

## **Information & Communication Technology Skills and Service Quality of Librarians in Agricultural Research Institutes, Ibadan, Oyo State, Nigeria**

**Theresa Folasade ODUSANYA**

Department of Library and Documentation,  
Federal College of Forestry, Ibadan  
[otheresafolasade@gmail.com](mailto:otheresafolasade@gmail.com)

**Sophia V. ADEYEYE**

Department of Information Management,  
Lead City University, Ibadan  
[adeyeye.sophia@lcu.edu.ng](mailto:adeyeye.sophia@lcu.edu.ng)

### **Abstract**

Like every other library, research libraries in Agriculture institutes are service rendering organizations with the sole aim of satisfying the researchers' information need through quality services. User's satisfaction is key to the usage of library and its resources. Like every other service rendering organizations, regular evaluation from user's perspective is inevitable especially in the face of obstructive nature of the technological innovation which has kept librarians on their toes thereby leaving them with no option but to be equipped with necessary Information and Communication Technology (ICT) skills for optimum and overall quality service. This study aimed at finding out influence of ICT skills of librarians on the quality of service rendered in Agriculture research institute, Ibadan, Oyo State. It's a descriptive study, which makes use of mixed method. The population comprises of 101 librarians and 24 researchers. The instrument for data collection was questionnaire and a focus group discussion. The empirical data was analyzed using descriptive statistics, the hypothesis were tested using simple linear regression. The study found discrepancies in both librarians and researchers' response as regards service quality, Inadequacies of information resources was also found. The test of hypothesis revealed that ICT skills ((Adj.R<sup>2</sup>=0.205, F(1,79)=20.328, p=000)) have significant influence on service quality. The study recommends regular training and retraining in ICT by librarians.

**Keywords:** ICT skills, Service Quality, Librarian

## **Introduction**

Research libraries are institutions that have a specialized focus on facilitating access to a wide range of research materials and resources, with the primary objective of supporting academic and scientific endeavors. Libraries of this nature generally house comprehensive assortments of books, journals, manuscripts, archives, maps, and other pertinent resources that are indispensable for scholarly investigation within a specific field or subject domain. Research libraries play a critical role in supporting academic research, teaching, and learning. They provide access to primary and secondary source materials, data sets, and other resources that are not readily available through other channels. Research libraries also offer a wide range of services and support to help scholars and researchers navigate the complex landscape of scholarly information and communication.

In addition to their traditional functions of collecting, cataloguing, and providing access to materials, research libraries are increasingly involved in the creation and dissemination of scholarly information. Many research libraries are actively engaged in digitization initiatives, scholarly publishing, and open access initiatives to make scholarly resources more widely available. Agricultural research institutes are specialized organizations dedicated to advancing knowledge and innovation in the field of agriculture. These institutes play a crucial role in improving agricultural practices, increasing crop yields, enhancing livestock production, and developing sustainable farming methods. Their primary mission is to address the challenges faced by the agriculture sector, promote food security, and contribute to the overall economic and environmental well-being of a region or country by providing high quality service (Spencer, & Eldredge, 2018).

Service quality refers to the perception of users regarding the excellence or superiority of the services provided by an organization. In the context of research libraries, service quality

encompasses a wide range of factors such as accessibility, responsiveness, resource availability, staff competence, and user satisfaction. Therefore, ensuring high service quality is crucial for maintaining user loyalty, attracting new users, and positioning research libraries as indispensable assets within the research community (Twum, & Peprah, 2020).

Professionally, LibQual as a measure of quality service has three dimensions from which library service quality can be understudied namely, library as a place, information control, and affect of service. Library as a place being the second dimension of libqual model refers to the appearance of the physical surroundings and facilities, equipment, professional and the way of communication as well as manner of approach and curtesy. In other words, the tangible dimension is about creating first hand impressions. A library and librarians should want all their users to get a unique positive and never forgetting first hand impression, this would make them more likely to return in the future. Library as a place refers to the physical traits, the physical environment, conduciveness, librarian's mannerism, ventilation, and some other tangibles of the library that is able to instills a sense of loyalty into the patron. Collectively, all the dimension plays a significant role in measuring service quality of libraries as a serviceoriented institution. A study found that what the library has and how the library look affects customer satisfaction, followed by responsiveness and assurance moderately affect customer satisfaction which as generally agreed to be the yardstick for a quality service (Parasuraman, Zeithaml, & Berry, 1988). This means that library must pay attention to its look and aesthetic appearance inside and outside and even online in the wake of the obstructive nature of information and communication technology

