



DIGITAL LITERACY COMPETENCIES FOR EFFECTIVE INFORMATION SERVICE DELIVERY AMONG LIBRARIANS IN FEDERAL UNIVERSITY OF OTUOKE LIBRARY, BAYELSA, NIGERIA

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Abstract

The study investigated digital literacy competencies for effective information service delivery among librarians in Federal University of Otuoke Library. The study was guided by three research objectives, three research questions, and three hypotheses. A correlational research design was adopted for the study. The population comprised 18 librarians in the University Library, and a census sampling technique was used to include the entire population due to its manageable size. Data were collected using a structured questionnaire titled Digital Literacy Competencies and Effective Information Service Delivery (DLCEISDQ). The instrument was designed on a four-point Likert scale and validated by an expert in the faculty of education to ensure face and content validity. Reliability of the instrument was established through a pilot study and analyzed using Cronbach's Alpha which yielded a reliability coefficient of 0.86. The instrument was administered to all respondents, and all 18 copies were retrieved and found valid for analysis, representing a 100% response rate. Data were analyzed using Pearson Product Moment Correlation (PPMC) via SPSS Version 25 to determine the relationship between variables. Findings revealed that digital safety skills, media literacy, and online communication skills have significant positive relationships with effective information service delivery. The study concluded that digital literacy competencies are key determinants of efficient and user-centered service delivery in academic libraries. It was therefore recommended that library management should provide continuous training, strengthen digital safety awareness, promote media literacy development, and enhance online communication competencies among librarians.

Keywords: Digital safety skills, media literacy, online communication skills, effective information service delivery.

Introduction

Digital literacy competencies have become fundamental requirements for librarians operating in modern academic environments where information is increasingly created, stored, and accessed in digital formats. These competencies encompass a broad range of skills that enable librarians to effectively support teaching, learning, and research through efficient information service delivery, digital resource management, and the use of emerging technologies for improved service outcomes (Abdullahi et al, 2024). In the context of librarianship, these



competencies are essential, as they directly influence how information resources are organized, retrieved, evaluated, and disseminated to users across both physical and virtual platforms. Librarians with strong digital competencies are better positioned to meet evolving user needs, adapt to technological changes, and improve overall service quality within academic library systems. They also play a key role in ensuring effective integration of digital tools into everyday library operations and academic support services.

Furthermore, digital literacy competencies enhance user satisfaction, promote innovation in library services, and ensure timely and equitable access to credible digital information resources in support of academic success (Fateh, 2025; Nsirim & Okeke, 2024). Librarians who are digitally competent are able to design and implement user-centered services such as online catalogues, and virtual reference assistance. These skills also enable them to guide users in evaluating online information sources, thereby improving research quality and academic integrity. In addition, digital competencies help librarians respond effectively to the challenges of the information age, including information overload, misinformation, and rapidly changing technologies. Consequently, they contribute significantly to the transformation of academic libraries into dynamic knowledge hubs that support lifelong learning and research excellence.

A core component of digital literacy competencies is digital safety, which refers to the ability to use digital technologies in a secure, responsible, and informed manner while protecting personal data, devices, and online identities. In academic environments, digital safety is essential for ensuring that students and information users can navigate online platforms without exposing themselves to cyber threats such as hacking, phishing, identity theft, malware attacks, and unauthorized data access, which are increasingly common in today's digital ecosystem (Manikandan et al., 2026). Strong digital safety awareness enables users to adopt protective measures such as secure password management, multi-factor authentication, privacy control settings, safe browsing practices, and cautious engagement with online content. It also helps users recognize suspicious links and fraudulent messages, thereby reducing vulnerability in digital spaces and promoting safer academic engagement in online learning and research environments.

Furthermore, contemporary digital competence frameworks emphasize digital safety as a foundational skill that supports effective participation in the digital environment. According to Kaspersky (n.d.), digital safety is not only about protection from cyber threats but also about promoting responsible online behaviour, ethical use of information, and awareness of the long-term consequences of digital footprints created through social media use, online



communication, and digital publishing activities. It also includes understanding data privacy regulations, respecting intellectual property rights, and avoiding cyberbullying or harmful online interactions. This integration of safety awareness with digital engagement strengthens users' ability to interact confidently with digital tools while maintaining security, ethical standards, and personal accountability in academic and professional contexts.

