Correlation Between Professional Competencies and Service Quality of Librarians in Agricultural Research Institute Libraries in Ibadan, Nigeria

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ABSTRACT

Agricultural research institute libraries are central to Nigeria's knowledge infrastructure, supporting scientists whose work addresses food security, rural livelihoods and national development; yet librarians in these libraries have received less research attention than those in university and public libraries. This study examined the relationship between librarians' professional competencies, namely continuing professional development (CPD) and information and communication technology (ICT) skills, and service quality in agricultural research institute libraries in Ibadan, Nigeria. A descriptive correlational survey with a qualitative component was adopted. All 101 librarians in the eight agricultural research institutes in Ibadan were surveyed by total enumeration, and 81 returned usable questionnaires (80.2%). In addition, 24 researchers took part in a focus group discussion. Service quality was measured with an adapted LibQUAL+ scale covering affect of service, information control and library as place. Data were analysed using descriptive statistics, simple and multiple linear regression, and thematic analysis. Service quality was rated high (grand mean = 3.37 on a 4-point scale), with affect of service highest (3.49) and information control lowest (3.24); adequacy of the collection received the lowest item score (2.99). All of these variables correlated significantly with service quality (CPD: $r = .512$; $p < .001$; ICT skills: $r = .452$; $p < .001$), accounted for 28.3% of its variance ($R^2 = .283$, $F(2,78) = 15.36$, $p < .001$); however CPD remained a significant predictor and the only one that was retained in this model as ICT skills were no longer statistically predictive of service quality: $\beta = .380$; $p = .005$). Focus group researchers rated access to information resources and physical facilities less favourably than did librarians. These findings suggest that structured, routine formal CPD involving mentoring and ICT training should be prioritized for library services in agricultural research institutes.

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1. Introduction

Ibadan hosts several agricultural research institutes whose libraries are essential but often under-valued. Their collections underpin the bedrock of the scientific work of institutes engaged in crop improvement, soil science, forestry, and pest management, where an outdated journal article or a database that is locked away can hold up a research programme for months. The librarians who oversee these spaces are the lifelines to the information their researchers rely on, but their professional development, and the quality of the services they provide, has received little systematic inquiry.

The idea of service quality in libraries has evolved significantly from definitions that were entirely about collection size and opening hours to user-centred evaluation by the 1990s that argued that how users felt about their interactions with the library, how quickly they received assistance, and how easily they navigated resources were as important as what was on the shelves (Parasuraman et al., 1988; Hernon & Altman, 2010). This evolution led to the development of tools such as SERVQUAL, and, for libraries, the LIBQUAL that evaluate service quality in terms of the effect of service (the interpersonal quality of librarian–user interactions), information control (how accessible and current the collections are), and library as a place (the physical and virtual environment) (Cook et al., 2001).

What explains differences in service quality along these dimensions? A convincing explanation is to be found in the professional competencies of librarians themselves: As research is now more and more conducted online, via electronic databases, institutional repositories, and open-access portals, the ICT skills of a librarian are no longer optional extras but essentials (Association of College and Research Libraries, 2015; IFLA, 2017). The related question of how librarians maintain those skills is also important: The information environment is not static, and what is considered adequate competence today may be inadequate in three to five years. CPD is the means by which librarians are expected to bridge that gap (Babalola & Nwalo, 2013; International Federation of Library Associations and Institutions [IFLA], 2016).

A third, and often overlooked, pathway to competence is through observational learning, the informal, on-the-job process by which junior librarians acquire professional norms, practical skills, and institutional knowledge by working alongside senior colleagues (Bandura, 1977; Ezeani & Igwesi, 2012). While these competencies are increasingly recognised in the library literature, most empirical studies have been conducted in university or large public libraries and usually examine one competency at a time. Agricultural research institute libraries differ from these settings: their users are practising scientists with specialised, time-sensitive information needs, their collections centre on crop, soil, forestry and post-harvest research, and they operate with small staff and limited funding. Findings from university libraries cannot therefore be assumed to apply to them.