Information and Communication Technology (ICT) skills with so many nomenclatures, like computer literacy skills, digital literacy skills, Information technology skills, media literacy skills and so on is one of the independent variables of this study and it has become increasingly

important for librarians as technology continues to play a larger role in the field of library and information science. Librarians are now expected to have a basic understanding of various ICT tools and technologies, as well as the ability to use them effectively in order to provide the best possible service to their patrons thereby enhancing and facilitating quality library services.

One of the most important ICT skills that librarians should possess is proficiency in the use of library management systems and the digital dynamics of both resources and services (Malik, & Ameen, 2021). These systems are used to catalogue, track, and manage the library's collection of books, periodicals, and other materials. Librarians need to be able to use these systems to search for and retrieve information, as well as to update and maintain the library's collection. Additionally, librarians should be able to use these systems to track the borrowing and returning of materials, as well as to generate reports on circulation statistics and reach out to various users who are scattered all over without a physical contact (Arshad, & Ameen, 2010). Another important ICT skill that librarians should possess is proficiency in the use of digital tools and resources. These include tools such as databases, e-books, and digital archives.

Agriculture Research Institutes are research based institutions that exist to meet the information needs of agricultural researchers. Their information needs are met basically by rendering service quality. Consequently, there is the need for a continuous check on how librarians are rendering quality service to these researchers to give them the gratifying experience they desire and to meet their information needs and expectations. However, extant literature reviewed revealed that there exists a deficiency of empirical studies on the usage of quality service assessment tools with which to ascertain how librarians in Agricultural Research Institute render service quality to their users.

## Research Questions

The study provided answers to the following research questions

1. What is the level of service quality of librarians in agricultural research institutes, Ibadan, Oyo State, Nigeria?
2. What is the level of information and communication technology skills of librarians in agricultural research institutes, Ibadan, Oyo State, Nigeria?

## Hypothesis

**H<sub>01</sub>**: There will be no significant relationship between information and communication technology skill and service quality of librarians in agricultural research institutes, Oyo State, Nigeria.

## Literature Review

One of the most commonly used tool as regards service quality in library is Libqual model, which measures service quality by comparing the library user's expectations with their perceptions of the service. The model involves collecting data from library user's using a questionnaire that measures the three dimension of service quality. The data collected is then used to calculate the gap between customer expectations and perceptions of the service. Strategies for Improving Service Quality Improving service quality is essential for businesses that want to remain competitive and retain their customers (Borishade, Ogunnaike, Salau, Motilewa, & Dirisu, 2021).

It was asserted that it is important to view quality assessment of library services as a management tool, used to learn whether or not the library is meeting the requirements and

expectations of its patrons. Clearly, the quality and value of library services is a modern instrument used by librarians and library administration to learn about and improve the services they offer. These resources are extremely useful for modern libraries as they allow them to provide 21st-Century patrons with higher-quality services (Kiriri, 2018).

ICT skills is demonstrated by the ability of research libraries librarians to use general ICTbased devices, applications, software and services as required; use basic productivity software, spreadsheets, and writing/presentation software; use a web browser and web services, use digital capture devices such as a camera, audio recorder and associated editing software; use institutional systems such as catalogues, data records, and use communication tools such as email, messaging, video, chat, sharing services. It also includes ability to learn from mistakes in the use of ICT, fix problems; stay up to date with ICT as it evolves; adopt new systems, applications and approaches into practice (Amanullah, Hasan, & Hafez, 2021). The combination of skills that make up Information and Communication Technology ICT skills set include, Digital literacy skills, information literacy skill, and media literacy skills. There have been little or no attempt by scholars to evaluate the level of these skills with respect to how it affects service quality of librarians in research libraries.

