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An Examination of Librarians' Information and Communication Technology (ICT) Competencies for Reference Services Provision in Public University Libraries in Abia and Imo States, Nigeria

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Abstract
This study examined librarians' Information and Communication Technology (ICT) competencies for reference services provision in public university libraries in Abia and Imo States, Nigeria. It adopted a correlational research design, with a population of 97 academic librarians. The total enumeration sampling technique was employed. The instrument for data collection was structured questionnaire. The data collected were analysed using descriptive and inferential statistics, while the single null hypothesis was tested using simple linear regression at 0.05 level of significance. The study revealed that librarians' ICT competencies such as knowledge of searching the Internet, ability to carry out word processing activities, etc., are essential for providing reference services like selective dissemination of information (SDI), responding to users' queries, etc. It showed that the extent to which librarians' ICT competencies are utilized for reference services provision in the public university libraries is high. The study indicated that librarians' ICT competencies to a low extent have a positive significant relationship with reference services provision in the public university libraries. It identified lack of adequate funding to support librarians' training on ICTs, difficulties associated with using ICTs for reference services, poor Internet services, etc., as the major challenges militating against librarians' ICT competencies for reference services provision. The study recommended that management of the public universities should provide adequate funding to support the acquisition of modern ICT facilities, while management of the university libraries should prioritize training and retraining of librarians to sharpen their ICT competencies for enhanced reference services provision in the public university libraries.

Keywords: Competencies, Information and Communication Technology (ICT), Librarians, Reference Services, Reference Services Provision, Public University Libraries.

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Introduction

Information and Communication Technology (ICT) is one critical and globally acceptable innovation that keeps on challenging existing systems and procedures in modern library operations including reference services provision in university libraries. Information and Communication Technology (ICT) has tremendous effects on all areas of human life, businesses, education, entertainment, healthcare, amongst others. It is particularly a paradigm with sweeping effects, and well-acknowledged benefits for information and reference services provision in university libraries. University libraries are information and knowledge hubs with the core mandate of supporting teaching, learning, research and community services in the universities. University libraries are established as part of the universities with the responsibilities of ensuring effective information generation, processing, dissemination, preservation and conservation for the attainment of the vision, mission and objectives of their parent institutions (Amadi et al., 2020; Ibegwam et al., 2019; Ogugua et al., 2019; Udoh et al., 2023). University libraries consistently serve as the major information and knowledge hubs, sharing and disseminating a vast range of information and reference services to diverse patrons using both offline and online platforms (Udoh et al., 2025). They provide a variety of information resources and services for the facilitation of quality, effective and efficient delivery of education and knowledge advancement to various categories of users. They particularly have critical roles to play in ensuring effective reference services provision for optimum accessibility and utilization of information resources to enhance the satisfaction of users' information needs.

Reference services are unique personal assistance provided to library users as motivated by their requests or queries in line with their demands and expectations. Reference services are essential services of both public and private university libraries since they give users access to information that will increase their awareness of and familiarity with the library resources (Awodoyin & Aina, 2018; Obi, 2021). They are personalised services rendered by library reference librarians to individual patrons to enable them to make utmost use of library resources (Ubogu, 2020). Kudu, as cited in Nduka and Wiche (2023) posited that reference services are individualized supports that librarians provide to library patrons who are looking for certain specific information. They are provided manually or digitally. Manual reference services are provided through physical contact like face-to-face enquires and interaction between a reference librarian and library user for a particular information resource or direction in the library. They are also provided digitally using ICT tools such as email, chatbots, Voice over Internet Protocol (VoIP), instant messaging (IM) or social media platforms. Effective reference services provision whether manually or digitally is crucial for enhanced academic performance, research activities and self-development of library users. Providing these services require librarians to be well-competent, versatile, savvy and grounded in Information and Communication Technology related issues.

Consequently, librarians' Information and Communication Technology (ICT) competencies are sine-qua-non for effective reference services provision. Librarians' ICT competencies are the interrelated and interconnected skills and abilities required to adopt, adapt and use Information and Communication Technology (ICT) tools in the various phases of reference services provision. According to the International Federation of Library Associations and

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Institutions (IFLA, 2019), librarians' ICT competencies refer to the abilities and capacities to harness the potentials of ICT tools. ICT competencies are 21st century skillsets that encompass the awareness, attitude, proficiency and capability of individuals to fitly and effectively use ICT tools in the identification, access, management, integration, evaluation, analysis and synthesis of information services and to create new knowledge, media expressions, and communicate such knowledge and expressions in a personalized way to users within a technologically regulated environment (Akwang & Udoh, 2024; Bitri & Akkaya, 2018). Librarians' ICT competencies that are important for effective provision of reference services, especially in a digital environment. They include, but not limited to word processing and operating system skills, electronic mail (email) management ability, social media skills for content creation, cloud computing skills, Internet or online search skills, communication skills, negotiation skills, and ability to use open-source software (OSS) to maintain information resources (Aloysius et al., 2025; Jalal, 2019; Richard et al., 2024).