This study makes three contributions. First, to the best of our knowledge, it provides the first empirical evidence on librarians' competencies and service quality across all eight agricultural research institute libraries in Ibadan, Nigeria. Second, it examines CPD (including learning through observation of colleagues) and ICT skills together, showing how each relates to service quality when the other is taken into account. Third, it compares librarians' assessments of service quality with the views

of the researchers they serve.

The specific objectives were to: (i) determine the level of service quality in agricultural research institute libraries in Ibadan on the three LibQUAL+ dimensions; (ii) determine the level of CPD among librarians, including learning by observation, training needs and preferred training methods; (iii) determine the level of librarians' ICT skills; and (iv) examine the individual and joint relationships of CPD and ICT skills with service quality.

The following null hypotheses were tested at the 0.05 level of significance:

H_{01}: CPD has no significant relationship with service quality.

H_{02}: ICT skills have no significant relationship with service quality.

H_{03}: CPD and ICT skills do not jointly predict service quality significantly.

2. Literature Review

2.1 Service quality in libraries

Scholars have been trying to define and measure service quality in libraries for several decades. Library service, according to Hernon and Altman (2010), can be defined as any activity that the library undertakes to satisfy the information needs of users and the objectives of its parent institution. Although this definition may seem simple, it is more difficult to measure in practice, not least because quality is a matter of user perception and not of any objective measure (Nitecki & Hernon, 2000; Parasuraman et al., 1988).

To make quality assessment more manageable, researchers have classified library services in many different ways, although a simple distinction between technical services (e.g., cataloguing, acquisitions, preservation) and reader services (e.g., lending, reference, current awareness, selective dissemination, and, increasingly, electronic database navigation) is often used (Nkamnebe et al., 2017). Regardless of the classification scheme, the literature concludes that the ultimate test of quality is in the experience of the user, not the intention of the librarian (Kyrillidou, 2002).

This insight is operationalized in the three-dimensional structure of the LIBQUAL model, which is an adaptation of SERVQUAL for library settings (Cook et al., 2001). Service affect measures the human component of library interactions: are librarians responsive, respectful, helpful beyond minimal compliance? Information control measures whether users can locate the information they need, when they need it, in usable formats, both in physical and digital contexts. Library as place addresses the environment in which all of this occurs: physical layout, digital infrastructure, and the physical and emotional environment of the space itself.

These dimensions have direct implications for librarian competencies. High affect-of-service ratings require interpersonal and communication skills as well as subject knowledge, while high information-control ratings require the ability to organise, describe and provide access to an increasingly digital collection. Both therefore depend on the training, experience and professional development of library staff.

LibQUAL+ was developed by the Association of Research Libraries for academic libraries (Cook et al., 2001), and its three dimensions are general enough to apply to any library whose users seek research information. It was adapted for this study because agricultural research institute libraries serve a small, specialised group of scientists rather than a mixed student and staff population. Items were therefore reworded to refer to research-specific services such as literature searches for project proposals, access to agricultural databases and support with institutional repositories, while the three-dimension structure was retained.

2.2 Professional competencies and ICT skills

The relationship between librarians' ICT skills and service quality has been established in a variety of library types and geographic contexts (Ogunsola, 2004; Thanuskodi, 2012). Similarly, the ICT competence gap in Nigerian university libraries (Ogunsola, 2004) has been replicated in South Asian academic libraries (Thanuskodi, 2012), with lower ratings of service-effectiveness from users.

In the library context, ICT competence is not a single skill, but a cluster of skills, which are often described in the context of digital literacy (the ability to use computers, networks, and software), information literacy (the ability to find, assess, and integrate information from various sources), and media literacy (the ability to interpret and analyze digital media content), as well as other competency areas, such as digital content creation, data management, safety, and problem-solving (Association of College and Research Libraries, 2015; IFLA, 2017; European Commission, 2017). Librarians who possess most of these areas are much more prepared to assist researchers in information environments that are dense, multilayered, and digital.

