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DIGITAL INFORMATION LITERACY SKILLS AS A PREDICATOR OF PRODUCTIVITY OUTPUT OF ACADEMIC LIBRARIANS IN FEDERAL UNIVERSITIES IN NORTH-CENTRAL, NIGERIA.

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Abstract
The purpose of this paper is to investigate the information literacy skills as a predicator of productivity output of academic librarians in Federal Universities in North-Central, Nigeria. Specific objectives of the study were to identify the digital literacy skills of academic librarians, ascertain the productivity output of academic librarians and examine the influence of information literacy skill on productivity outputs of academic librarians in Federal Universities in North-Central, Nigeria. Descriptive Survey research design was employed as the research design. A sample size of 162 librarians was drawn from seven Federal Universities in North Central Nigeria. Data collected were analyzed using descriptive and inferential statistics. Results of the data analysis showed a significant association between digital literacy skills of academic librarians and their productivity outputs. Findings of the study demonstrated that the influence of information literacy skill is a strong component of productivity outputs of academic librarians in Federal Universities in North-Central, Nigeria. Findings further demonstrated that there is significant influence of media literacy, communication literacy and visual literacy as components of digital literacy on productivity outputs of academic librarians in Federal universities in North-Central, Nigeria. Based on the findings, the study concluded that academic librarians in the study possess high level of basic digital competency, and used a variety of methods to develop those skills. The study thus recommended that academic librarians in public university libraries in North-Central Zone, Nigeria should enhance their information literacy skills through training and retraining in order to attain the highest level of information literacy skills that will lead to higher research productivity. The study also recommended among others, that workshops and seminars on media literacy should be organized concurrently while the librarians should be motivated to engage in self-training on media literacy Libraries and librarians must collaborate to teach media literacy, not only to their users and communities but to society as a whole.
Keywords: Digital Information Literacy Skills, Productivity Output, Academic Librarians, Federal Universities.

Introduction

The digital age has transformed every aspect of knowledge production and dissemination. Information is now created, shared, and preserved through digital platforms, fundamentally altering the operations of academic libraries and the roles of librarians. Academic librarians are no

longer mere custodians of printed information; they are active participants in the digital knowledge ecosystem, mediating between technology, content, and users (UNESCO, 2023; Saripudin, Sumarto, Juanda, & Abdullah, 2018).

Globally, digital literacy is considered a foundational skill for professional practice in the twenty-first century. Digital literacy—defined broadly as the ability to access, manage, evaluate, create, and communicate information using digital technologies—is now regarded as a core professional competency for librarians (UNESCO, 2018). It thrives under a grounded root in information literacy. Information literacy is the skill to collect existing information, organizing, using, filtering, evaluating the information and making valid inferences according to the results, and using the information effectively, efficiently, and ethically (Gündüzalp, 2021). Information literacy remains central, referring to the abilities required to discover, evaluate and use information ethically and effectively (ACRL, 2016).Information literacy also serves as the core skills of a modern professional librarian.

Mann, (2015) defined a librarian as a "professionally trained person responsible for the care of a library and its contents, including the selection, processing, and organization of materials and the delivery of information, instructions, and loan services to meet the and the needs of its users. Thus, a professional Librarian emits productivity in service delivery to users in any given community, thereby resounding the capacity of their productivity. Productivity of librarians encompasses service innovations, database development, and digital resource creation (Adetomiwa & Okwilagwe, 2018. Challenges such as research funding, lack of mentoring, poor access to scholarly databases, and heavy administrative responsibilities have led to career stagnation for many librarians and limited their contributions to institutional and national development (Fabunmi, 2022). Federal university libraries in the North-Central Nigeria play critical roles in supporting teaching, research, and community engagement (Oseji, 2020). However, studies indicated that these libraries face infrastructural deficits, including inconsistent Internet connectivity, limited ICT facilities, and insufficient technical training (Emiri, 2017). These factors hinder librarians from integrating digital tools into their research and service delivery effectively.