Librarians' ICT competencies help reference librarians to interact with users, conduct search and provide speedy personalized services based on users' queries. These skills are equally vital in offering reference services electronically via multi-mode platforms ranging from email, telephone, web-based chatbots, instant messaging, text messaging, and web-based videophone. Adequate ICT competencies are crucial for librarians in providing reference services through the use of ICT tools such as desktop computers, laptops, tablets, iPads, web cameras, video conferencing instruments, podcasting, vodcasting, as well as artificial intelligence-based virtual reference robots and chatbots to answer user queries when a reference librarian is not readily available. This underscores the position of Kayusi et al. (2024), who observed that successful reference services delivery requires librarians to familiarize with a variety of databases and be comfortable with many diverse menus of information technologies, as well as being familiar with good online referencing techniques.

However, amidst the numerous benefits of librarians' ICT competencies in library operations, including reference services provisions, studies indicated a dire situation in most public university libraries. For instance, Ashiq et al. (2020) claimed that academic libraries are falling behind in terms of personnel development and training in relation to ICT skills. Madu et al. (2018), as well as Williams (2020) acknowledged that some reference librarians in most university libraries are seriously lacking necessary digital skills and capabilities for provision of contemporary information and reference services due to inadequate ICT competencies and expertise. Thus, based on the above background, this study examined librarians' Information and Communication Technology (ICT) competencies for reference services provision in public university libraries in Abia and Imo States, Nigeria.

Statement of the Problem

Reference services are fundamental in university libraries for enhanced teaching, continuous learning and advancement in knowledge. Reference services are provided as a mechanism for expanding the frontiers of information dissemination, whether manually or digitally, in the university libraries. In fact, this set of specialized, customized, personalized, and individualized services help in attaining maximum success in enhancing access and utilization of information resources for users' satisfaction. It is typically imperative to state that effective

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reference services provision in the modern university libraries characterized by digital transformation, is deeply challenging the hitherto level of librarians' competencies, thereby requiring serious upskilling. Meanwhile, despite the obvious need for adequate ICT competencies, preliminary observation by these researchers, in addition to previous studies by Adamu and Iliyasu (2019); Akwang and Udoh (2024); as well as Vanansio (2022) show that most librarians are not adequately competent and skilled in the use of Information and Communication Technologies (ICTs) for effective reference services provision in most university libraries. This low level of ICT skills and poor technological know-how among some librarians seem to directly or indirectly hinder effective reference services provision in the university libraries. In addition, librarians' Information and Communication Technology (ICT) competencies are emerging requirements with great implications for reference services provision in the university libraries but studies have not provided adequate empirical evidences into the actual situation in public university libraries in Abia and Imo States, Nigeria. Therefore, based on the above backdrop, these researchers were motivated to explore librarians' Information and Communication Technology (ICT) competencies for reference services provision in public university libraries in Abia and Imo States, Nigeria.

Research Objectives

The broad objective of this study was to explore librarians' Information and Communication Technology (ICT) competencies for reference services provision in public university libraries in Abia and Imo States, Nigeria. The specific objectives were:

i. To identify the reference services provided in public university libraries in Abia and Imo States, Nigeria.
ii. To determine librarians' Information and Communication Technology (ICT) competencies for reference services provision in public university libraries in Abia and Imo States, Nigeria.
iii. To examine the extent to which librarians' Information and Communication Technology (ICT) competencies are utilized in reference services provision in public university libraries in Abia and Imo States, Nigeria.
iv. To identify the challenges militating against librarians' Information and Communication Technology (ICT) competencies and reference services provision in public university libraries in Abia and Imo States, Nigeria.
v. To ascertain the relationship between librarians' Information and Communication Technology (ICT) competencies and reference services provision in public university libraries in Abia and Imo States, Nigeria.

Research Questions

i. What are the reference services provided in public university libraries in Abia and Imo States, Nigeria?
ii. What are the librarians' Information and Communication Technology (ICT) competencies for reference services provision in public university libraries in Abia and Imo States, Nigeria?
iii. What is the extent to which librarians' Information and Communication Technology (ICT) competencies are utilized in reference services provision in public university libraries in Abia and Imo States, Nigeria?

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iv. What are the challenges militating against librarians' Information and Communication Technology (ICT) competencies and reference services provision in public university libraries in Abia and Imo States, Nigeria?
v. What relationship exist between librarians' Information and Communication Technology (ICT) competencies and reference services provision in public university libraries in Abia and Imo States, Nigeria?