This is particularly relevant in developing countries, where ICT infrastructure is uneven and librarians often have to compensate for gaps with their own skills (Chisenga, 2006). In Africa, inadequate subscription budgets, unreliable internet access and outdated hardware place additional demands on individual librarians (Chisenga, 2006). In such conditions, librarians' knowledge and resourcefulness become important determinants of the quality of service users receive.

2.3 Continuous professional development

The argument for CPD as a motivator of service quality is based on a straightforward premise: the information profession evolves faster than any initial qualification can predict. As noted, IFLA (2016) defines CPD as the lifelong learning process by which professionals update their knowledge and skills to meet changing professional demands; this definition encompasses the individual and institutional dimensions of the challenge.

In the Nigerian context, Oduwole (2013) identified that librarians who engage in workshops, seminars, and formal continuing education courses performed better on service-delivery measures than those who did not, a finding echoed by Babalola and Nwalo (2013, 2019), who found that participation in CPD is particularly closely linked to adaptability, the extent to which librarians adjust service approaches in response to changing user needs and technological conditions. Using wider human resource development literature, Armstrong (2009) and Noe (2010) argue that systematic training is an important determinant of employee effectiveness in service organisations, an argument

that applies equally to libraries.

The practice of CPD varies, but exposure to new ideas through formal conferences and workshops, the development of peer networks, immediate application of skills to local systems and collections, mentoring that bridges formal and informal learning, and on-the-job training that develops the contextual competence that classroom instruction rarely achieves are all common modalities (Oduwole, 2013; IFLA, 2022).

2.4 Observational learning and social learning theory

The theoretical basis for understanding how observational learning contributes to professional competence is rooted in social learning theory (Bandura, 1977), which holds that in addition to formal instruction and direct experience, people also learn by observing others, noticing what works, and incorporating those observations into their own behavior. This manifests in library settings in the connections between more senior and junior colleagues, where informal professional standards, techniques, and institutional wisdom are passed on, often in ways that no training manual can fully describe.

This framework was applied to Nigerian libraries (Ezeani & Igwesi, 2012), where it was found that mentoring relationships had a significant impact on the development of communication skills, customer orientation, and problem-solving ability in younger librarians. In more recent work, Lipscomb and Teague (2020) surveyed the mentoring literature in academic libraries and concluded that structured mentoring programmes were one of the most cost-effective pathways to the transfer of professional skills, especially in environments where formal training budgets were limited.

A link with service quality can therefore be expected: a librarian who has observed and experienced what good service looks and feels like is more likely to provide it. The challenge is that this type of learning is difficult to institutionalize, is reliant on the quality of senior colleagues who are available as models, and unstructured mentoring can model poor practices as easily as good ones, all factors that contribute to making observational learning a significant but complex contributor to service-quality outcomes.

2.5 Conceptual framework

Drawing on the literature reviewed above, this study treats librarians' professional competencies as three related dimensions that are expected to be associated with users' perceptions of service quality. Table 1 summarises the expected links. ICT skills are expected to relate most closely to information control and to the virtual aspects of library as place, because they determine whether librarians can make digital resources accessible. CPD is expected to relate to all three dimensions, since it updates both technical and service skills and supports adaptability to changing user needs (Babalola & Nwalo, 2019). Observational learning, grounded in social learning theory (Bandura, 1977), is expected to relate mainly to affect of service, because interpersonal norms and service attitudes are largely learned by watching experienced colleagues (Ezeani & Igwesi, 2012).