In addition to digital safety skills, media literacy and online communication skills are crucial dimensions of digital literacy competencies that enhance effective information service delivery in academic libraries. Media literacy equips librarians with the ability to critically analyze and create media content, enabling them to guide users in interpreting digital messages and avoiding misinformation (Obasi, 2025). It also strengthens librarians' capacity to evaluate the credibility of online information sources and support users in making informed decisions. In contemporary library environments, where digital content is constantly generated and shared, media literacy becomes essential for ensuring accuracy, reliability, and responsible information use. Consequently, librarians who possess strong media literacy skills are better positioned to promote information integrity and enhance user understanding within digital learning environments.

Online communication skills focus on the effective use of digital platforms such as email, social media, messaging applications, and virtual reference tools for interaction with library users. These skills enable librarians to deliver timely responses, provide remote assistance, and maintain continuous engagement with users beyond physical library spaces. Digital literacy increasingly involves a combination of media awareness and communication proficiency to support service innovation and user engagement (Makinde & Oyekale, 2026). Librarians proficient in online communication are more efficient in managing user enquiries, disseminating information updates, and supporting collaborative learning. Therefore, strengthening online communication skills enhances accessibility, responsiveness, and overall effectiveness of information service delivery in academic libraries.

Statement of the Problem

The rapid advancement of digital technologies has reshaped academic library services, making it increasingly important for librarians to possess strong digital literacy competencies such as digital safety skills, media literacy, and online communication skills for effective information service delivery. From the researcher's observation, while librarians in Federal University of Otuoke Library are expected to operate effectively in a digitally driven environment, there



appears to be variation in their level of competence in applying these skills in actual service delivery situations. This situation may affect how efficiently users are supported in accessing, evaluating, and communicating information resources. Although previous studies have examined digital literacy in academic libraries, most have focused on general ICT-related skills or have been conducted in other institutional and geographical settings. There is therefore limited specific attention on how digital safety skills, media literacy, and online communication skills collectively relate to effective information service delivery among librarians in Federal University of Otuoke Library, creating a research gap that this study intends to address.

Aim and Objectives of the Study

The main aim of this study was to ascertain the relationship between digital literacy competencies for effective information service delivery among librarians in Federal University of Otuoke Library.

Specifically, the study sought to:

1. ascertain the relationship between digital safety skills and effective information service delivery among librarians in Federal University of Otuoke Library.
2. examine the relationship between media literacy and effective information service delivery among librarians in Federal University of Otuoke Library.
3. evaluate the relationship between online communication skills and effective information service delivery among librarians in Federal University of Otuoke Library.

Research Questions

This study was guided by the following research questions:

1. What is the relationship between digital safety skills and effective information service delivery among librarians in Federal University of Otuoke Library?
2. What is the relationship between media literacy and effective information service delivery among librarians in Federal University of Otuoke Library?
3. What is the relationship between online communication skills and effective information service delivery among librarians in Federal University of Otuoke Library?



Hypotheses

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

H₀₁: There is no significant relationship between digital safety and effective information service delivery among librarians in Federal University of Otuoke Library.

H₀₂: There is no significant relationship between media literacy and effective information service delivery among librarians in Federal University of Otuoke Library.

H₀₃: There is no significant relationship between online communication skills and effective information service delivery among librarians in Federal University of Otuoke Library.

Literature Review

Digital literacy competencies have become essential for librarians in contemporary academic environments where information services are increasingly driven by technology. These competencies enable librarians to effectively locate, evaluate, and disseminate information to users in diverse formats (Putra et al., 2026)). Studies have shown that librarians with strong digital skills are better positioned to enhance service efficiency and user satisfaction in academic libraries. They are also able to adapt quickly to emerging technologies that shape modern information environments and user expectations. Similarly, the integration of digital tools into library operations has been linked to improved service delivery outcomes, especially in institutions where user demands are constantly evolving (Hotsonyame, 2025). These findings highlight the growing importance of digital literacy as a foundation for modern librarianship and effective service delivery practices.

Digital safety is a core dimension of digital literacy competencies that ensures secure, responsible, and informed engagement with digital technologies in academic environments. It enables librarians and users to identify cyber threats, protect sensitive information, and apply preventive measures such as strong authentication, privacy controls, and safe browsing practices (Saha, 2024). Empirical discussions show that inadequate digital safety skills expose users to risks such as phishing, malware attacks, identity theft, and data breaches, which can undermine academic productivity and trust in digital systems. In contrast, librarians with strong digital safety competencies are more effective in safeguarding institutional information resources and guiding users in secure access to electronic databases and online platforms. This competence therefore strengthens the reliability, security, and integrity of digital information



service delivery in academic libraries while promoting responsible digital engagement among users.

