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COMPUTER LITERACY COMPETENCIES IN CONTEMPORARY ACADEMIC LIBRARIANSHIP: IMPERATIVES FOR ENHANCED SERVICE DELIVERY IN THE DIGITAL AGE

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ABSTRACT

This research investigated the computer literacy competencies of academic librarians in Delta State, Nigeria, and their impact on service delivery. The study addressed three key research questions through a correlational research design utilizing both simple and multiple linear regression analyses. The participant pool comprised all 145 librarians working across academic libraries in Delta State. Key findings from the analysis, which employed rating scales and statistical measures including coefficient of determination (r^2) and Pearson correlation coefficient (r), revealed: A strong, statistically significant relationship exists between librarians' basic computing skills and service quality. Digital technology competencies significantly correlate with job performance. Electronic information management skills demonstrate substantial association with effective service delivery Based on these findings, the study presents the following recommendations: First, given the critical importance of electronic resources management, university library administrations should prioritize continuous professional development programs, particularly for technical staff. These training initiatives should enhance competencies in both digital and traditional resource management to ensure comprehensive collection stewardship. Second, since internet search proficiency directly correlates with job performance, librarians must engage in regular skills upgrading to meet evolving user information needs in the digital environment. Finally, all dimensions of computer literacy should be recognized as essential for optimal job performance, as each technological competency contributes uniquely to service quality and operational efficiency in contemporary library settings. The study underscores the necessity of ongoing technological skills development to maintain high standards of library service in Nigeria's increasingly digital academic landscape.

Keywords: Competence, Computer, Knowledge, Academic Librarians, Service Delivery, and Delta State

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Introduction

The contemporary information landscape, characterized by rapid technological advancement and ubiquitous digital transformation, has fundamentally restructured the operational paradigms within which library and information science professionals function. This technological revolution necessitates a comprehensive reassessment of the competency frameworks required for effective professional practice, particularly concerning computer literacy skills among academic librarians. The imperative for enhanced digital competencies extends beyond mere technological familiarity to encompass sophisticated information management capabilities that are integral to contemporary library service delivery.

Conceptual Framework of Computer Literacy

Computer literacy, as conceptualized by the American Library Association (2010), encompasses the multifaceted ability to systematically locate, critically evaluate, and effectively utilize information resources through technological interfaces. This definition has been further refined by Carpenter (2017), who characterizes computer literacy as the comprehensive capability to access, evaluate, organize, and deploy computational resources to facilitate learning, problem-solving, and decision-making processes across diverse contexts including formal educational environments, professional settings, and personal applications.

The operational effectiveness of computer literacy skills represents the sophisticated capacity to optimize computational resources for complex problem-solving and critical thinking endeavors. Wilson (2017) posits that the ultimate manifestation of computer literacy lies in its capacity to facilitate knowledge creation and information synthesis, thereby serving as a catalyst for intellectual productivity and innovation.

Contemporary computer literacy in library science contexts encompasses technical proficiency across multiple domains, including general computational knowledge, document management systems, database navigation and online search methodologies, and digital communication platforms. Leland (2010), writing for the American Committee of Computer Competency (CCC), articulated essential competency standards deemed fundamental for effective library operations, including: proficient utilization of word processing applications, effective navigation of library databases and cataloguing systems for resource location, sophisticated internet research capabilities with accompanying evaluation frameworks for assessing information reliability and utility, professional electronic communication skills, and comprehensive understanding of computational ethics and digital citizenship principles.

Digital Competency Requirements in Modern Library Practice

The integration of computational technologies into library operations has transformed the professional landscape, requiring librarians to develop sophisticated digital skill sets that extend far beyond basic computer familiarity. The Indeed Editorial Team (2022) characterizes foundational computer literacy as encompassing fundamental understanding of computational systems, including basic operational procedures such as keyboard proficiency and internet navigation capabilities. Allison (2015) provides a more comprehensive enumeration of essential workplace computer competencies, including: advanced file management and system organization, sophisticated word processing applications, spreadsheet analysis and data manipulation, database design and management, multimedia presentation development, internet research and evaluation methodologies, and professional electronic communication protocols.

These competencies have become indispensable within the contemporary information and communication technology (ICT) environment, where digital literacy serves as a prerequisite for professional effectiveness and career sustainability. The current trajectory of globalization demands active participation in the digital ecosystem, requiring information professionals to develop comprehensive technological competencies or risk professional marginalization.

Technological Integration in Academic Library Contexts

The contemporary academic library environment demands sophisticated technological integration that encompasses network connectivity, internet-based resource access, and advanced software application proficiency. Library professionals must demonstrate competency in utilizing integrated computational systems, network infrastructure management, and advanced application software including word processing suites, spreadsheet analysis tools, electronic communication platforms, multimedia presentation software, web development technologies, and digital multimedia production and management systems.