Statement of the Problem

The digital literacy skills of academic librarians in Nigeria—particularly those in the North-Central region—require critical assessment. The interplay between digital competence and research productivity has not been thoroughly explored empirically in this context. Understanding how digital literacy influences librarians' productivity outputs will provide insights into capacity gaps and inform interventions by policymakers, professional bodies, and universities. This study, therefore investigated the digital information literacy skills as a predicator of productivity output in academic librarians in federal universities in north-central zone, Nigeria.

Objectives of the Study

1. identify the digital literacy skills possessed by academic librarians in Federal Universities in North-Central, Nigeria,

2. ascertain the productivity output of academic librarians in Federal Universities in North-Central, Nigeria,
3. examine the influence of information literacy skill on productivity outputs of academic librarians in Federal Universities in North-Central, Nigeria,

Research Methodology

For the research design, the study adopted a descriptive survey design. This research design involves using a range of qualitative and quantitative research methods to collect data that aids in accurately describing a research problem. The population of study comprised of 162 academic librarians from Federal University Libraries in North-Central Nigeria. For Sample and Sampling, the study adopted Census method for the study; the entire population of the study which is 162 was used.

Review of related Literature

The capability of individuals to use technology to create, navigate, disseminate, evaluate and store information is basically described as digital literacy. Digital literacy refers to "the ability to understand and use information in multiple formats from a wide variety of sources when it is presented via computers" and, particularly, through the medium of the internet (Pangrazio et al, 2020). Adeleke, (2016) is of the opinion that academic librarians require certain skills and competencies to establish and maintain a digital repository. The skills, according to the author, include traditional library skills and knowledge, as well as management and technical skills, familiarity with metadata creation, and knowledge of copyright. These skills will equip them to deal with digitization and archiving of the content. Digital competencies are the skills necessary to work in digital library environments and manage electronic library infrastructures and services (Hamad et al, 2021).

Anuradha and Rengaraj, (2017) argued that modern technologies have substantially changed the working of libraries in the information era. This is because in the 21st century library services, libraries are required to make use of new technologies in critical library activities such as acquiring library materials, cataloguing the materials acquired, preserving the materials, , diffusing them as well as providing reference services to users, among others. Anuradha however, added that the existence of modern technologies does not completely replace traditional library services; instead, there is now a harmonization of services to better serve users. That is to say those modern technologies have been completely integrated into library services. Olijo, (2018) in making a case on the importance of skill in the utilization of new technologies notes that despite the fact that progress has been recorded in the area of hardware and software competence, the challenge of low utilization is a limitation in harnessing the potentials of new technologies. Liu & Briggs, (2015) further reported the following as roles of librarians in the present digital knowledge society as: subject expert, global information provider, resource manager, creator, preservator, navigational guide, communicator, financial manager, time managers, legal advisor, personnel manager, tech-savvy, mentor and leader, buttressing the fact that academic librarians play multifaceted roles in enhancing productivity in university libraries. Their responsibilities extend beyond traditional

library tasks to encompass various services and support functions that contribute to the overall productivity output and effectiveness of librarians and the academic institution.

Productivity is what man can accomplish with material, capital and technology. Productivity is mainly an issue of personal manners. It is an attitude that we must continuously improve ourselves and the things around us (Tangen, cited in Abdelwahed & Doghan, 2023). Productivity is defined as the ratio of what is produced to what is required to produce it. Productivity measures the relationship between output such as goods and services produced, and inputs that include labour, capital, material and other resources (Xiaojuan & Libin, (2020).

There is enough literature on the organizational productivity output of librarians especially on service delivery (Darling-Hammond, 2015). There is, however, a dearth of literature on the research output of individual librarians. Not much work has been done on job satisfaction and research output of academic librarians in universities in Nigeria. From the preliminary investigation carried out by researchers such as, (Fennewald, 2018), it was found that the librarians appeared to be dissatisfied with their job. Their dissatisfaction with their job could be due to the promotion criteria (especially publication output) which they could not meet up. Moreover, too many administrative responsibilities might have impacted negatively on the productivity output of the librarians as they have little or no time to embark on meaningful research.

