relied on personal mobile devices and public cybercafés for internet access, limiting their ability to effectively use specialized library software such as KOHA, DSpace, and Greenstone. To address these challenges, the authors recommended increased institutional investment in ICT facilities, faculty training, and affordable access to digital learning resources.

Another study conducted by Shuva and Kwanya, (2023) examined the impact of emerging technologies such as artificial intelligence (AI) and machine learning on LIS education. Their research highlighted that AI-powered information retrieval systems, chatbots, and automated cataloging tools are transforming digital librarianship. However, they found that many LIS students lack the technical skills to effectively utilize AI-driven information management systems. The study suggested that curricula should be revised to include courses on AI applications, data analytics, and blockchain technology in library services to prepare students for future developments in the field.

The integration of Information and Communication Technology (ICT) competencies in Library and Information Science (LIS) education has significantly transformed the way undergraduate students access, retrieve, organize, and manage information. ICT competence is essential for LIS students as it enhances their ability to navigate digital resources, use automated library systems, and effectively manage scholarly communication. According to Bawden and Robinson (2022), students with strong ICT competencies demonstrate greater efficiency in information retrieval, digital archiving, and online research, which are crucial for modern library and information services.

One of the major impacts of ICT competence is the improvement in academic performance. LIS students with adequate ICT skills can efficiently utilize electronic databases, online journals, and digital repositories for research purposes. A study by Ani and Edem (2020) found that students who are proficient in using ICT tools such as Zotero, EndNote, and Mendeley for reference management produce higher-quality academic work with better organization and accurate citations. Additionally, ICT competence enables students to access Massive Open Online Courses (MOOCs), e-learning platforms, and virtual library resources, thereby expanding their knowledge beyond traditional classroom learning (UNESCO, 2023).

## Methodology

This study employed a descriptive survey design, that involves analyzing a sample to make inferences about the larger population. Ansari et.al.(2022) defined a descriptive research design as a type of research project that aims to obtain information in order to systematically describe an object, situation, or population. This approach enables a comprehensive understanding of the research context, providing a snapshot of the prevailing circumstances, characteristics, and practices within the study population. The population of the study consist of 700 undergraduate students enrolled at four (4) levels (100 – 400 levels) of Library and Information Science in Federal University of Lokoja, Kogi State. The area of this study is Federal University of Lokoja, Kogi State, Nigeria, specifically the Department of Library and Information Science (LIS).

Using Krejcie and Morgan table (1970), it states that for a population of 700, the sample size of 248 can be drawn as the sample size for the study. See Appendix II for source. A multistage sampling technique will be employed to select 248 respondents from the four (4) level (100 – 400 level). Subsequently, 75 undergraduate students from 400 level, 55 undergraduate students from 300level, 60 undergraduate students from 200level and 58 undergraduate students from 100level will be selected, totaling 248 undergraduate students. The instrument chosen for the data collection is a structured questionnaire which is divided into two (2) sections. In the questionnaire, Section A, has to do with the respondent demographic information while in section B, a questionnaire titled ICT competencies of Undergraduate Student of LIS in Federal University of Lokoja is designed. The structured questionnaire was validated by a professional from the department of Library and Information Science at Federal University of Lokoja. A face and content validation was conducted, reviewing the instrument for clarity, accuracy, and overall quality, correcting grammatical errors, and reorganizing the sequence and ordering of items to make it reliable and acceptable. The researcher administered the questionnaire to the respondents' collect the completed questionnaire on the spot to avoid missing information. Data collected was analysed using descriptive statistic of frequency, percentages, means, standard deviation and Statistical Package for Social Science (SPSS) was used to analysed the study.