These technological competencies are essential for accessing and managing the vast array of information resources available through digital platforms. The motivation for developing comprehensive computer literacy skills stems from the recognition that effective information management and dissemination in contemporary society requires sophisticated technological competencies.

Professional Development Imperatives

Knowledge, technical skills, and confidence in utilizing computational technologies have become essential assets for professionals entering competitive employment markets within the library and information science sector. This reality presents significant challenges for academic libraries and their personnel, necessitating strategic professional development initiatives to meet evolving performance expectations and service delivery standards.

Effective integration of computational technologies and information systems extends beyond mere equipment acquisition and infrastructure development. As noted by Agbonlahor (cited in Safahieh & Asemi, 2018), meaningful returns on library technology investments are realized only when these systems are utilized by trained personnel in ways that advance the institution's strategic objectives. Successful technology integration depends not merely on resource availability and accessibility, but critically on the extent to which library personnel embrace and effectively deploy these technologies to enhance professional performance and service quality.

Academic Librarian Professional Profile and Competency Requirements

Academic librarians represent a highly educated professional workforce, having completed rigorous graduate-level training and obtained advanced degrees in library and information science from accredited institutions. These professionals typically occupy leadership positions within academic library systems and bear responsibility for administrative oversight of various departments and specialized units. The accelerated adoption of technological systems within academic libraries has significantly transformed professional roles and responsibilities, necessitating enhanced computer literacy competencies to ensure effective and efficient task completion.

The development of sophisticated computer literacy skills among academic librarians is essential for maintaining high standards of service delivery and achieving institutional strategic objectives. When library personnel possess advanced technological competencies, the goals and objectives of academic library management systems are more readily actualized, resulting in enhanced user satisfaction and institutional effectiveness.

Purpose of the Study

1. To find out of relationship between electronic resources management skills/knowledge and service delivery of librarians in the academic libraries inDelta State.
2. Find out the relationship between internet information search literacy and service delivery of librarians in the academic libraries in delta state.
3. To ascertain relationship among basic computing, digital technology, electronic resources management, internet information search skills and service delivery of librarians in the academic libraries inDelta State.

Research Questions

The following research questions guided the study.

1. What is the coefficient of relationship between electronic resources management skills/knowledge and service delivery of librarians in the academic libraries in delta state?
2. What is the coefficient of relationship between internet information search literacy and service delivery of librarians in the academic libraries in delta state?
3. What is the coefficient of relationship among basic computing, digital technology, electronic resources management, internet information search skills and service delivery of librarians in the academic libraries in Delta State

Literature review

Electronic Resource Management in Modern Libraries

Electronic resource management represents a sophisticated domain of library science that involves the systematic administration of digital information through hardware, software, and network infrastructures (Tonta, 2014; Ibeh & Alumona, 2019). This complex field requires strategic planning, technological development, and comprehensive policy formulation to govern electronic assets effectively. The Digital Library Federation (2014) defines ERM as specialized practices for monitoring the entire lifecycle of digital resources, from selection to deselection. These resources now include diverse formats like e-journals, digital books, streaming media, and specialized databases that have transformed library operations (Emiri, 2015; Ibeh & Ekereuche, 2019).

The integration of digital resources has revolutionized library services, particularly in academic settings. As noted by Abubakar (2010), technological advancements have dramatically altered traditional library paradigms. This shift demands new competencies from librarians, including the ability to manage electronic collections and utilize advanced search methodologies (Horsfall & Ordumah, 2012; Ibeh & Ezeabasili, 2024). Contemporary librarians must master various digital platforms, including OPAC systems, bibliographic

databases, and institutional repositories (Vijayakumar & Antony, 2015; Muokebe & Agwuna, 2024).

Information Literacy and Search Competencies

Modern librarianship requires sophisticated information search skills that serve as foundational professional capabilities (Wasserman, 2014; Kamaluddeen et al., 2024). Ogba (2013) identifies these competencies as encompassing source knowledge, evaluative criteria, navigation techniques, and information presentation skills. Henry (2015) emphasizes that effective internet searching has become an essential 21st-century skill for information professionals. These competencies operate across three domains: informational (identifying and evaluating sources), strategic (formulating effective queries), and operational (technical proficiency with digital tools) (Andretta, 2015; Ibeh & Ifeka, 2024a).