Hypothesis

A single null hypothesis was formulated and tested at 0.05 level of significance.

H01: Librarians' Information and Communication Technology (ICT) competencies have no significant relationship with reference services provision in public university libraries in Abia and Imo States, Nigeria.

Literature Review

Information and Communication Technology (ICT) competencies of librarians refer to the ability to perform effective information service delivery and library operations in a technological-based work environment (Ikenwe et al., 2017; Udoh & Okafor, 2022). Okere (2022) opined that librarians' ICT competencies play essential roles in enhancing the provision of reference services by facilitating the speed of handling large volume of reference information, delivery of timely and accurate reference information, enhancement of job performance in the reference section, effective storage and retrieval of reference information, saves time and cost of providing reference services, flexibility in reference information provision. Studies identified some fundamental ICT competencies that librarians require to carry out library operations and services, including reference services to include word processing skills, social media skills, advanced technology literacy skills such as knowledge of available databases, hardware and software installation skills, system administration skills, online, digital or internet search skills, troubleshooting skills, and files management skills, etc. (Akwang & Udoh, 2024; Tsafa et al., 2024; Udoh et al., 2020; Usman & Gopakumar, 2018). Onakoya et al. (2023) also corroborated that relevant ICT skills needed for reference services include word processing skills, computer literacy, mobile technology skills, social networking skills, as well as ability to retrospectively convert and photocopy documents for library users in the reference section of the libraries. These interrelated sets of ICT competencies are crucial in today's university library operations especially for providing effective, efficient, timely and accurate digital or virtual reference services to the ever-changing users' groups.

Reference services are described as the individualized support that librarians provide to library users and readers who are looking for information (Ifidion, as cited in Nduka & Wiche, 2023). Reference services are important in university libraries; offering library users such as undergraduate and postgraduate students, lecturers, non-academic staff, researchers and other members of the university communities the opportunity to access information in order to increase their awareness of and familiarity with the library's resources (Obi, 2021). Reference services in the university libraries may be provided physically or digitally. Reference services are provided physically through personal or face-to-face contacts between reference librarians

and library users whereas digital reference services are provided using email, Voice over Internet Protocol (VoIP), and instant messaging (Abubakar, 2021; Awogbami, 2024). Digital reference services can also be provided using video conferencing tools like Zoom, AI-powered systems such as chatbots, Google Meet, social media platforms like WhatsApp, YouTube, etc. Effective reference service provision facilitates increased accessibility, cost-effectiveness, scalability and improved users' experience and satisfaction.

Moreover, Tsafa et al (2024) investigated Information and communication technology (ICT) skills possessed by reference librarians for service delivery in universities in Nasarawa State, Nigeria. The study which adopted a descriptive survey research design, revealed that the basic ICT skills possessed by reference librarians for service delivery in the university libraries include computer operation skills, internet skills, search engine skills, database creation skills, file uploading skills, downloading skills, e-mail sending skills, social media usage skills, and video conferencing skills. The study recommended that the university library management, in collaboration with university authorities, should create avenues for annual training and retraining of librarians in order to hone their skills to keep them abreast of modern advances in ICTs and reference services.

Similarly, Nduka and Wiche (2023) examined the provision of reference services and use of information resources by undergraduate students in university libraries in Bayelsa State, Nigeria. The study used a correlational survey research method, and discovered a strong positive link between responding to reference requests and undergraduate students' use of library information resources at universities in Bayelsa State. It indicated that the usage of library information resources by students is significantly positively correlated with the referral service, user education, current awareness services, and selective information distribution. It concluded that reference services provided by librarians are essential in achieving the primary goals of the university libraries and as such, the university libraries and librarians should prioritize offering reference services to undergraduates in the light of their favourable impact on library use.

A study on information and communication technology competence and reference service provision in federal universities in North-Central Nigeria was also conducted by Madukoma and Ikokoh (2023). The study adopted a descriptive survey research design. It showed that the library personnel have high-level skills in search engines such as Yahoo and Google, and basic computing such as word-processing, storing and copying data into primary storage devices in the universities. It indicated a significant influence of ICT skills on reference service provision by library personnel in university libraries in the North-Central Nigeria, even as it recommended that university libraries should encourage upgrading of application of computer technologies in reference services in university libraries in order to boost the libraries, while frequently and adequately providing training and development programme for library personnel.