## Result

Table 1: Gender

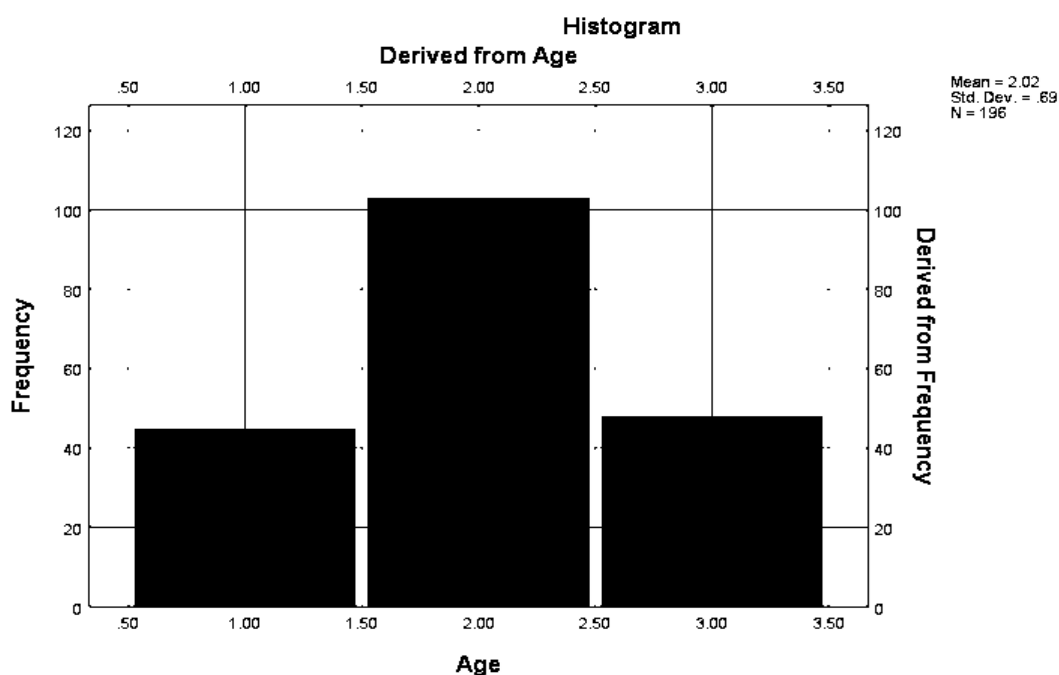
| S/N | Gender           | Frequency  | Percentage  |
|-----|------------------|------------|-------------|
| 1.  | Male             | 90         | 36.3%       |
| 2.  | Female           | 112        | 45.2%       |
| 3.  | Missing Fields   | 46         | 18.5%       |
|     | <b>Sum Total</b> | <b>248</b> | <b>100%</b> |

**Table 1** indicate that, the gender distribution of the 248 respondents shows that females constitute the largest proportion of participants, representing 45.2% ( $n = 112$ ), while males account for 36.3% ( $n = 90$ ). This finding suggests a higher female enrolment in the Library and Information Science (LIS) programme at the Federal University of Lokoja, indicating a strong female presence. Additionally, 18.5% ( $n = 46$ ) of respondents did not indicate their gender, resulting in a notable proportion of missing demographic data. The predominance of female respondents may have implications for the study's findings, particularly if gender differences influence ICT competence, access, or usage patterns.



**Table 2: Age**

| S/N          | Age Range          | Frequency  | Percentage  |
|--------------|--------------------|------------|-------------|
| 1            | 16–20 years        | 45         | 18.1%       |
| 2            | 21–25 years        | 103        | 41.5%       |
| 3            | 26 years and above | 48         | 19.4%       |
| 4            | Missing Fields     | 52         | 21.0%       |
| <b>Total</b> |                    | <b>248</b> | <b>100%</b> |