The American Library Association (2010) framework highlights the importance of recognizing information needs and efficiently locating, evaluating, and using digital resources. This is particularly crucial in academic settings where librarians must navigate complex information ecosystems (Muokebe et al., 2025; Nwabueze & Ibeh, 2016). The development of these skills represents a critical investment in professional excellence and institutional effectiveness (Digital Library Federation, 2014; Ibeh & Ifeka, 2024b).

Challenges and Future Directions

The preservation and management of electronic records present ongoing challenges for library professionals (Muokebe, 2013; Nwankwo et al., 2022). As noted by Nwabueze et al. (2014), virtual libraries play an increasingly important role in supporting e-learning services. However, issues of digital literacy, resource accessibility, and technological infrastructure remain significant barriers (Muokebe & Enweani, 2019; Nwafor-Orizu et al., 2024).

Emerging technologies like augmented reality offer new possibilities for library services (Agwuna et al., 2025), while institutional repositories continue to grow in importance (Ogbomo & Muokebe, 2015). The COVID-19 pandemic particularly highlighted the need for adaptable library services and digital resources (Nwankwo et al., 2021). As libraries evolve, professionals must continuously develop their technical skills and adapt to new information paradigms (Muokebe & Ogbomo, 2013; Ofodile et al., 2016).

This comprehensive approach to electronic resource management and information literacy ensures libraries remain vital institutions in the digital age, capable of meeting diverse user needs while preserving essential information resources (Tonta, 2014; Orakpor & Ofodile, 2009). The integration of these competencies positions libraries to effectively serve their communities while navigating the challenges of technological change (Ibeh et al., 2016; Muokebe & Urhiewhu, 2018)..

Methodology

The design for this study is correlation research design which adopted the simple and multiple linear methods. The linear correlation design was adopted to determine the extent and direction of the relationships between the variables. The area of study was carried out in Delta State, Nigeria. The Delta is one of state the south-south geo- political zones in Nigeria. The population of the study comprised is 145 librarians in the six academic libraries under study such as Dennis Osadebay University, Anwai, Asaba, Federal College of Education, Asaba, Delta State Polytechnic, Ogwashi-Uku, University of Delta, Agbor, Delta State University, Ozoro and Delta State University, Abraka. The research instrument used in the collection of data for this study was a four- point rating scale captioned: Computer knowledge and Librarians services delivery Rating Scale (CKLSD).

It was divided into three sections, A, B and C. The researcher visited the institutions around the researcher's location and administered the instrument on the respondents. Research questions 1-2 were answered using coefficient of determination (r^2) and Pearson (r), while research question 3 was answered using multiple linear regression and multiple coefficient of determination (r^2). These statistics helped to establish the linear relationship between the variables of this study.

Research Question 1

RQ1: What is the coefficient of relationship between electronic resources management skills and service delivery of librarians in the academic libraries**?**

	n	∑	R	MR	DR	Remarks
X	145	2354				High
			0.642	High	Positive	Positive
Y	145	9298				Relationship

Size (n), Summation (∑), Pearson r (r), Magnitude of Relationship (MR), Direction of Relationship (DR) and Remarks

Table 1 shows the summaries of Pearson r used to analyze the relationship between electronic resources management skills and service delivery of librarians in the Delta State. The result shows that an index of 0.642 was realized for the relationship between the two variables. This result indicates that there is a high positive relationship between electronic resources

management skills and service delivery of librarians in Delta State. This positive direction of relationship is an indication that an increase in one variable is associated with the some measure of increase in another variable and a decrease in one variable could also be associated with the some measure of decrease in another variable. Therefore, the answer to the research question is that there is a high positive relationship between electronic resources management skills and service delivery of librarians in Delta State**.**

Research Question 2
RQ2: What is the coefficient of relationship between internet information search skills and service delivery of librarians in the academic libraries in Delta State?

V	N	∑	R	MR	DR	Remarks
X	145	2288				High
			0.670	High	Positive	Positive
Y	145	9298				Relationship

Size (n), Summation (∑), Pearson r (r), Magnitude of Relationship (MR), Direction of Relationship (DR) and Remarks

Table 2 shows the summaries of Pearson r used to analyze the relationship between information search skills and service delivery of librarians in academic libraries studied. The result shows that an index of 0.670 was realized for the relationship between the two variables. This result indicates that there is a high positive relationship between information search skills and service delivery of librarians in Delta State. This positive direction of relationship is an indication that an increase in one variable is associated with the some measure of increase in another variable and a decrease in one variable could also be associated with the some measure of decrease in another variable. Therefore, the answer to the research question is that there is a high positive relationship between information search skills and service delivery of librarians in the Delta State.

Research Question 3
RQ3: What is the coefficient of relationship among basic computing, digital technology, electronic resources management, internet information search skills and service delivery of librarians in Delta State?