Aharimpisya (2022) also studied the application of ICT in reference services at Kabale university library, Kabale. It adopted a descriptive research design using a qualitative

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approach. The study showed that information sharing, communication purposes, cataloguing and classification of library materials, issuing in and out of library materials, retrieval and dissemination of information and e-resources trainings were applications of ICT use for rendering reference services. It indicated that inadequate hardware and software, unreliable power supply, internet breakdown with low internet bandwidth, technological phobia, low level of ICT skills and literacy and inadequate financial support were constraints to effective application of ICT for reference services. It recommended training of library users, provision of internet services, availability of computer technology, provision of current and up-dated computer technology equipment, etc., as the possible strategies for improving application of ICT for reference services in the university library.

Mbagwu (2020) surveyed ICT skills, training and use by academic librarians in tertiary institutions in Imo State, Nigeria. It revealed that academic librarians highly use ICT skills such as statistical skill, basic computing, internet skills, library application package skills, presentation skills, etc., to facilitate service delivery in university libraries. It further identified lack of modern training facilities/opportunities, lack of funds for training, personal lack of interest among librarians, inadequate curriculum content for ICT training in higher institutions, etc., as the major inhibiting factors to the acquisition of ICT training and skills by academic librarians in the university libraries studied.

From the above reviews, it is ascertained that librarians' ICT competencies as critical requirements have the potentials to enhance effective reference service provision in the modern university libraries that are characterized by digital transformation. Meanwhile, available studies are not adequate enough to provide needed insights into what practically constitute librarians' ICT competencies and the extent to which such ICT competencies can support librarians in providing effective reference services to the teeming library users in university libraries in Abia and Imo States, Nigeria. Thus, this study was conducted to fill the observed gap and expand the frontiers of knowledge.

Methodology

The study adopted a correlational research design, with a population of ninety-seven (97) academic librarians from four (4) public university libraries. The public university libraries consist of 2 federal and 2 state university libraries in Abia and Imo States, Nigeria. Abia and Imo States are located in the South-East geopolitical zone of Nigeria. The population of the study comprises forty-eight (48) academic librarians from Federal University of Technology, Owerri (FUTO) library (federal government-owned); twenty-six (26) from Michael Okpara University of Agriculture, Umudike (MOUAU) library (federal government-owned); twelve (12) from Abia State University, Uturu (ABSU) library (state government-owned) and eleven (11) from Imo State University (IMSU) library (state government-owned). The choice of the academic librarians was because of their perceived exposure and training in Information and Communication Technology (ICT) related-issues and their leadership in various aspects of reference services in the public university libraries. The total enumeration sampling technique was adopted to investigate the entire population of the academic librarians since the whole population was small, accessible and manageable. The instrument for data collection was the

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researchers' developed-structured questionnaire entitled, *"Librarians' Information and Communication Technology (ICT) Competencies for Reference Services Provision Questionnaire (LICTCRSPQ)."* The questionnaire was designed with closed-ended questions on a 4-point rating scale. It contained a total of forty-three (43) items in four (4) clusters based on the specific objectives of the study. The instrument was subjected to face and content validation to ascertain their appropriateness and suitability, as well as tested for reliability using 10 academic librarians each, from University of Uyo (UNIUYO) library (federal government-owned) and Akwa Ibom State University (AKSU) library (state government-owned). The responses of the academic librarians were used for the pre-test analysis using Cronbach Alpha formula, which yielded 0.89 reliability coefficient index. For data collection, a total of 97 copies of the questionnaire were physically distributed to the respondents by the researchers and assisted by one research assistant employed for the purpose of this study from each of the four (4) university libraries. Out of the 97 copies of the questionnaire distributed, 88 copies representing 90.72% (91%) response rate were completed and returned with valid information. The data collected were analysed using descriptive statistics of frequency counts, mean scores and standard deviations with a criterion mean of 2.50 for research questions 1, 2, 3 and 4, while the responses pertaining to the relationship between librarians' Information and Communication Technology (ICT) competencies and reference services provision in public university libraries in Abia and Imo States, Nigeria, in research question 5 was analysed using Pearson Product Moment Correlation (PPMC). The degree of the relationship for the correlation between the variables was determined and interpreted using Creswell's (2014) correlation coefficient scale of (r) ±0.00 - 0.20 = very low relationship; ±0.21 - 0.40 = low relationship; ±0.41 - 0.60 = moderate relationship; ±0.61 - 0.80 = high relationship, and ±0.81 - 1.00 = very high relationship. Again, the single null hypothesis was tested using simple linear regression at 0.05 level of significance. The Statistical Package for Social Sciences (SPSS) version 29 was used to simplify coding and analysis of the data.

Results

The results of this study were based on the responses gathered from the 88 respondents who completed their questionnaire with useful and valid information. The results represent the feelings, opinions and assumptions of the respondents on the studied variables. These are presented in the Tables below.

Research Question 1: What are the reference services provided in public university libraries in Abia and Imo States, Nigeria?