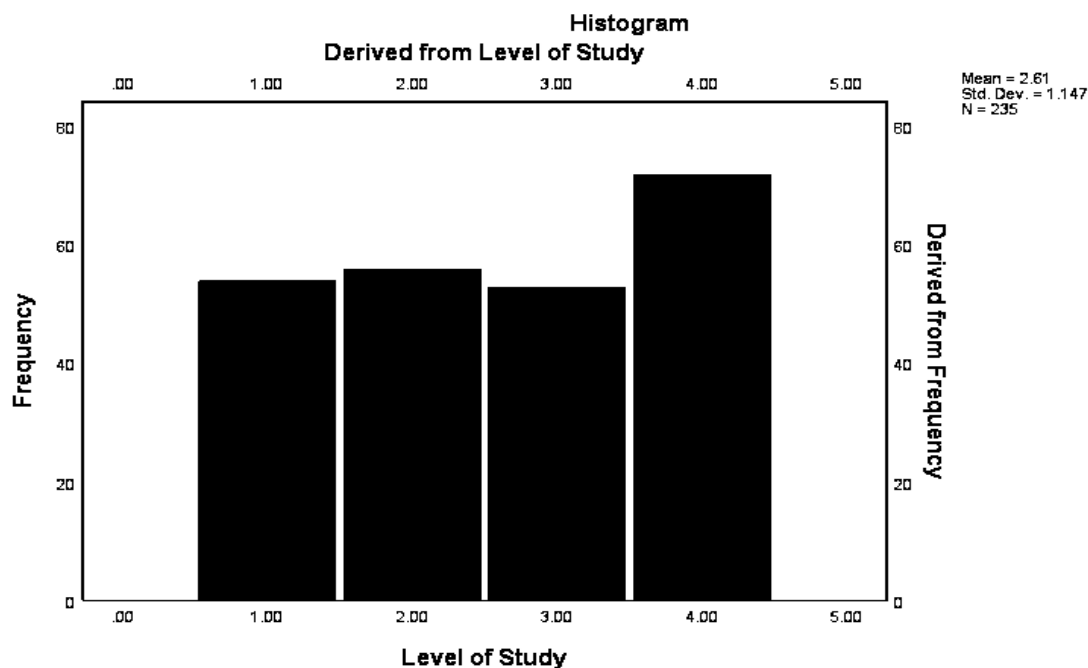


the largest proportion of participants (41.5%,  $n = 103$ ) fall within the 21–25 years age bracket, suggesting that the majority of undergraduate students in the Library and Information Science (LIS) programme at the Federal University of Lokoja are in their early twenties. The 26 years and above group accounts for 19.4% ( $n = 48$ ) of respondents, reflecting the presence of mature students who may have either delayed entry into higher education or are pursuing the programme as part of a career change. Those aged 16–20 years constitute 18.1% ( $n = 45$ ), representing relatively younger entrants, likely direct entrants from secondary school. Notably, 21.0% ( $n = 52$ ) of respondents did not disclose their age, which constitutes a considerable proportion of missing data and may have implications for the completeness of demographic profiling. The age distribution highlights the diversity in the student population, with potential implications for ICT competence levels, as prior exposure to technology often varies across age groups.

**Table 3: Levels**

| S/N | Levels | Frequency | Percentage |
|-----|--------|-----------|------------|
|-----|--------|-----------|------------|

|    |                |            |             |
|----|----------------|------------|-------------|
| 1. | 100 Level      | 54         | 21.8%       |
| 2. | 200 Level      | 56         | 22.6%       |
| 3. | 300 Level      | 53         | 21.4%       |
| 4. | 400 Level      | 72         | 29.0%       |
| 5. | Missing Fields | 13         | 5.2%        |
|    | <b>Total</b>   | <b>248</b> | <b>100%</b> |



**Table 3** presents the distribution of respondents by their level of study. The largest group comprises students at the 400 level, representing 29.0% ( $n = 72$ ) of the total sample. This is followed closely by 200-level students at 22.6% ( $n = 56$ ) and 100-level students at 21.8% ( $n = 54$ ). 300-level students constitute 21.4% ( $n = 53$ ), showing an overall fairly balanced representation across all levels of study. Only 5.2% ( $n = 13$ ) of respondents did not indicate their level, resulting in minimal missing data for this variable. The relatively high representation of final-year students may reflect increased willingness or availability to participate in academic research, possibly due to greater awareness of research processes at advanced stages of study. The fairly even spread across levels suggests that the findings on ICT competence can be interpreted as broadly representative of the LIS undergraduate population in the institution.