Table 1. Expected Relationships between Librarians' Professional Competencies and LibQUAL+ Service-Quality Dimensions

Competency	Components measured	Main mechanism	LibQUAL+ dimension(s) expected to be most affected
Continuing professional development	Learning by observation; training needs; preferred training methods; need for further training	Updating knowledge and skills; learning service norms from senior colleagues	All three, especially affect of service
ICT skills	Digital literacy; media literacy; information literacy	Ability to search, manage and provide access to digital resources	Information control; library as place (virtual)

2.6 Research gap

Three gaps emerge from this review. First, research on librarian competencies and service quality has been conducted mainly in academic and public libraries; agricultural research institute libraries, with their specialised collections, scientifically trained users and distinct funding constraints, have received little attention. Second, CPD and ICT skills have usually been studied separately, so their relative contributions to service quality are not known. Third, few Nigerian studies have combined librarians' self-assessed competencies with the perceptions of the researchers they serve. The present study addresses these three gaps.

3. Methodology

3.1 Design

The study adopted a descriptive correlational survey design with a qualitative component. A questionnaire administered to librarians measured their competencies and their assessment of service quality, while a focus group discussion with researchers provided the users' perspective and was used to triangulate the survey findings.

3.2 Study area

The study was conducted in the eight agricultural research institutes in Ibadan, Oyo State, Nigeria: the Forestry Research Institute of Nigeria (FRIN); the Institute of Agricultural Research and Training (IAR&T); the National Horticultural Research Institute (NIHORT); the International Institute of Tropical Agriculture (IITA); the National Cereals Research Institute (NCRI); the Nigerian Stored Products Research Institute (NSPRI); the Cocoa Research Institute of Nigeria (CRIN); and the National Centre for Genetic Resources and Biotechnology (NACGRAB). Each maintains a library serving its research staff.

3.3 Target population and sampling

The study population comprised all 101 professional and para-professional librarians in the eight institute libraries. All were included through total enumeration because the population was small, and 81 completed questionnaires were returned, a response rate of 80.2%. Table 2 shows the distribution of librarians and returned questionnaires across the institutes. For the qualitative component, five researchers who were active library users were purposively invited from each institute (40 in total), and 24, three per institute (16 men and 8 women), took part.

Table 2. Population of Librarians and Questionnaire Returns by Institute

Institute	Population	Returned	% of returns
FRIN	31	24	29.6
IAR&T	18	15	18.5
NIHORT	17	17	21.0
IITA	11	7	8.6
NCRI	8	4	4.9
NSPRI	7	6	7.4
CRIN	5	4	4.9
NACGRAB	4	4	4.9
Total	**101**	**81**	**100**

3.4 Unit of analysis

The librarian was the unit of analysis for all statistical tests (N = 81). Each librarian rated his or her own CPD and ICT skills and also rated the quality of services provided by his or her library on the adapted LibQUAL+ items. Researchers' views were collected separately through the focus group and were not entered into the statistical analyses; they were used to compare users' perceptions with librarians' ratings.

3.5 Instruments

The librarians' questionnaire had four sections. Section A collected demographic information (institution, gender, age and staff cadre). Section B measured CPD with 16 items in four subscales of four items each: learning by observation (e.g., "As a librarian, I learn every day by observing my superiors"), adapted from studies based on social learning theory; training needs; preferred training methods; and need for further training. Section C measured ICT skills with 12 items adapted from the European Digital Competence Framework (European Commission, 2017), in three subscales of four items each: digital literacy, media literacy and information literacy. Section D measured service quality with 12 items adapted from LibQUAL+ (Cook et al., 2001), four for each dimension: information control, affect of service and library as place. Items were reworded to refer to services

in research libraries, while the three-dimension structure was retained. All items were rated on a 4-point Likert scale (4 = strongly agree, 3 = agree, 2 = disagree, 1 = strongly disagree). Scale and subscale scores were computed as item means and interpreted as follows: 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 focus group guide contained open questions on the three LibQUAL+ dimensions, for example: "In a few words, describe the attitude of library staff with respect to their responsiveness to your information needs, willingness to help, user-friendliness, reliability and empathy."