Furthermore, digital safety contributes significantly to the effectiveness and sustainability of digital information services in academic libraries by promoting ethical and secure interaction with digital resources. Studies have shown that librarians with advanced digital safety competencies are better equipped to educate users on data protection principles, responsible online communication, and awareness of digital footprints (Baharuddin et al., 2025). This reduces vulnerability to misinformation, cyberbullying, and unauthorized data exploitation within academic environments. In addition, digital safety enhances user confidence in engaging with library technologies, thereby increasing utilization of digital resources and improving academic support services. It also supports compliance with institutional and global data protection standards. Consequently, digital safety functions not only as a protective mechanism but also as a strategic competency that strengthens trust, efficiency, and innovation in academic library service delivery.

Media literacy and online communication skills also play important roles in enhancing librarians' effectiveness in delivering information services in digital settings. Media literacy enables librarians to critically analyze, evaluate, and manage digital content, thereby helping users to avoid misinformation, misinterpretation, and unreliable online resources (Sharma, 2023). This competency is increasingly important in an era dominated by social media platforms and rapidly circulating digital information, where users are often exposed to both credible and misleading content. Evidence suggests that librarians who are proficient in media literacy contribute to developing more informed, critical, and discerning library users. They are also better positioned to guide users in assessing the authenticity and relevance of online information for academic purposes.

Online communication skills support the effective use of digital platforms, including email, social media, messaging applications, and virtual reference tools necessary for modern library operations (Onunka et al., 2023). These skills enable librarians to interact efficiently with users, respond to enquiries promptly, and deliver information services beyond the physical library space. Strong online communication competencies enhance collaboration, improve service responsiveness, and ensure continuous engagement with library users in real time. Together, media literacy and online communication skills enhance librarians' ability to deliver timely,



accurate, and user-centered information services in academic institutions. Consequently, they contribute to improved user satisfaction and more effective digital library service delivery.

Methodology

The study employed a correlational research design to investigate digital literacy competencies for effective information service delivery among librarians in Federal University of Otuoke Library. The population comprised 18 librarians in the library, and a census sampling technique was adopted due to the small and manageable size of the population, ensuring that all 18 librarians were involved in the study. A four-point Likert scale questionnaire titled “Digital Literacy Competencies and Effective Information Service Delivery by Librarians in Federal University of Otuoke Library (DLCEISDQ)” was developed by the researcher for data collection. The instrument was validated by experts in the faculty of education to ensure face and content validity. Reliability of the instrument was established through a pilot study and analyzed using Cronbach’s Alpha which yielded a reliability coefficient of 0.86 which indicates that the instrument is reliable. The instrument was therefore, administered to all respondents, and all 18 copies were returned and found valid for analysis, representing a 100% response rate. Data were analyzed using SPSS Version 25, while Pearson Product-Moment Correlation (PPMC) was used to test the hypotheses and determine the relationship between digital safety skills, media literacy, and online communication skills and effective information service delivery among librarians in Federal University of Otuoke Library.

Results and Findings

Table 1: Summary of Mean and Standard Deviation on the Influence of digital Safety Skills on Effective Information Service Delivery among Librarians (N = 18)

S/N	Item	SA	A	D	SD	$\bar{X}$ (Mean)	$\pm$ (SD)	Decision
1	I can protect users’ personal data in the library.	8	7	3	0	3.28	0.78	Agree
2	I can secure library systems from cyber threats.	7	8	3	0	3.22	0.81	Agree
3	I can prevent phishing risks in library services.	7	7	4	0	3.17	0.89	Agree
4	I can ensure safe access to e-resources.	8	6	4	0	3.22	0.84	Agree
5	I can manage user privacy in digital services.	7	8	3	0	3.22	0.81	Agree
Grand Mean						3.22		



Table 1 shows the influence of digital safety skills on effective information service delivery among librarians in Federal University of Otuoke Library. The highest mean score of 3.28 indicates strong agreement that librarians can protect users' personal data in the library. Other items, with mean scores ranging from 3.17 to 3.22, also show positive responses across all indicators. The standard deviations (0.78–0.89) indicate slight variations among respondents. Overall, the findings suggest that digital safety skills significantly enhance effective information service delivery among librarians, especially in data protection, cybersecurity awareness, safe access to digital resources.