Table 1: Mean and standard deviation responses on the reference services provided in publicuniversity libraries in Abia and Imo States, Nigeria **(n = 88)**

S/N.	Item Statements	SA	A	D	SD	Mean	Std Dev.	Remarks
1.	Referral services	31	39	17	1	3.14	0.76	Agreed
2.	Selective dissemination of information (SDI) services	37	45	6	0	3.35	0.61	Agreed
3.	Current awareness services	26	39	18	5	2.98	0.86	Agreed

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4.	Responding/giving answers to users' queries	38	29	18	3	3.16	0.87	Agreed
5.	Guiding users to library shelves for specific information resources	35	33	13	7	3.09	0.93	Agreed
6.	Guiding users to sections of the library	28	27	21	12	2.81	1.04	Agreed
7.	Literature search services	9	23	49	7	2.39	0.78	Disagreed
8.	Online Ask-a-librarian services	4	32	38	14	2.30	0.79	Disagreed
9.	Frequently asked question (FAQ)	32	28	20	8	2.95	0.98	Agreed
10.	Research guidance services to users	40	18	24	6	3.05	1.01	Agreed
11.	Alerting services to users	5	22	47	14	2.20	0.78	Disagreed
	Cumulative mean					***2.86***	***0.86***	***Agreed***
	Criterion mean					***2.50***		

Source: Researcher's Field Survey, 2025

Data in Table 1 showed the mean and standard deviation responses on the reference services provided in public university libraries in Abia and Imo States, Nigeria. It specifically indicated that the major reference services provided in public university libraries in Abia and Imo States, include selective dissemination of information (SDI) services (3.35, 0.61); responding/giving answers to users' queries (3.16, 0.87); referral services (3.14, 0.76); guiding users to library shelves for specific information resources (3.09, 0.93); research guidance services (3.05, 1.01), current awareness services (2.98, 0.86), guiding users to sections of the library (2.81,1.04), and Frequently ask question (FAQ) (2.95, 0.98). On the contrary, the result revealed that literature search services (2.39, 0.78); online Ask-a-librarian services (2.30, 79), and alerting services (2.20, 0.78) were not accepted by majority of the librarians as reference services actively provided in the public university libraries in Abia and Imo States. The result was further affirmed by a higher cumulative mean of 2.86 against the 2.50 criterion mean, which indicates that reference services are highly provided for the satisfaction of users in the university libraries under investigation.

Research Question 2: What are the librarians' Information and Communication Technology (ICT) competencies for reference services provision in public university libraries in Abia and Imo States, Nigeria?

Table 2: Mean and standard deviation responses on the librarians' Information and Communication Technology (ICT) competencies for reference services provision in public university libraries in Abia and Imo States, Nigeria **(n = 88)**

S/N.	Item Statements	SA	A	D	SD	Mean	Std Dev.	Remarks
1.	Ability to carry out word processing activities	42	34	11	1	3.33	0.74	Agreed
2.	Knowledge of searching the Internet	42	38	7	1	3.38	0.68	Agreed
3.	Database management capabilities	14	20	39	15	2.38	0.95	Disagreed
4.	Knowledge of managing emails	36	30	21	1	3.15	0.82	Agreed
5.	Files' management abilities	26	47	15	0	3.13	0.68	Agreed

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6.	Social media capabilities	26	41	21	0	3.06	0.73	Agreed
7.	Video conferencing skills	6	17	55	10	2.22	0.73	Disagreed
8.	Instant messaging skills	32	44	10	2	3.20	0.73	Agreed
9.	Podcasting skills	10	18	40	20	2.20	0.92	Disagreed
10	Vodcasting capabilities	10	14	50	14	2.23	0.85	Disagreed
11.	Ability to use Microsoft PowerPoint	12	66	10	0	3.02	0.50	Agreed
	Cumulative mean					***2.85***	***0.76***	***Agreed***
	Criterion mean					***2.50***		

Source: Researcher's Field Survey, 2025

The data in Table 2 revealed the mean and standard deviation responses on the librarians' Information and Communication Technology (ICT) competencies for reference services provision in public university libraries in Abia and Imo States, Nigeria. It showed that the librarians possess basic ICT competencies such as knowledge of searching the Internet (3.38, 0.68); ability to carry out word processing activities (3.33, 0.74); Instant messaging skills (3.20, 0.73); knowledge of managing emails (3.15, 0.82); files' management abilities (3.13, 0.68); social media capabilities (3.06, 0.73); and ability to use Microsoft PowerPoint (3.02, 0.50). On the other hand, the result revealed that majority of the librarians did not possess strong database management capabilities (2.38, 0.95); video conferencing skills (2.22, 0.73); vodcasting capabilities (2.23, 0.85), and podcasting skills (2.20, 0.92) for reference services provision in the public university libraries in Abia and Imo States. In the overall assessment, the result showed a higher cumulative mean of 2.85, against the 2.50 criterion mean, which implies that the librarians' ICT competencies are relatively high enough to support the provision of reference services in the university libraries under investigation.