Digital literacy refers to an individual's ability to find, evaluate, and communicate information through typing and other media on various digital platforms. It is evaluated by an individual's grammar, composition, typing skills and ability to produce text, images, audio, video and designs using ICT innovations. Otherwise known as digital content creation is the ability to create, edit and improve digital content and abide by licensing and copyright, or to revise and integrate information and provide instructions to a computer system or device (Bajpai, & Madhusudhan, 2019).

Information literacy skill include the ability to find, evaluate, manage, create, organise and share digital information. It also involves the ability to map and evaluate the information landscape, select and use a wide range of resource discovery tools and approaches; identify and use specialist sources of information such as portals, catalogues, gateways, archives, datasets (Lua, 2017). Media literacy is more specific. It encompasses the ability to critically read, interpret and respond to messages in a range of digital media – text, graphical, video, animation and simulation, audio, data visualisation, presentations, wiki/blog articles. A media literate individual is also expected to be able to choose and use media resources to express ideas with an awareness of design, audience, and impact. Media literacy also include being aware of and acknowledging the source of digital information retrieved from the internet in whatever medium it is communicated (Kluzer, & Priego, 2018). The combination of these three skills are a compression of the European Initiatives Digital Competence Framework which makes up Information and Communication Technology skills (ICT) as far as this study is concerned and they are all necessary in this information driven society for effective Professional practices as far as librarianship is concern(Kluzer, & Priego, 2018). Any shortcoming in these skills will result in a deficient librarian thus drastically and negatively influence the quality of services rendered to the digitally inclined library users.

For instance a study examined the ICT Skills and Competencies of 60 Library and Information Science Professionals working in College Libraries, University of Delhi. All the 60 filled in questionnaires (20 Librarians, 20 Professional Assistants, and 20 Semi-Professional Assistants) the study found that that only 13 per cent LIS respondents have added an academic degree in their profession, whereas, 88 per cent did not acquire any academic qualification in their career after joining the library (Vyas Kumar & Madhusudhan, 2019)

Looking at the influence of ICT skills on service quality, a study found that employees' ICT skills had a significant positive effect on service quality (Al-Fawaz, Al-Salti, & Eldabi, 2010). This means that the quality of services they rendered is a off-shoot of the various ICT skills acquired over time. More so, a study that investigated the relationship between ICT skills and service quality in the Iranian banking sector. The results showed that there was a positive and significant relationship between ICT skills and service quality (Khajeheian, & Karami, 2014). Another recent study that explored the impact of ICT skills on service quality in the hospitality industry in South Korea, found that ICT skills had a significant positive effect on service quality (Yoo, Lee, & Park, 2018). A study investigated the relationship between ICT skills and service quality in the Indian healthcare sector. The study found that there was a positive and significant relationship between ICT skills and service quality. Overall, these studies suggest that ICT skills are an important factor in determining service quality in various industries. Having employees with strong ICT skills can lead to better customer service experiences and higher levels of satisfaction (Sahu, Sahoo, & Kumar, 2020). ICT skills is a survival skill of the 21<sup>st</sup> century, like every other professions, librarians cannot afford to lag behind, else they would look relevance and become obsolete.

## **Methodology**

The study adopted a descriptive survey research design. Mixed method which is a combination of quantitative and qualitative was be adopted for this study. The population for the study consists of all the 101 librarians and 24 conveniently sampled researchers from all the (8) eight agricultural research institutes in Ibadan, Oyo State. A standard scale questionnaire was adapted for question of perceived service quality of librarians while a focus group was used to gather data from 24four researchers. Quantitative data collected was analysed via descriptive statistics



while the qualitative data was analysed thematically. The hypothesis was tested using simple linear regression at 0.05 level of significance

### Analysis

The demographic findings revealed that 23 respondents (28.4%) are male, while 58 respondents (71.6%) are female. The majority of the respondents are female, the largest age group is "40-44" years, with 23 respondents (28.4%) falling in this category. The predominant staff cadre is "Library Officer," with 21 respondents (25.9% of the total). For the researchers, majority of the respondents are male 16 and female 8.

### Research Question One: What is the level of service quality of librarians in agriculture research institutes, Ibadan, Oyo State, Nigeria?