**Table 4 (Research Question 1):** What is the level of competence of LIS undergraduate students of Federal University of Lokoja in use of ICT?

| S/N | Competency | Mean | Standard Deviation | Decision |
|-----|------------|------|--------------------|----------|
|-----|------------|------|--------------------|----------|

|    |                                                                                                                         |        |        |          |
|----|-------------------------------------------------------------------------------------------------------------------------|--------|--------|----------|
| 1. | I am confident in my ability to use a computer for basic tasks such as typing, saving files, and browsing the internet. | 3.6763 | .51944 | Accepted |
| 2. | I am proficient in using Microsoft Office applications (Word, Excel, PowerPoint, etc.) for various tasks.               | 3.2131 | .53255 | Accepted |
| 3. | I can effectively use search engines to find relevant information online for academic purposes.                         | 3.3402 | .68723 | Accepted |
| 4. | I am familiar with and can utilize digital library resources, such as online databases and e-journals.                  | 3.1317 | .64854 | Accepted |
| 5. | I can leverage social media platforms for learning and collaboration in my academic pursuits.                           | 3.3951 | .61009 | Accepted |
| 6. | I can troubleshoot basic ICT issues, such as connectivity problems or software installation.                            | 3.0617 | .67443 | Accepted |
| 7. | I am skilled in using ICT tools for research purposes, including data collection and analysis.                          | 3.3102 | .69667 | Accepted |

**Table 4** examines the ICT competence of undergraduate students in the Library and Information Science programme at the Federal University of Lokoja. The mean scores for all listed competencies range from 3.06 to 3.68 on a 4-point scale, with each item meeting the acceptance threshold, indicating that respondents generally perceive themselves as competent in ICT use. They accepted competency in basic computer operations with a mean of 3.6763 (SD = 0.51944), suggesting strong foundational skills among the majority of students. This is followed by leveraging social media platforms for academic learning and collaboration (M = 3.3951, SD = 0.61009) and using search engines for academic purposes (M = 3.3402, SD = 0.68723). Competence in Microsoft Office applications (M = 3.2131, SD = 0.53255) and digital library resources (M = 3.1317, SD = 0.64854) was also rated positively, though slightly lower than basic computer skills. The lowest mean score, troubleshooting basic ICT issues (M=3.0617, SD=0.67443), indicates that while students are confident in using ICT tools, their technical problem-solving abilities are relatively less developed.

**Table 5 (Research Question 2):** What ICT skills do LIS undergraduate students of Federal University of Lokoja possess?

| S/N | Skills                      | Mean   | Standard Deviation | Decision |
|-----|-----------------------------|--------|--------------------|----------|
| 1.  | Microsoft Word              | 3.3374 | .71427             | Accepted |
| 2.  | Microsoft PowerPoint        | 3.0447 | .70133             | Accepted |
| 3.  | Basic search troubleshoots  | 2.7592 | .82181             | Accepted |
| 4.  | Online information retrieve | 2.9187 | .93977             | Accepted |
| 5.  | Use of multimedia tools     | 3.0735 | .80642             | Accepted |
| 6.  | Use of library software     | 2.8975 | .88990             | Accepted |
| 7.  | Others specify              | 2.8956 | .90125             | Accepted |