3.6 Validity and reliability

Face and content validity were established by the research supervisor and other scholars in library and information science, whose corrections were incorporated before the final version was administered. Reliability was tested in a pilot study with 30 librarians at the Nigerian Stored Products Research Institute headquarters, Ilorin, Kwara State, which is outside the study area. Cronbach's alpha coefficients were 0.79 for service quality, 0.87 for CPD and 0.92 for ICT skills, all above the 0.70 threshold recommended by Nunnally (1978).

3.7 Data collection

With a letter of introduction from the Department of Information Management, Lead City University, Ibadan, questionnaires were administered in person by the researcher and two trained research assistants over six weeks in 2023. The focus group discussion was conducted on WhatsApp, which allowed researchers from all eight institutes to participate at convenient times.

3.8 Data analysis

Quantitative data were analysed with IBM SPSS Statistics. Descriptive statistics (frequencies, percentages and means) were used for demographic data and to describe service quality, CPD and ICT skills. Simple linear regression tested $H_0 1$ and $H_0 2$, and multiple linear regression, with both predictors entered simultaneously, tested $H_0 3$. Significance was set at $p < 0.05$. Focus group responses were analysed thematically according to the three LibQUAL+ dimensions, and the number of participants expressing each view was recorded.

3.9 Ethical considerations

Participation was voluntary. Respondents were assured of confidentiality and anonymity, informed of their right to withdraw at any time, and gave informed consent before data collection.

4. Results and Discussion

4.1 Demographic characteristics

Table 3 shows that most of the 81 librarians were female (71.6%). The largest age group was

40–44 years (28.4%), and 77.8% were aged 30–49 years. Library officers (25.9%) and senior librarians (24.7%) were the largest cadres, and 42.0% held the rank of senior librarian or above. The predominance of women is consistent with the gender pattern commonly reported in Nigerian librarianship.

Table 3. Demographic Characteristics of Respondents (n = 81)

Variable	Category	Frequency	%
Gender	Male	23	28.4
	Female	58	71.6
Age (years)	25–29	3	3.7
	30–34	16	19.8
	35–39	16	19.8
	40–44	23	28.4
	45–49	16	19.8
	50 and above	7	8.6
Staff cadre	Library Officer	21	25.9
	Librarian II	14	17.3
	Librarian I	11	13.6
	Senior Librarian	20	24.7
	Principal Librarian	3	3.7
	Assistant Chief Librarian	4	4.9
	Chief Librarian	8	9.9

4.2 Level of service quality

Service quality was rated high overall (grand mean = 3.37; Table 4). Affect of service received the highest rating (3.49): all librarians agreed that they are user-friendly and assist users in finding needed information (mean = 3.54 for each item). Library as place followed (3.39). Books arranged on the right shelves (3.75) and ease of retrieval (3.68) scored very high, but currency of the collection (3.15) scored lower and adequacy of the collection was rated only moderate (2.99), the lowest item in the scale. Information control was rated lowest (3.24), with library portal access, currency of information and portal user-friendliness all between 3.20 and 3.28. These results suggest that the interpersonal side of service is a strength, while the main weaknesses lie in the adequacy and currency of resources and in access to them, problems that are commonly linked to funding constraints in African libraries (Chisenga, 2006).

Table 4. Librarians' Ratings of Service Quality on LibQUAL+ Dimensions (n = 81)

Dimension and item	Mean	Interpretation
Information control	**3.24**	**High**
Researchers can access the library portal from anywhere	3.22	High
Researchers can access the library portal 24/7	3.28	High
Library provides up-to-date information	3.20	High
Library portal is user-friendly	3.26	High

Affect of service	**3.49**	**High**
Librarians provide accurate answers to enquiries	3.43	High
Librarians are proficient in information searching	3.46	High
Librarians are user-friendly	3.54	Very high
Librarians always assist in finding needed information	3.54	Very high
Library as place	3.39	High
Books are arranged correctly on the shelves	3.75	Very high
Materials are easy to retrieve	3.68	Very high
Library collection is up to date	3.15	High
Library collection is adequate	2.99	Moderate
Grand mean	**3.37**	**High**

Scale: 1 = strongly disagree to 4 = strongly agree. 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.