Research Question 3: What is the extent to which librarians' Information and Communication Technology (ICT) competencies are utilized in reference services provision in public university libraries in Abia and Imo States, Nigeria?

Table: 3 Mean and standard deviation responses on the extent to which librarians' Information and Communication Technology (ICT) competencies are utilized in reference services provision in public university libraries in Abia and Imo States, Nigeria **(n = 88)**

S/N.	Item Statements	VHE	HE	LE	NE	Mean	Std Dev.	Remarks
1.	ICT competencies enable me to deal with user queries	46	14	18	0	3.32	0.80	Agreed
2.	ICT competencies help me in providing research guidance to users	50	29	9	0	3.47	0.68	Agreed
3.	ICT competencies help me to speedily deliver selective dissemination of information	6	21	43	18	2.17	0.83	Disagreed
4.	ICT competencies help me in saving time in providing current awareness services	42	31	15	0	3.31	0.75	Agreed

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5.	ICT competencies enable me to respond to user's queries via e-mail	30	45	12	0	3.21	0.67	Agreed
6.	ICT competencies help me to use social media handles in replying user's queries	21	6	43	18	2.34	1.06	Disagreed
7.	ICT competencies enable me to effectively assist library users with literature search	17	15	34	22	2.31	1.05	Disagreed
8.	ICT competencies equip me in guiding users through various databases	6	21	48	13	2.23	0.78	Disagreed
9.	ICT competencies enable me to easily acquire reference sources	52	23	13	0	3.44	0.74	Agreed
10	ICT competencies enhance my effectiveness in processing reference sources	43	33	12	0	3.35	0.71	Agreed
11.	ICT competencies enable me to provide alerting services to users	5	30	43	10	2.34	0.76	Disagreed
	Cumulative mean					***2.86***	***0.80***	***Agreed***
	Criterion mean					***2.50***		

Source: Researcher's Field Survey, 2025

Data in Table 3 revealed that the extent to which librarians' Information and Communication Technology (ICT) competencies are utilized in reference services provision in public university libraries in Abia and Imo States, Nigeria, is high. This is indicated by a higher cumulative mean of 2.86 against the 2.50 criterion mean. It indicated that out of the 11 items of investigation, the librarians demonstrated strong agreement with 6 items and disagreed in 5 cases. The result specifically showed that the librarians have high extent in utilizing ICT competencies for providing research guidance to users (3.47, 0.68); enhancing the ease of acquiring reference sources (3.44, 0.74); effectiveness in processing reference sources (3.35, 0.71); dealing with users' queries (3.32, 0.80); speed in providing current awareness services (3.31, 0.75); and quickly responding to user's queries via e-mail (3.21, 0.67).

Research Question 4: What are the challenges militating against librarians' Information and Communication Technology (ICT) competencies and reference services provision in public university libraries in Abia and Imo States, Nigeria?

Table 4: Mean and standard deviation responses on the challenges militating against librarians' Information and Communication Technology (ICT) competencies and reference services provision in public university libraries in Abia and Imo States, Nigeria **(n = 88)**

S/N.	Item Statements	SA	A	D	SD	Mean	Std Dev.	Remarks
1.	Lack of modern ICT facilities	40	42	6	0	3.39	0.62	Agreed
2.	Lack of incorporation of digital reference services in the libraries	46	24	15	3	3.28	0.87	Agreed

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3.	Management apathy to the training librarians in the university libraries	31	45	12	0	3.22	0.67	Agreed
4.	Resistance to change by librarians	34	42	12	0	3.25	0.68	Agreed
5.	Lack of training policy in the university libraries	35	47	6	0	3.33	0.60	Agreed
6.	Lack of adequate funding to support librarians' training on ICTs	56	26	6	0	3.57	0.62	Agreed
7.	Lack of librarians' motivation towards reference services responsibilities	31	37	10	10	3.01	0.97	Agreed
8.	Technophobia	12	22	46	8	2.43	0.84	Disagreed
9.	Poor attitude of librarians toward ICT related issues	9	13	45	21	2.11	0.89	Disagreed
10.	Difficulties associated with using ICTs for reference services	55	26	7	0	3.55	0.64	Agreed
11.	Poor Internet services	45	35	8	0	3.42	0.66	Agreed
12.	Unstable power supply	51	27	10	0	3.47	0.70	Agreed
	Cumulative mean					***3.17***	***0.73***	***Agreed***
	Criterion mean					***2.50***		