**Table 5** indicates that LIS undergraduates at the Federal University of Lokoja possess a range of ICT skills, with all mean scores above the acceptance threshold of 2.5 and moderate standard deviations, suggesting reasonable agreement among respondents. The accepted skill possess was proficiency in Microsoft Word ( $M = 3.3374$ ,  $SD = 0.71427$ ), followed by the use of multimedia tools ( $M = 3.0735$ ,  $SD = 0.80642$ ) and Microsoft PowerPoint ( $M = 3.0447$ ,  $SD = 0.70133$ ). Skills in online information retrieval ( $M = 2.9187$ ,  $SD = 0.93977$ ), use of library software ( $M = 2.8975$ ,  $SD = 0.88990$ ), and other specified skills ( $M = 2.8956$ ,  $SD = 0.90125$ ) were rated slightly lower, while basic search troubleshooting ( $M = 2.7592$ ,  $SD = 0.82181$ ) received the lowest mean, suggesting limited technical diagnostic abilities. The moderate standard deviations, particularly in online retrieval and other specialized skills, indicate some variability in proficiency levels, pointing to the need for targeted training in specialized and technical ICT applications.

**Table 6 (Research Question 3):** Impact of ICT skills of LIS undergraduate students in Federal University of Lokoja?

| S/N | Impact                                                                                       | Mean   | Standard Deviation | Decision |
|-----|----------------------------------------------------------------------------------------------|--------|--------------------|----------|
| 1.  | My ICT skills have improved my academic performance in LIS studies.                          | 3.4490 | .75371             | Accepted |
| 2.  | My ICT competence has enhanced my research skills for assignments and projects.              | 3.0369 | .63721             | Accepted |
| 3.  | My ICT skills have improved my ability to locate, evaluate, and use information effectively. | 3.1967 | .69849             | Accepted |
| 4.  | My ICT skills have enhanced my communication and collaboration with peers and lecturers.     | 3.0455 | .69527             | Accepted |
| 5.  | My ICT competence has improved my problem-solving skills in academic and practical settings. | 3.3115 | .67989             | Accepted |
| 6.  | My ICT skills have prepared me for a career in the information profession.                   | 3.1633 | .60554             | Accepted |
| 7.  | My ICT skills have improved my access to relevant information resources for learning.        | 3.2099 | .82896             | Accepted |

**Table 6** shows that respondents generally accepted that their ICT skills positively influence their academic and professional development, with all mean scores above 3.0 and relatively low standard deviations, indicating consistent perceptions across the sample. The strongest reported impact was on improving academic performance in LIS studies ( $M = 3.4490$ ,  $SD = 0.75371$ ), followed by enhancing problem-solving abilities in academic and practical contexts ( $M = 3.3115$ ,  $SD = 0.67989$ ) and strengthening research skills for assignments and projects ( $M = 3.0369$ ,  $SD = 0.63721$ ). Other notable impacts included improved access to relevant learning resources ( $M = 3.2099$ ,  $SD = 0.82896$ ) and enhanced ability to locate, evaluate, and use information effectively ( $M = 3.1967$ ,  $SD = 0.69849$ ). The relatively small spread in scores suggests a general consensus that ICT competence contributes significantly to academic success, research effectiveness, and career readiness, although variability in some areas indicates differences in how students experience these benefits.

**Table 7 (Research Question 4):** Barriers to effective use of ICT by undergraduate students of Federal University of Lokoja?

| S/N | Barriers                                                                | Mean   | Standard Deviation | Decision |
|-----|-------------------------------------------------------------------------|--------|--------------------|----------|
| 1.  | Limited access to ICT facilities                                        | 3.5560 | .53031             | Accepted |
| 2.  | Inadequate ICT skills hinder effective use of ICT.                      | 3.3017 | .50302             | Accepted |
| 3.  | Poor internet connectivity on campus hinders effective use of ICT.      | 3.2893 | .63688             | Accepted |
| 4.  | Limited availability of relevant software hinders effective use of ICT. | 3.2305 | .62023             | Accepted |
| 5.  | Frequent power outages on campus hinder effective use of ICT.           | 3.3223 | .68432             | Accepted |
| 6.  | High cost of internet services hinders effective use of ICT.            | 3.2656 | .64873             | Accepted |
| 7.  | Limited ICT training opportunities hinder effective use of ICT.         | 3.3071 | .66231             | Accepted |