4.3 Librarians' CPD and ICT skills

Table 5 summarises the competency subscales. CPD was high overall (3.36). Learning by observation was widely reported: 96.3% of librarians agreed that they learn every day by observing their superiors and that they learn new professional skills from them, consistent with social learning theory (Bandura, 1977). The strongest CPD subscale was the need for further training (3.48), mainly to gain more knowledge (3.58) and develop skills (3.53). The most preferred training method was attending conferences, seminars and workshops (3.48), followed by practical work (3.42) and in-house training (3.40). ICT skills were also high (3.30), with similar means for digital (3.29), media (3.30) and information literacy (3.31). The lowest ICT items were creating and updating personal search strategies (3.19) and critically evaluating sources (3.22), while organising, storing and retrieving digital information was highest (3.44). These are self-assessments, so they may overstate actual proficiency.

Table 5. Librarians' CPD and ICT Skills (n = 81)

Competency and subscale	**Mean**	**Interpretation**
CPD (overall)	**3.36**	**High**
Learning by observation	3.27	High
Training needs	3.28	High
Preferred training methods	3.40	High
Need for further training	3.48	High
ICT skills (overall)	**3.30**	**High**
Digital literacy	3.29	High
Media literacy	3.30	High
Information literacy	3.31	High

4.4 Relationships of CPD and ICT skills with service quality

Simple linear regression showed that CPD was significantly and positively related to service quality ($r = .512$, $R^2 = .262$, $F(1, 79) = 28.07$, $p < .001$; Table 6). $H_0 1$ was therefore rejected. ICT skills were also significantly and positively related to service quality ($r = .452$, $R^2 = .205$, $F(1, 79) = 20.33$, $p < .001$), and $H_0 2$ was rejected. By Cohen's (1988) criteria, both associations are large to moderate. Librarians who reported more professional development and stronger ICT skills tended to rate their library's service quality more highly.

Table 6. Simple Regressions of Service Quality on CPD and ICT Skills (n = 81)

Predictor	B	SE	β (= r)	t	p	R^2	F(1, 79)
CPD	0.630	0.119	.512	5.30	< .001	.262	28.07
ICT skills	0.454	0.101	.452	4.51	< .001	.205	20.33

Constants: CPD model 1.260 (SE 0.403); ICT model 1.880 (SE 0.336).

4.5 Joint Relationship (Multiple Regression)

When CPD and ICT skills were entered together (Table 7), the model was significant, $F(2, 78) = 15.36$, $p < .001$, and explained 28.3% of the variance in service quality ($R = .532$, $R^2 = .283$, adjusted $R^2 = .264$). $H_0 3$ was therefore rejected. However, only CPD remained a significant predictor ($B = 0.468$, $\beta = .380$, $t = 2.91$, $p = .005$). ICT skills were not significant once CPD was controlled ($B = 0.195$, $\beta = .195$, $t = 1.49$, $p = .140$), although they were significant on their own. This indicates that most of the association between ICT skills and service quality is shared with CPD. A likely explanation is that CPD activities, such as workshops, in-house training and learning from senior colleagues, are a main route through which librarians acquire and update ICT skills. Tolerance (approximately 0.55) and VIF (approximately 1.8) values were within accepted limits, so multi-collinearity did not distort the estimates. The model left 71.7% of the variance unexplained, which future studies could investigate.