**Table1. Level of service quality of librarians in agriculture research institutes, Ibadan, Oyo State, Nigeria**

Options	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean
Researchers can access the Library Portal from anywhere	42 (51.9%)	23 (28.4%)	8 (9.9%)	8 (9.9%)	3.22
Researchers can access Library Portal 24/7.	41 (50.6%)	26 (32.1%)	10 (12.3%)	4 (4.9%)	3.28
Library provide up to date information.	36 (44.4%)	33 (40.7%)	4 (4.9%)	8 (9.9%)	3.20
Library Portal is user friendly	33 (40.7%)	38 (46.9%)	8 (9.9%)	2 (2.5%)	3.26
<b>Weighted Mean</b>					<b>3.2</b>
<b>Affect of Service</b>					
Librarians provide an accurate answer to enquiry	38 (46.9%)	40 (49.4%)	3 (3.7%)		3.43
Librarians are proficient in information searching	41 (50.6%)	36 (44.4%)	4 (4.9%)		3.46

Librarians are user friendly	44 (54.3%)	37 (45.7%)		3.54	
Librarians always Assists in finding the needed information	44 (54.3%)	37 (45.7%)		3.54	
<b>Weighted Mean</b>				<b>3.5</b>	
<b>Library as a Place</b>					
Books are arranged accordingly on the right shelf	64 (79.0%)	14 (17.3%)	3 (3.7%)	3.75	
Materials are easy to retrieve	59 (72.8%)	20 (24.7%)	2 (2.5%)	3.68	
Library collection is up to date	35 (43.2%)	29 (35.8%)	11 (13.6%)	6 (7.4%)	3.15
Library collection is adequate	31 (38.3%)	24 (29.6%)	20 (24.7%)	6 (7.4%)	2.99
<b>Weighted Mean</b>				<b>3.4</b>	
<b>Grand Mean</b>				<b>3.4</b>	

Decision rule 1.00 - 1.99 = very low, 2.00 - 2.50 = low, 2.51 – 2.99 = Moderate, 3.00 – 3.49 = high, 3.50-4.00= very high.

From table one above, the descriptive statistic showed an average (Weighted mean score) for statements on information control to be 3.26, indicating a generally positive perception of librarians about their level of control that the library exercises. However, the discussion group responses as regards information control shows that many (18) of the respondents accepted that library in research institute provides up to date information resources and that the resources are adequate. They meant that the resources in the library are recent and that the library is easily accessible to them (6) of the respondents have reservations concerning the adequacy of the resources. The qualitative data collected however revealed some sort of disparity as regards the adequacy of the resource as the librarians believed that the resources provided are not adequate.

The reason for this disparity could be attributed to several factors like librarian's believe that library supposed to be a growing organism and the fact that as professionals they understand what should be than the users.

For effect of service, the descriptive statistics showed a mean score of 3.54, indicated that there is a strong positive perception of librarians regarding their affective attitude towards users. This is supported by the qualitative responses where to a high degree, most of the respondents agreed that librarians always put a friendly countenance anytime they are approached for query and thus they always assist in finding the needed information physically and online. This therefore showed that librarians being the human face of the library can either make or mar library patronage with attitude but in this case they have been able to portray the library well.

For the third dimension, the descriptive statistics showed a mean score of 3.15, suggesting a moderate level of agreement with the recency of the library's collection. All the respondents agreed that the information resources in the library to their best of knowledge are arranged accordingly and this is because of the ease with which they get what they are looking for although mostly with the aid of a librarian. Many (16) of the respondents also have reservation with the library building and organization of the library resources as well as the sitting arrangement of the library. Three of the respondents clearly say they are not satisfied with the physical arrangement and settings of the library

Overall, the grand mean, calculated across all the three dimension is 3.4. This suggests that, on average, respondents (Librarians) have a positive perception of the library services and holdings. However, in a question that gives room for suggestion on the betterment of the library. All the respondents suggested that the library should get new information resources and go sophisticated with the integration of 21<sup>st</sup> century technological innovation that can foster quality and viable research looking at the inevitable place research in agriculture plays in the national economy.