Analysis and Interpretation

Table 1: Questionnaires Administered/Returned

Option	Frequency	Percentage
Filled and returned	138	85.2
Not returned	24	14.8
Total	**162**	**100**

Source: *Field Survey, 2025*

Table 1 presents the response rate for the study on digital literacy skills and productivity outputs of academic librarians in Federal University Libraries in North Central Nigeria. Out of 162 questionnaires distributed, 138 were duly completed and returned, representing a high response rate of 85.2%, while 24 questionnaires (14.8%) were not returned.

Table 2: Digital Literacy Skills of Academic Librarians in Federal Universities in the North-Central, Nigeria.

S/N	Digital Literacy Skills	N	SA (4)	A (3)	D (2)	SD (1)	Mean ($\bar{x}$)	Std. Dev.	Remarks
1	I have the skills to design and use Cloud computing.	138	12	28	55	43	2.10	1.02	Disagreed
2	I possessed Database, Search Engines skills to facilitate their work	138	15	32	52	39	2.31	1.13	Disagreed
3	I am interested in learning and at the same time using digital tools to improve their work abilities	138	22	45	41	30	2.58	1.14	Agreed
4	I am comfortable using digital devices and will continue to integrate them with their work needs	138	33	57	31	17	3.03	0.81	Agreed
5	I have the necessary knowledge to work using information technology devices and computers	138	25	43	42	28	2.58	1.14	Agreed
6	I make use of Collaboration and Communication Tools (e.g., Slack, Microsoft Teams)	138	28	46	41	23	2.63	0.92	Agreed
7	I can use the internet to find information relevant to their work	138	32	51	36	19	2.86	0.90	Agreed
8	I have the ability to integrate information into new knowledge when using social media tools/sites	138	34	53	33	18	2.93	0.92	Agreed
9	I am familiar with serial management process through Integrated Library Management System (e.g. online subscription, preservation, etc.)	138	36	55	34	13	2.94	0.78	Agreed
10	I am familiar with Desktop publishing (e.g., Photoshop, technical manuals and Adobe Creative Suite, etc.)	138	14	29	58	37	2.26	0.96	Disagreed

Clustered Mean/SD = 2.62 / 0.97 → Agreed
Source: Field Survey, 2025

Table 2 illustrates the digital literacy skills of academic librarians in Federal University Libraries across North-Central Nigeria, based on responses from 138 participants. The mean scores indicate varying levels of agreement with the statements measuring different aspects of digital literacy. Findings reveal a moderate level of digital literacy among the academic librarians. While a majority of respondents agreed that they are comfortable using digital devices with a mean score of 3.03, can use the internet effectively to find work-relevant information with a mean score of 2.86, and are familiar with the serial management process through Integrated Library Management Systems with a mean score of 2.94, there is still a noticeable gap in advanced digital competencies.

For instance, respondents disagreed with having adequate skills in cloud computing with a mean score of 2.10, using database and search engine tools proficiently with a mean score of 2.31, and desktop publishing applications like Photoshop and Adobe Creative Suite with a mean score of 2.26. However, there is a general willingness and interest among academic librarians to learn and utilize digital tools with a mean score of 2.58, and they demonstrate the ability to integrate information into new knowledge using social media tools with a mean score of 2.93 and employ communication platforms such as Microsoft Teams or Slack with a mean score of 2.63. These results suggest that while academic librarians in this region have foundational digital skills and a positive attitude towards digital tools, there is a critical need for training and capacity building, particularly in areas such as cloud computing, database management, and desktop publishing, to enhance their productivity and fully leverage digital technologies in academic library services.

Research Question 2: What is the productivity output of academic librarians in Federal universities in the North-central, Nigeria?

Table 3: Productivity Output of Academic Librarians in Federal Universities in the North-Central, Nigeria

S/N	Productivity Output	N	SA (4)	A (3)	D (2)	SD (1)	Mean ($\bar{x}$)	Std. Dev.	Remarks
1	I have a good number of research publications to their credit	138	30	55	36	17	2.90	0.92	Agreed
2	My productivity output in terms of research articles is high	138	27	53	39	19	2.80	0.95	Agreed
3	I am thorough in completing every job	138	35	61	30	12	3.00	0.73	Agreed
4	My quality of work is in accordance with predetermined standards	138	29	52	38	19	2.84	1.04	Agreed
5	My quantity of work is in accordance with predetermined standards	138	28	51	39	20	2.81	1.07	Agreed
6	I am punctual in completing every job	138	40	62	27	9	3.12	0.69	Agreed
7	I carry out my work efficiently	138	42	60	28	8	3.18	0.86	Agreed
8	I come up with creative solutions for new problems	138	37	58	31	12	2.98	0.79	Agreed
9	I contribute to organizational goals; innovation introduced; and commitment to duty	138	20	45	49	24	2.47	0.93	Agreed