Source: Researcher's Field Survey, 2025

Data in Table 4 showed the mean and standard deviation responses on the challenges militating against librarians' Information and Communication Technology (ICT) competencies and reference services provision in public university libraries in Abia and Imo States, Nigeria. The result revealed that all the items, except technophobia (2.43, 0.84); and poor attitude of librarians toward ICT related issues (2.11, 0.89) were agreed by the librarians as challenges militating against librarians' ICT competencies for reference services provision in the public university libraries in Abia and Imo States. This result specifically showed that the major challenges militating librarians' ICT competencies for reference services provision include lack of adequate funding to support librarians' training on ICTs (3.57, 0.62); difficulties associated with using ICTs for reference services (3.55, 0.64); unstable power supply (3.47, 0.70); poor Internet services (3.42, 0.66); lack of modern ICT facilities (3.39, 0.62); lack of training policy in the university libraries (3.33, 0.60), lack of incorporation of digital reference services in the libraries (3.28, 0.87), amongst others. The result was confirmed by a higher cumulative mean of 3.17 against the criterion mean of 2.50, which indicates the extent to which these challenges affect librarians' ICT competencies in providing reference services in the public university libraries under investigation.

Research Question 5: What relationship exist between librarians' Information and Communication Technology (ICT) competencies and reference services provision in public university libraries in Abia and Imo States, Nigeria?

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Table 5: PPMC coefficient of the relationship between librarians' Information and Communication Technology (ICT) competencies and reference services provision in public university libraries in Abia and Imo States, Nigeria

		LICTCs	**RSPPULs**
LICTCs	Pearson's Correlation Sig. (2tailed)	1	0.212
	N	88	88
RAPPULs	Pearson's Correlation Sig. (2tailed)	0.212	1
	R^2	0.045 (45%)	
	N	**88**	**88**

LICTCs = Librarians' Information and Communication Technology (ICT) Competencies
RSPPULs = Reference Services Provision in Public University Libraries
N = Number of Observations
R = Correlation Coefficient
R^2 = Coefficient of Determination

Data in Table 5 revealed a low degree of relationship between librarians' Information and Communication Technology (ICT) competencies and reference services provision in public university libraries in Abia and Imo States, Nigeria, as indicated by the correlation coefficient (r) of 0.212, which is positive and falls within the correlation coefficient limit range of ±0.21 – 0.40. The coefficient of determination (r^2) of 0.045 shows that 45% of the variance observed in reference services provision in public university libraries in Abia and Imo States, could be accounted for by librarians' ICT competencies. Therefore, this implies that librarians' ICT competencies to a low extent but positively relates to reference services provision in public university libraries in Abia and Imo State, Nigeria. This finding was affirmed using the result of the test of the single null hypothesis as shown in Table 6 below.

Test of Hypothesis
The single hypothesis was tested at 0.05 level of significance

Hypothesis 1: Librarians' Information and Communication Technology (ICT) competencies have no significant relationship with reference services provision in public university libraries in Abia and Imo States, Nigeria.

Table 6: Simple regression analysis of the relationship between librarians' Information and Communication Technology (ICT) competencies and reference services provision in public university libraries in Abia and Imo States, Nigeria.

Model	***Df***	***Sum of Square***	***Mean Square***	***F***	***Sig.***
Regression	1	25.282	25.282	4.036	0.048
Residual	86	538.718	6.264		
Total	87	564			

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The data in Table 6 shows a P-value of 0.048, which is less than the Alpha value of 0.05. Since the P-value of 0.048 less than the Alpha value of 0.05, the earlier postulated null hypothesis was rejected while the alternate hypothesis was accepted. Thus, librarians' Information and Communication Technology (ICT) competencies have strong significant relationship with reference services provision in public university libraries in Abia and Imo States, Nigeria.

Discussion of Findings

The finding to the study revealed that the major reference services provided in public university libraries in Abia and Imo States, include selective dissemination of information (SDI) services, responding/giving answers to users' queries, guiding users to library shelves for specific information resources, research guidance services, guiding users to sections of the library, etc. It showed that literature search services, online Ask-a-librarian services, and alerting services were not accepted by majority of the librarians as reference services actively provided in the public university libraries in Abia and Imo States. This indicated that reference services are highly provided for the satisfaction of library users in the university libraries under investigation. This finding agrees with Nduka and Wiche (2023), which discovered that the usage of library information resources by students is significantly positively correlated with the referral service, user education, and current awareness services in university libraries.