**What is the information and communication technology skill of librarians in agriculture research institutes, Ibadan, Oyo State, Nigeria?**

**Table 2. Information and communication technology skill of librarians in agriculture research institutes, Ibadan, Oyo State, Nigeria**

Options	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean
I have the ability to create and edit digital content in different formats.	29 (35.8%)	44 (54.3%)	8 (9.9%)		3.26
I can express myself through digital means.	32 (39.5%)	45 (55.6%)	4 (4.9%)		3.35

I can modify, refine, improve and integrate information and content into an existing body of knowledge to create new, original and relevant content and knowledge.	33 (40.7%)	38 (46.9%)	10 (12.3%)		3.28
I understand how copyright and licenses apply to data, information and digital content.	30 (37.0%)	44 (54.3%)	7 (8.6%)		3.28
<b>Weighted Mean</b>					<b>3.3</b>
<b>Media Literacy</b>					
I can interact through a variety of digital technologies and to understand appropriate digital communication means for a given context.	33 (40.7%)	42 (51.9%)	6 (7.4%)		3.33
I can share data, information and digital content with others through appropriate digital technologies.	34 (42.0%)	41 (50.6%)	4 (4.9%)	2 (2.5%)	3.32
I can create and manage one or multiple digital identities, to be able to protect one's own reputation.	32 (39.5%)	41 (50.6%)	6 (7.4%)	2 (2.5%)	3.27
I understand the behavioural norms and know-how while using digital technologies and interacting in digital environments.	36 (44.4%)	34 (42.0%)	7 (8.6%)	4 (4.9%)	3.26
<b>Weighted Mean</b>					<b>3.3</b>
<b>Information Literacy</b>					
I can articulate information needs, search for data, information and content in digital environments.	40 (49.4%)	33 (40.7%)	6 (7.4%)	2 (2.5%)	3.37
I can create and update personal search strategies.	33 (40.7%)	36 (44.4%)	6 (7.4%)	6 (7.4%)	3.19
I can analyse, compare and critically evaluate the credibility and reliability of sources of data, information and digital content	35 (43.2%)	33 (40.7%)	9 (11.1%)	4 (4.9%)	3.22

I can organise, store and retrieve data, information and content in digital environments.	40 (49.4%)	37 (45.7%)	4 (4.9%)	3.44
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<b>Weighted Mean</b>	<b>3.3</b>
<b>Grand Mean</b>	<b>3.3</b>

Decision rule 1.00 - 1.99 = very low, 2.00 - 2.50 = low, 2.51 – 2.99= Moderate, 3.00 – 3.49 = high, 3.50-4.00= very high.

The table 2 above provided an assessment of digital literacy, media literacy, and information literacy skills among respondents. The weighted means score of 3.3 indicated a high level digital literacy skill possessed by respondents.

For media literacy, the weighted means score of 3.3 showed a high level media literacy skill possessed by respondents

For Information Literacy, the mean score of 3.3 revealed that to a high extent information literacy skill is possessed by respondents. The grand mean, calculated across all the three measures is 3.3. This suggests an overall positive perception among respondents regarding their digital literacy, media literacy, and information literacy skills.

**Hypothesis: There will be no significant influence of information and communication technology skill on service quality of librarians in agriculture research institutes, Oyo State, Nigeria.**

**Table 3. Significant influence of information and communication technology skills on service quality of librarians in agriculture research institutes.**

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.452 <sup>a</sup>	.205	.195	.47889

a. Predictors: (Constant), ICT skills

Table 3 above presents the results of the simple linear regression analysis for the influence of ICT skills on service quality of Librarians in Agriculture Research Institutes, Ibadan, Oyo State, Nigeria. From the results in Table 4.6a, ICT skills has a significant relationship on the service quality of Librarians in Agriculture Research Institutes, Ibadan, Oyo State, Nigeria (R = 0.452<sup>a</sup>,

$p < 0.05$ ). The coefficient of determination (Adj.  $R^2$ ) of 0.195 also shows that ICT skills explains 19.5% of the service quality of Librarians in Agriculture Research Institutes, Ibadan, Oyo State, Nigeria while the remaining 79.5% discrepancy in the service quality of Librarians in Agriculture Research Institutes, Ibadan, Oyo State, Nigeria is explained by other variables which are not considered in this study.