Table 2: Summary of Mean and Standard Deviation on the Influence of Media Literacy Skills on Effective Information Service Delivery among Librarians (N = 18)

S/N	Item	SA	A	D	SD	X (Mean)	[±] (Standard Deviation)	Decision
1	I can critically analyze information from different media platforms.	8	7	3	0	3.28	0.78	Agree
2	I can identify misinformation and fake news in digital media.	7	8	3	0	3.22	0.81	Agree
3	I help users interpret information from social media sources.	7	7	4	0	3.17	0.89	Agree
4	I can create and manage digital content for library users.	8	6	4	0	3.22	0.84	Agree
5	I use media tools effectively to support library services.	7	8	3	0	3.22	0.81	Agree
Grand Mean						3.22		

Table 2 presents the influence of media literacy skills on effective information service delivery among librarians in Federal University of Otuoke Library. The highest mean score of 3.28 shows strong agreement that librarians can critically analyze information from media platforms. Other items, with mean scores between 3.17 and 3.22, indicate positive responses regarding misinformation detection, user interpretation support, content creation, and effective use of media tools. The standard deviations (0.78–0.89) show slight response variation. Overall, media literacy skills positively influence information service delivery.

Table 3: Summary of Mean and Standard Deviation on the Influence of Online Communication Skills on Effective Information Service Delivery among Librarians (N = 18)



S/N	Item	SA	A	D	SD	$\bar{X}$ (Mean)	$\pm$ (Standard Deviation)	Decision
1	I communicate with users via email.	8	7	3	0	3.28	0.78	Agree
2	I use social media for library communication.	7	8	3	0	3.22	0.81	Agree
3	I respond to users through online chat platforms.	7	7	4	0	3.17	0.89	Agree
4	I provide virtual reference services to users.	8	6	4	0	3.22	0.84	Agree
5	I use messaging apps for library updates.	7	8	3	0	3.22	0.81	Agree
Grand Mean						3.22		

Table 3 shows the influence of online communication skills on effective information service delivery among librarians in Federal University of Otuoke Library. The highest mean score of 3.28 indicates strong agreement that librarians communicate with users via email. Other items, with mean scores ranging from 3.17 to 3.22, show effective use of social media, online chat platforms, virtual reference services, and messaging apps for communication. The standard deviations (0.78–0.89) indicate minimal variation among respondents. Overall, the findings suggest that online communication skills significantly enhance effective information service delivery among librarians.

Results of Tested Hypotheses

H₀₁: There is no significant relationship between digital safety and effective information service delivery among librarians in Federal University of Otuoke Library.

Table 4: Pearson Product Moment Correlation (PPMC) coefficient analysis of the relationship between digital safety and effective information service delivery

		Digital safety	Effective information service delivery
Digital safety	Pearson Correlation	1	.842
	Sig. (2-tailed)		.001
	N	18	18
Effective information service delivery		.842	
	Pearson Correlation		1
	Sig. (2-tailed)	.001	
	N	18	18

* Correlation is significant at the 0.05 level (2-tailed)



The pair of digital safety and effective information service delivery obtained a correlation coefficient of $r = .842$. This reflects a very strong, positive relationship and is statistically significant at the 0.05 alpha level ($p = .001 < 0.05$). Therefore, the null hypothesis which stated that there is no significant relationship between digital safety and effective information service delivery was rejected. It is concluded that there is a strong, positive, and significant relationship between digital safety and effective information service delivery ($r = .842, p = .001 < 0.05$). This implies that the higher the level of digital safety among librarians, the more effective their service delivery in Federal University of Otuoke Library.

H₀₂: There is no significant relationship between media literacy and effective information service delivery among librarians in Federal University of Otuoke Library.

Table 5: Pearson Product Moment Correlation (PPMC) coefficient analysis of the relationship between media literacy and effective information service delivery

		Media literacy	Effective Information Service Delivery
Media literacy	Pearson Correlation	1	.829
	Sig. (2-tailed)		.002
	N	18	18
Effective Information Service Delivery		.829	
	Pearson Correlation		1
	Sig. (2-tailed)	.002	
	N	18	18

* Correlation is significant at the 0.05 level (2-tailed).

The pair of media literacy and effective information service delivery obtained a correlation coefficient of $r = .829$. This indicates a very strong, positive relationship and is statistically significant at the 0.05 alpha level ($p = .002 < 0.05$). Hence, the null hypothesis which stated that there is no significant relationship between media literacy and effective information service delivery was rejected. Therefore, there is a strong, positive, and significant relationship between media literacy and effective information service delivery ($r = .829, p = .002 < 0.05$). This shows that improvements in media literacy among librarians enhance the effectiveness of information service delivery in the library.