The finding of the study showed that the librarians in public university libraries in Abia and Imo States possess basic ICT competencies for reference services provision such as knowledge of searching the Internet, ability to carry out word processing activities, Instant messaging skills, knowledge of managing emails, files' management abilities, social media capabilities, etc. It further indicated that majority of the librarians did not possess strong database management capabilities, video conferencing skills, vodcasting capabilities, and podcasting skills for reference services provision in the public university libraries. This implies that the librarians' ICT competencies are relatively high enough to support the provision of reference services in the university libraries. This finding is in agreement with Madukoma and Ikokoh (2023) who revealed that library personnel have high-level skills in search engines such as Yahoo and Google, and basic computing such as word-processing and storing data into primary storage devices, which have a significant influence on reference service provision in the university libraries. It also aligns with Tsafa et al. (2024) who discovered that the basic ICT skills possessed by reference librarians for service delivery in the university libraries include computer booting and shooting down skills, typing skills, copying and pasting skills, printing skills, etc.

On the extent to which librarians' Information and Communication Technology (ICT) competencies are utilized in reference services provision in public university libraries in Abia and Imo States, Nigeria, the finding of the study revealed a high extent. It specifically showed that the librarians have high extent in utilizing ICT competencies for providing research guidance to users, enhancing the ease of acquiring reference sources, effectiveness in processing reference sources, dealing with users' queries, speed in providing current awareness services, and quickly responding to user's queries via e-mail. This finding corroborates with It also agrees with Mbagwu (2020), which revealed that librarians use ICT

skills highly in providing online documents, online searches, scanning and uploading of documents, technical services, collection development, reader services and networking. It also gives credence to Kayusi et al. (2024), who observed that successful reference services delivery highly requires librarians to familiarize with a variety of information technologies, as well as being acquainted with good online referencing techniques.

The finding of the study revealed that the major challenges militating against librarians' ICT competencies for reference services provision include lack of adequate funding to support librarians' training on ICTs, difficulties associated with using ICTs for reference services, unstable power supply, poor Internet services, lack of modern ICT facilities, lack of training policy in the university libraries, lack of incorporation of digital reference services in the libraries, amongst others. The finding indicates the extent to which these challenges affect librarians' ICT competencies in providing reference services in the public university libraries. This finding corroborates Aharimpisya (2022), as well as Mbagwu (2020), which identified inadequate hardware and software, unreliable power supply, internet breakdown with low internet bandwidth, inadequate financial support, personal lack of interest among librarians, and inadequate curriculum content for ICT training in library schools as the major inhibiting factors to the acquisition of ICT training and skills by in university libraries.

Finally, the finding of the study revealed that librarians' ICT competencies to a low extent but have a positive significant relationship with reference services provision in public university libraries in Abia and Imo State, Nigeria. This position corroborates with Madukoma and Ikokoh (2023), which indicated a significant influence of ICT skills on reference service provision by library personnel in university libraries.

Conclusion

Librarians' Information and Communication Technology (ICT) competencies are indispensable in providing effective reference services in modern university libraries driven by digital revolution. In this study, it was discovered that librarians' ICT competencies such as knowledge of searching the Internet, ability to carry out word processing activities, Instant messaging skills, knowledge of managing emails, files' management abilities, social media capabilities, etc., are very essential in providing various reference services like selective dissemination of information (SDI), responding/giving answers to users' queries, research guidance services, guiding users to sections of the library, etc. It was also ascertained that the extent to which librarians' Information and Communication Technology (ICT) competencies are utilized in reference services provision in the public university libraries is high. The study concluded that librarians' ICT competencies to a low extent but have a positive significant relationship with reference services provision in public university libraries in Abia and Imo State, Nigeria. This is notwithstanding the challenges militating against librarians' ICT competencies for reference services provision in the public university libraries, which include lack of adequate funding to support librarians' training on ICTs, difficulties associated with using ICTs for reference services, unstable power supply, poor Internet services, lack of modern ICT facilities, lack of training policy in the university libraries, etc.

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Recommendations

Based on the findings of the study, the following recommendations were made:

i. Management of the public universities should provide adequate funding to the university libraries to support the acquisition of modern ICT facilities including Internet subscription for effective reference services provision.
ii. Management of the public universities should provide stable power supply including alternative power sources such as solar light and dedicated power generating plant in order to enhance better reference services provision in the public university libraries.
iii. Management of the public university libraries should prioritize training and retraining of librarians and other categories of library staff in order to boost and/or sharpen their ICT competencies and skills for better reference services provision for users' satisfaction.
iv. Management of the public university libraries should formulate and strictly implement ICT training policy guidelines in order to enhance librarians' training needs for improved ICT competencies and enhanced reference services provision in the public university libraries.
v. Librarians should demonstrate positive attitude and willingness to acquire emerging ICT skills and expertise for better reference services provision, including digital reference services provision in the public university libraries.

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