Clustered Mean/SD = 2.90 / 0.89 → Agreed
Source: Field Survey, 2025

Table 3 offers a comprehensive understanding into the productivity output of academic librarians in Federal University Libraries within North-Central Nigeria. With all the mean scores

ranging between 2.47 and 3.18 with a threshold of 2.50 for agreement, the responses consistently reflect a positive perception of librarians' productivity. Most academic librarians were perceived to have a commendable number of research publications (mean score of 2.90), and overall, the productivity output in terms of research articles was considered high (with mean score of 2.80), suggesting active engagement in scholarly activities. Additionally, librarians were seen as thorough in completing tasks (with mean score of 3.00), with both the quality (mean 2.84) and quantity (mean 2.81) of their work aligning with institutional standards. Punctuality (with mean score of 3.12) and efficiency (with mean score of 3.18) were particularly notable strengths among senior librarians, highlighting their commitment and time-consciousness in performing their duties. Their ability to generate creative solutions (with mean score of 2.98) also indicates a proactive and problem-solving orientation within their roles. Interestingly, the lowest-rated item though still above the acceptance threshold was contributing to organizational goals, innovation, and commitment to duty (with mean score of 2.47), which points to an area needing further support or development.

Research Question 3: What is the influence of information literacy skill on productivity outputs of academic librarians in Federal universities in the North-central, Nigeria?

Table 4: The Influence of Information Literacy skill on Productivity Outputs of Academic Librarians in Federal Universities in the North-Central, Nigeria

S/N	Influence of Information Literacy skill on Productivity Outputs	N	SA (4)	A (3)	D (2)	SD (1)	Mean ($\bar{x}$)	Std. Dev.	Remarks
1	Ability to synthesize and build on existing information	138	34	56	34	14	2.99	0.78	Agreed
2	Ability to compare and evaluate information obtained from different sources	138	28	51	39	20	2.77	0.98	Agreed
3	Ability to organize, apply and communicate information	138	42	60	27	9	3.12	0.88	Agreed
4	Ability to locate and access information resources	138	37	59	31	11	3.05	0.82	Agreed
5	Ability to use information ethically, including the respect for intellectual property and privacy	138	35	61	30	12	3.00	0.73	Agreed
6	Acquaint the users with the power of internet	138	23	47	43	25	2.59	1.18	Agreed
7	Shows the usefulness of various web resources	138	36	58	32	12	3.01	0.82	Agreed
8	Acquaint the users with various search techniques	138	20	45	49	24	2.47	0.93	Agreed
9	Establishes a direct interaction between users and library professionals	138	26	49	42	21	2.68	1.04	Agreed
10	It explains the necessity of bibliographical citations	138	30	52	38	18	2.84	0.87	Agreed

Clustered Mean/SD = 2.85 / 0.90 → Agreed
Source: Field Survey, 2025

Table 4 presents data on the relevance of information literacy as a component of digital literacy and its influence on the productivity outputs of academic librarians in federal university libraries in North-Central Nigeria. The responses from 138 librarians indicate a general consensus on the significance of various information literacy competencies in enhancing professional productivity. With mean scores ranging from 2.47 to 3.12 remarked Agreed, demonstrating that respondents perceive each component as relevant. The highest mean score (3.12) was recorded for the ability to organize, apply, and communicate information, emphasizing the importance of effective information handling in academic librarianship. This is closely followed by the ability to locate and access information resources (3.05) and the ability to use information ethically (3.00), reflecting the value placed on responsible and efficient information use. Other notable competencies include the ability to synthesize and build on existing information (2.99) and compare and evaluate information from different sources (2.77), both of which are essential for critical thinking and evidence-based decision-making. Additionally, the librarians acknowledged

the role of digital tools in user engagement, with mean scores above 2.5 for items like acquainting users with the internet (2.59), web resources (3.01), and search techniques (2.47), albeit the latter had the lowest mean, suggesting a relative gap in training or emphasis. The item on bibliographic citation awareness (2.84) and direct user interaction (2.68) further emphasize the academic and collaborative aspects of librarianship.