### **Discussion of Findings**

The research question which is based on the ICT literacy skills of librarians, the grand mean, calculated across all measures is 3.3. which suggests an overall positive perception among respondents regarding their digital literacy, media literacy, and information literacy skills. Negating this study, a survey revealed gaps in computer literacy among library staff and inadequacies in training programs. To sum it up, the study collectively emphasize the diverse and comprehensive training needs of librarians beyond ICT skills, encompassing management, communication, teaching, attitude development, and subject knowledge. They also underscore the importance of continuing education and training programs to enhance the professionalism of LIS practitioners (Akers, 2019). To support further, a scholar asserted that the incorporation of Information and Communication Technology (ICT) into library services has provided libraries with a great opportunity to satisfy their users' needs and wants. The study affirmed that the level of ICT use in library operations significantly influenced the level of library services delivered by both Jiangsu University (JU) library and University of Ghana (UG) library (Essien, Lu, Abredu, & Izotoo, 2022). This mean that ICT skill is a survival skill of the 21<sup>st</sup> century that every librarian must equip himself with for effectiveness and efficient library services.

To support further, a study that found that librarians had ICT skills like web applications skills, library networking skills, cloud technology skills, and that there is a significant relationship between web application skills, library networking skills and cloud technology skill, and effective library services delivery (Daniels, Wiche, & Nsirim, 2023). This means that librarians who has ICT skills will be effective in rendering services to users. Furthermore, negating this

study, it was found in a study on the Influence of ICT skills on job performance of librarians in university libraries of South-South, Nigeria found that that the majority of the respondents were not skillful in system management, web application and tools such as system troubleshooting, webinar/digital conferencing tools, Web 2.0, website designing and digital communication (Oyovwe-Tinuoye, Omeluzor, & Patrick, 2021). All though the study recorded a high level ICT literacy skills among librarians, it must be noted that technology is evolving and further training and retraining is inevitable for continuous relevance.

Similarly, the test of hypothesis found that ICT skills is significantly associated with service quality. Therefore, on the strength of the result of the regression analysis ( $Adj.R^2=0.205, F(1,79)=20.328, p=000$ ), the null hypothesis which states that there will be no significant influence of ICT skills on service quality of library in agricultural research institutes, Ibadan, Oyo State is hereby rejected. The regression model indicates that "ICT skills" is a significant predictor of "service quality," and the relationship is positive. In other words, an increase in ICT skills is associated with an increase in service quality. This finding is statistically significant and suggests that possessing ICT skills can lead to improved service quality.

In support of the findings of this study, a study examined the impact of ICT skills on service quality in the banking industry in Kuwait showed that there are significant differences between the perceptions of the customers of the three Islamic banks in relation to the technology dimension. The statistical significance of the alternative hypothesis was seen in the P-value ( $Pvalue= .000$ ). The alternative hypothesis is, therefore accepted, which implies that there are differences between the customers of KFH, KIB, and Boubyan Bank in regarding technology dimensions as indicators of service quality. The study found that employees' ICT skills had a

significant positive effect on service quality. This means that the quality of services they rendered is an off-shoot of the various ICT skills acquired over time (Al-Fawaz, Al-Salti, & Eldabi, 2010).

### **Summary**

The study found a high level perception of service quality. However, a somewhat lower level of agreement regarding the adequacy of the collection in agriculture research institute library, Ibadan, Oyo State was also found. The study found an overall positive perception among librarians in agricultural research institute in Ibadan, Oyo State regarding their digital literacy, media literacy, and information literacy skills.

### **Conclusion**

The findings revealed a commendable high level of service quality, with an overall grand mean score of 3.4, reflecting the dedication and commitment of librarians in delivering quality services. However, the slightly lower mean score of 2.99 regarding the adequacy of the collection indicates a need for attention and improvement in this specific area.

### **Recommendations**

1. A quality service can only be rendered using quality library resources, the library need to be well equipped with relevant and adequate information resources that best meet the need of researchers.
2. Information and Communication Skills is a necessary and survival skill of the 21<sup>st</sup> century that librarians must be equipped with to stay relevant.



3. ICT skills training should be prioritized while internally organized training programs should be highly encouraged in the research libraries. The management should make some financial commitment in support of research librarians for training and retraining on ICT skills for improved job

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