**Table 7** reveals that respondents generally perceive multiple barriers to effective ICT use, with all mean scores above 3.2 and low to moderate standard deviations, indicating a shared recognition of these challenges. The most significant barrier identified was limited access to ICT facilities ( $M = 3.5560$ ,  $SD = 0.53031$ ), followed by frequent power outages on campus ( $M = 3.3223$ ,  $SD = 0.68432$ ) and inadequate ICT skills ( $M = 3.3017$ ,  $SD = 0.50302$ ). Poor internet connectivity ( $M = 3.2893$ ,  $SD = 0.63688$ ) and limited ICT training opportunities ( $M = 3.3071$ ,  $SD = 0.66231$ ) were also highlighted, along with high internet costs ( $M = 3.2656$ ,  $SD = 0.64873$ ) and limited availability of relevant software ( $M = 3.2305$ ,  $SD = 0.62023$ ). The relatively small variation in scores suggests broad agreement among students regarding these constraints, underscoring the need for infrastructural, technical, and training interventions to enhance ICT accessibility and utilization.

**Table 8 (Research Question 5):** Ways to improving ICT competence among LIS undergraduate students of Federal University of Lokoja?

| S/N | Ways                                                                  | Mean   | Standard Deviation | Decision |
|-----|-----------------------------------------------------------------------|--------|--------------------|----------|
| 1.  | Provides better access to ICT facilities                              | 3.5560 | .53031             | Accepted |
| 2.  | Student should be equipped with relevant ICT skills                   | 3.3017 | .50302             | Accepted |
| 3.  | Management should enhance equitable access to internet connectivity   | 3.2893 | .63688             | Accepted |
| 4.  | Acquisition of relevant software                                      | 3.2305 | .62023             | Accepted |
| 5.  | Provision of alternative power supply on campus to enhance use of ICT | 3.3223 | .68432             | Accepted |
| 6.  | Reduction in the cost of internet services                            | 3.2656 | .64873             | Accepted |
| 7.  | Management should introduce more ICT training programs                | 3.3071 | .66231             | Accepted |

**Table 8** outlines strategies perceived by respondents as essential for enhancing ICT competence, with all mean scores above 3.2 and low to moderate standard deviations, indicating a high level of agreement. The most emphasized strategy was improving access to ICT facilities ( $M = 3.5560$ ,  $SD = 0.53031$ ), followed by addressing frequent power outages ( $M = 3.3223$ ,  $SD = 0.68432$ ) and providing more ICT training opportunities ( $M = 3.3071$ ,  $SD = 0.66231$ ). Other important measures included strengthening ICT skills through targeted capacity building ( $M = 3.3017$ ,  $SD = 0.50302$ ), improving internet connectivity ( $M = 3.2893$ ,  $SD = 0.63688$ ), ensuring the availability of relevant software ( $M = 3.2305$ ,  $SD = 0.62023$ ), and reducing the high cost of internet services ( $M = 3.2656$ ,  $SD = 0.64873$ ). The relatively consistent scores indicate that students collectively recognize the need for a multifaceted approach that combines infrastructure improvement, skill development, and resource accessibility to advance ICT competence.

### Discussion of Result

The findings confirm that LIS undergraduates at Federal University of Lokoja generally possess very high ICT competence, with mean ratings for all skills above the acceptance threshold. Basic computer operations ( $M = 3.68$ ) emerged as the strongest competency, supporting literature such as Bawden and Robinson (2022) which emphasizes foundational digital literacy as essential for information work. High ratings for search engine use ( $M = 3.34$ ) and social media for academic purposes ( $M = 3.40$ ) further indicate adaptability to modern information environments.