Table 7. Multiple Regression of Service Quality on CPD and ICT Skills (n = 81)

Predictor	B	SE	β	t	p	95% CI for B
Constant	1.162	0.405		2.87	.005	[0.356, 1.968]
CPD	0.468	0.161	.380	2.91	.005	[0.147, 0.789]
ICT skills	0.195	0.131	.195	1.49	.140	[−0.066, 0.456]

$R = .532$, $R^2 = .283$, adjusted $R^2 = .264$, SE of estimate = 0.458; $F(2, 78) = 15.36$, $p < .001$. Tolerance ≈ 0.55; VIF ≈ 1.8.

4.6 Researchers' perspectives (Focus Group)

Thematic analysis of the 24 researchers' responses produced three themes, one for each LibQUAL+ dimension.

Theme 1: Positive staff attitude. Virtually all researchers agreed that librarians provide accurate answers and are proficient in searching, and most described them as consistently friendly and helpful, both in person and online. This agrees with the high affect-of-service rating given by librarians.

Theme 2: Uneven access to information resources. Eighteen researchers considered the library's resources current and adequate, but six had reservations about adequacy. Sixteen expressed reservations about the ease of accessing resources, while eight were positive. Researchers therefore viewed access less favourably than librarians, who rated the portal and access items high.

Theme 3: Well-organised collections but limited facilities. All researchers agreed that materials were well arranged, although many relied on a librarian's help to find them. Sixteen had reservations about the library building, the organisation of space and the seating arrangement, and three said they were dissatisfied with the physical setting. All researchers recommended acquiring new information resources and adopting current technologies.

The focus group supports the librarians' view that staff attitude is a strength, but it suggests that librarians may overestimate how accessible and adequate their resources are to users. This difference between providers' and users' perceptions underlines the value of regular user-based service-quality assessment.

5. Limitations of the Study

Several limitations should be noted. First, the cross-sectional correlational design shows associations but cannot establish that CPD or ICT skills cause differences in service quality. Second, librarians rated both their own competencies and their library's service quality, so common-method bias and social desirability may have inflated the ratings and correlations (Podsakoff et al., 2003); the focus group partly addresses this by providing users' views, and those views were indeed less favourable on access and facilities. Third, the study covered agricultural research institutes in Ibadan only, so the findings may not generalise to other regions or library types. Fourth, the focus group was small, purposively selected and conducted on WhatsApp, which limited follow-up questioning. Finally, the adapted instrument was validated through expert review and a reliability pilot, but its factor structure was not tested. Future studies could collect service-quality ratings directly from users, use larger multi-region samples, test the instrument with confirmatory factor analysis and use longitudinal designs to examine change over time.

6. Conclusion

This study examined the relationship between librarians' professional competencies and service quality in the eight agricultural research institute libraries in Ibadan, a setting that has received little research attention despite its national importance. Librarians rated service quality high, with

staff attitude (affect of service) as the strongest dimension; adequacy and currency of the collection and access to information resources were the weakest areas. Researchers in the focus group confirmed the positive staff attitude but were more critical of access and physical facilities than librarians were.

Librarians reported high levels of CPD and ICT skills, and both were positively associated with service quality. When considered together, however, only CPD remained a significant predictor. Because the findings are correlational, they indicate priorities rather than proof of cause and effect: structured and regular professional development, which can also deliver ICT training, appears to be the most promising area for institutional investment in library service quality.

7. Recommendations

Because CPD was the only significant predictor of service quality in the joint model, research institutes should adopt written CPD policies with dedicated budget lines, combining attendance at conferences, seminars and workshops (the most preferred method) with in-house training and practical sessions.

Because most librarians learn by observing senior colleagues, institutes should formalise this through structured mentoring, so that it is monitored and available to all junior staff.

Because adequacy of the collection received the lowest rating and researchers reported difficulty with access, institutes should increase investment in current information resources, electronic subscriptions and access systems.

ICT training, particularly in search strategies and critical evaluation of sources (the lowest-rated ICT skills), should be built into CPD programmes rather than offered separately.

Libraries should conduct regular service-quality assessments that collect ratings from users as well as staff, since the two groups' perceptions differed.

Statements and Declarations

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