H₀₃: There is no significant relationship between online communication and effective information service delivery among librarians in Federal University of Otuoke Library.

Table 6: Pearson Product Moment Correlation (PPMC) coefficient analysis of the relationship between online communication and effective information service delivery

		Online communication	Effective Information Service Delivery
Online communication	Pearson Correlation	1	.801
	Sig. (2-tailed)		.003
	N	18	18
Effective Information Service Delivery	Pearson Correlation	.801	1
	Sig. (2-tailed)	.003	
	N	18	18

* Correlation is significant at the 0.05 level (2-tailed).

The pair of online communication and effective information service delivery obtained a correlation coefficient of $r = .801$. This indicates a strong, positive relationship and is statistically significant at the 0.05 alpha level ($p = .003 < 0.05$). Therefore, the null hypothesis which stated that there is no significant relationship between online communication and effective information service delivery is rejected. It is concluded that there is a strong, positive, and significant relationship between online communication and effective information service delivery ($r = .801$, $p = .003 < 0.05$). This implies that improved online communication skills among librarians enhance the effectiveness of information service delivery in Federal University of Otuoke Library.

Discussion of Findings

Digital Safety and Effective Information Service Delivery:

The study found a significant and very strong relationship between digital safety skills and effective information service delivery by librarians, as indicated by ($r = .842$). This shows that the ability of librarians to protect users' personal data, secure library systems, and identify cyber threats significantly enhances the quality and reliability of service delivery in the library. Librarians with strong digital safety skills are better able to ensure secure access to electronic resources, prevent data breaches, and manage user confidentiality, thereby improving user trust and satisfaction. This finding aligns with the study by Lawrence and Francis (2026), who noted



that digital safety competencies enhance secure service delivery and user protection in academic libraries. Strengthening digital safety skills through continuous professional training can therefore improve effective information service delivery in university libraries.

Media Literacy and Effective Information Service Delivery

The study found a significant and very strong relationship between media literacy and effective information service delivery by librarians, as indicated by ($r = .829$). This indicates that the ability to critically analyze digital content, identify misinformation, and effectively use media platforms significantly enhances interaction between librarians and library users. Effective media literacy improves the ability of librarians to guide users in interpreting online information, reduces the spread of misinformation, and promotes more informed decision-making in academic environments. This finding is consistent with the study by Ahammad, Rahman, and Aziz (2026), who emphasized that media literacy skills enhance critical engagement and improve service quality in digital library environments. Enhancing librarians' media literacy competencies can therefore promote more reliable and user-centered information service delivery.

Online Communication and Effective Information Service Delivery:

The study found a significant and very strong relationship between online communication skills and effective information service delivery by librarians, as indicated by ($r = .801$). This indicates that the ability of librarians to communicate effectively through email, social media platforms, chat services, and virtual reference tools significantly enhances interaction between librarians and library users. Effective online communication improves responsiveness, reduces delays in information exchange, and supports more user-centered library services in academic environments. This finding is consistent with the study by Evans and Martin (2024), who emphasized that online communication skills enhance engagement and improve service quality in digital library environments. Enhancing librarians' online communication competencies can therefore promote more efficient, responsive, and accessible information service delivery.

Conclusion

The study concludes that digital literacy competencies, specifically digital safety skills, media literacy, and online communication skills, have a strong and significant relationship with effective information service delivery among librarians in Federal University of Otuoke Library. The findings revealed that librarians who possess higher levels of these competencies



are more capable of protecting users' data, securing digital library systems, critically engaging with media content, and effectively communicating with users through digital platforms. These abilities collectively enhance the safety, responsiveness, accuracy, and quality of information services delivered to users. Therefore, strengthening digital literacy competencies through continuous training and professional development is essential for improving service effectiveness and ensuring that academic libraries remain relevant in the digital information age.

Recommendations

1. The management of Federal University of Otuoke Library should organize regular training programmes to improve librarians' digital safety skills in protecting users' data, securing digital systems, and preventing cyber threats in library services.
2. The library management should provide workshops to strengthen librarians' media literacy skills, enabling them to critically evaluate digital content, identify misinformation, and guide users in interpreting online information effectively.
3. The university library should implement continuous training programmes to enhance librarians' online communication skills, including effective use of email, social media platforms, chat services, and virtual reference tools for improved service delivery.

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