V	N	∑	R	MR	Remarks
X_1	145	2347			Very
X_2	145	2373			
X_3	145	2354	**0.956**	**Very High**	High
X_4	145	2288			
Y	145	9298			Relationship

Variables (V), Size (n), Summation (∑), Multiple Linear Correlation (R), Magnitude of Relationship (MR) and Remarks

Table 3 shows the coefficient of relationship among basic computing, digital technology, electronic resources management, internet information search skills and service delivery of librarians in Delta Sate. The result from the table shows that the realized coefficient of relationship is 0.956. This further showed that the magnitude of the coefficient of relationship is very high. The magnitude also indicates that, as one variable highly increases, the other variables will as well highly increase and as one variable decreases, it could likely make other variables to decrease. The answer to the above question is that there is a very high relationship among basic computing, digital technology, electronic resources management, internet information search skills and service delivery of librarians.

Discussion of the study

Findings on Electronic Resources Management Skills and Service Delivery

The study's first objective examined the relationship between electronic resources management skills and service delivery among librarians in Delta State. Analysis revealed a positive and significant correlation coefficient of 0.642, indicating that enhanced electronic resource management skills directly improve librarian job performance (Baltard & Lang, 2017; Ibeh & Ezeabasili, 2024). This finding aligns with current literature demonstrating that technological competence enables librarians to more effectively manage digital collections and deliver superior user services (Vijayakumar & Antony, 2015; Muokebe & Agwuna, 2024). When librarians acquire these specialized skills, they demonstrate greater proficiency in organizing, preserving, and providing access to electronic resources, which ultimately enhances overall library service quality (Digital Library Federation, 2014; Nwabueze & Ibeh, 2016).

Internet Information Search Skills and Service Quality

The second objective investigated the relationship between internet information search skills and service delivery. Results showed a strong positive correlation, suggesting that improved search competencies directly enhance librarian performance (Andretta, 2015; Kamaluddeen et al., 2024). This relationship implies that as librarians develop more sophisticated search techniques, they become better equipped to meet users' evolving information needs in the digital environment (Ogba, 2013; Ibeh & Ifeka, 2024a). The findings support contemporary research emphasizing the critical importance of information literacy skills for navigating complex digital landscapes (American Library

Association, 2010; Muokebe et al., 2025). Librarians with advanced search capabilities can more efficiently locate and evaluate online resources, thereby improving reference services and user satisfaction (Wasserman, 2014; Nwafor-Orizu et al., 2024).

Composite Analysis of Technological Competencies

The combined analysis of basic computing, digital technology, electronic resources management, and internet search skills revealed an exceptionally high composite correlation index of 0.956 with job performance (Buckingham, 2016; Ogbomo & Muokebe, 2015). This robust relationship confirms that technological competencies collectively contribute to enhanced service delivery in academic libraries (Tonta, 2014; Nwankwo et al., 2022). Each skill set complements the others, creating a synergistic effect that maximizes librarian effectiveness in digital environments (Horsfall & Ordumah, 2012; Muokebe & Ogbomo, 2013). The findings underscore the necessity for comprehensive technology training programs that address all these interrelated competencies (Emiri, 2015; Ofodile et al., 2016).

Conclusions and Recommendations

This study establishes clear relationships between various digital literacy skills and service quality among academic librarians in Delta State. Based on the findings, three key recommendations emerge:

University libraries should prioritize continuous training programs focused on electronic resources management, particularly for technical services staff (Ibeh & Alumona, 2019; Muokebe & Agwuna, 2023). Such training should encompass both theoretical knowledge and practical applications for managing hybrid print/electronic collections (Digital Library Federation, 2014; Agwuna et al., 2025).

Libraries must implement regular professional development opportunities to keep librarians' internet search skills current with evolving technologies and user needs (Andretta, 2015; Ibeh & Ekereuche, 2019). This could include workshops on advanced database searching, evaluation of online sources, and emerging search technologies (Ogba, 2013; Nwabueze et al., 2016).

Library administrators should adopt a holistic approach to technology training that recognizes the interconnected nature of all digital literacy skills (Buckingham, 2016; Orakpor & Ofodile, 2009). Comprehensive competency development programs will ensure librarians can leverage the full potential of technological tools to enhance service delivery (Vijayakumar & Antony, 2015; Muokebe & Enweani, 2024).

The study confirms that in Nigeria's rapidly evolving information landscape, ongoing investment in librarians' technological competencies remains essential for maintaining high-quality academic library services (Tonta, 2014; Ibeh & Ifeka, 2024b). Future research should explore specific training methodologies and their relative effectiveness in different library contexts (Nwankwo et al., 2021; Muokebe et al., 2025).

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