The survey also showed ICT competence translating into tangible academic benefits: improved academic performance ( $M = 3.45$ ), enhanced problem-solving abilities ( $M = 3.31$ ), and increased access to relevant learning resources ( $M = 3.21$ ). This mirrors Ani and Edem's (2020) observation that ICT-proficient students produce better-organized research and more accurate citations. While students reported reasonable proficiency in Microsoft Office and multimedia tools, their lowest competence scores related to troubleshooting technical problems ( $M = 3.06$ ) and specialized software use (e.g., library automation tools,  $M = 2.90$ ), suggesting that deeper technical training is still needed for full professional readiness.

The quantitative results strongly support the literature on infrastructural and training gaps. The most significant barrier identified was limited access to ICT facilities ( $M = 3.56$ ), followed by frequent power outages ( $M = 3.32$ ) and inadequate ICT skills ( $M = 3.30$ ). These align with Aina's (2022) and Ocholla and Shongwe's (2022) findings that unreliable infrastructure and insufficient technical exposure hinder ICT integration in LIS education. Poor internet connectivity ( $M = 3.29$ ) and limited ICT training opportunities ( $M = 3.31$ ) reinforce Shuva and Kwanya's (2023) claim that theoretical ICT instruction without sustained practical engagement limits graduates' competence. The cost of internet services ( $M = 3.27$ ) and lack of relevant software ( $M = 3.23$ ) point to financial and resource accessibility issues, echoing UNESCO's (2023) concern over affordability as a digital literacy barrier.

Students' suggested strategies closely match the challenges identified. Improving access to ICT facilities ( $M = 3.56$ ) and expanding ICT training opportunities ( $M = 3.31$ ) were strongly agreed, validating Bawden and Robinson's (2022) recommendation for structured, hands-on training. Addressing frequent power outages ( $M = 3.32$ ) and improving internet connectivity ( $M = 3.29$ ) would directly tackle infrastructural constraints, while ensuring availability of relevant software ( $M = 3.23$ ) and reducing internet costs ( $M = 3.27$ ) target the resource affordability gap.

These student-proposed solutions align with Redecker's (2020) emphasis on multi-pronged institutional strategies combining infrastructure, capacity building, and industry partnerships to produce ICT-ready graduates.

## Conclusion

The study concludes that undergraduate Library and Information Science students at the Federal University of Lokoja possess foundational ICT competencies necessary for academic work, but there are noticeable gaps in advanced technical skills, especially in troubleshooting and use of specialized library software. While ICT competence positively impacts academic performance, research capability, and career readiness, infrastructural limitations, training gaps, and high costs of ICT resources significantly hinder optimal skill development.

Addressing these challenges requires a multi-dimensional approach involving investment in ICT infrastructure, regular hands-on training, and targeted policy interventions. Strengthening ICT competence among Library and Information Science undergraduates is critical to ensuring they can effectively navigate the demands of modern library and information services in the digital age.

## Recommendations

Based on the findings, the following recommendations are proposed:

1. **Infrastructure Improvement:** The university should invest in modern computer laboratories, stable high-speed internet, and reliable power supply to enhance ICT learning environments. Regular maintenance and upgrades of ICT facilities should be prioritized.
2. **Practical ICT Training:** The Library and Information Science department should incorporate more hands-on ICT courses, workshops, and simulations, focusing on specialized library software such as KOHA, DSpace, and Greenstone. Students should be encouraged to obtain professional certifications in relevant ICT areas.
3. **Access to ICT Resources:** The institution should provide licensed access to relevant software and online databases for students. Subsidized internet packages and device loan programs should be introduced to ease financial constraints.
4. **Capacity Building for Faculty:** Continuous professional development programs should be organized for LIS lecturers to strengthen their ICT instructional skills and keep them updated on emerging technologies.
5. **Industry Partnerships and Internships:** Collaborations with libraries, research institutions, and ICT organizations should be established to provide students with real-world experience in digital information management.

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