Discussion of Findings

This study examined the digital information literacy skills as a predicator of productivity output in academic librarians in federal universities in north-central zone, Nigeria, yielding several sensitive findings that align with and expand upon previous empirical research. The demographic characteristics of respondents reveal that the workforce is predominantly male and composed of mature professionals, with the largest age group between 46–55 years. This aging population and the limited presence of younger professionals (8.7% aged 19–24) suggest a profession in need of rejuvenation. These findings are consistent with Sambo et al. (2022), who emphasized the challenges faced by certified librarians in acquiring digital literacy skills due to late career entry, heavy workload, and insufficient training support. The implications are profound, as an aging workforce without sufficient integration of younger, digitally adept professionals may hinder the rapid adoption and utilization of emerging technologies in academic libraries.

The first finding on digital literacy skills of academic librarians, revealed a moderate level of competency. While basic digital tasks such as using digital devices and retrieving work-related information online were comfortably performed, more advanced skills like cloud computing, database navigation, and desktop publishing scored below the acceptable threshold. These results echoed Ogochukwu's (2017) findings from Southern Nigeria, where librarians showed proficiency in basic digital tools like email and social networking, but lacked advanced digital skills.

The second finding on productivity output of academic librarians in the study area indicated that it was generally rated high, particularly among academic librarians, with strong scores in research publications, task completion, punctuality, and efficiency. These findings align with Yaya et al. (2016), who reported that librarians significantly contribute to student academic success and university accreditation outcomes, thus demonstrating their relevance in achieving institutional goals. However, despite their commendable performance, the present study observed a relatively lower score in the area of innovation and contribution to organizational goals. This discrepancy may be linked to the aforementioned gaps in digital literacy skills, particularly in the use of modern tools for content creation, collaboration, and outreach. As such, even productive librarians may not be operating at full potential due to limitations in digital competence.

The third finding on the role of specific components of digital literacy such as information, media, communication, and visual literacy revealed significant influence on productivity outputs. The study's statistical analyses revealed strong positive associations between each literacy component and librarian productivity, affirming the rejection of the respective null hypotheses. For instance, information literacy skills like ethical use, synthesis, and effective communication of information were rated highly and found to directly contribute to librarians' work quality. This supports findings from Okeji and Mayowa-Adebara (2021), who noted that digital literacy,

including information organization and retrieval skills, enables librarians to deliver quality service. Similarly, Sambo et al. (2022) emphasized the need for retraining and up skilling in digital competencies to overcome challenges such as poor internet access and digital tool availability, which are also critical for maximizing productivity.

Conclusion

This study concludes that while academic librarians in Federal University Libraries across North-Central Nigeria demonstrate a fair level of digital literacy and maintain commendable productivity outputs, significant gaps remain that hinder their full potential in the digital age. Though librarians show competence in fundamental digital tasks such as operating digital devices and sourcing information online, they face challenges in mastering advanced digital tools and platforms like cloud computing, database management, and content creation. Thus, the need for a sustained training and investment in digital infrastructure.

Recommendations

The following recommendations have been made based on the findings and conclusions made in this study:

1. Digital literacy is a lifelong learning process, academic librarians in the North-central Federal University libraries should continuously engage in training and retraining programs to keep up with emerging technologies and digital tools. Training should include advanced skills such as: cloud computing, database navigation, search engine tools and desktop publishing applications like photoshop and adobe creativity for handling open-source library management software and other digital platforms.
2. University management should focus more on training and capacity building of academic librarians in Federal University Libraries in the North-central Nigeria by investing in regular training, local and international conferences to improve their ICT skills, research skills and innovation for effective contributions to university goals.
3. University libraries, library associations, and university management should provide in-house training for librarians and provide financial support to attend workshops to continue to improve their communication skills.

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