

# Librarians' Digital Literacy Skills and Research Productivity in University Libraries in Delta and Edo States, Nigeria

<sup>1</sup>Thelma Nneka Avwioroko and <sup>2</sup>Esoswo Francisca Ogbomo (CLN) Ph.D

<sup>1</sup>Federal University of Petroleum Resources, Effurun, P.M.B 1221 Effurun, Delta State, Nigeria.  
thelmaavwioroko@gmail.com, 07030839536

<sup>2</sup>Department of Library and Information Science, Delta State University, PMB 1, Abraka, Delta State, Nigeria  
E-mail- esoobas@gmail.com, +2348038349691  
ORCID Profile: <https://orcid.org/0000-0001-6559-5488>

## Abstract

*This study examined librarians' digital skills and research productivity in university libraries in Delta and Edo States, Nigeria. The population of the study comprised 130 librarians in fifteen university libraries across Delta and Edo States. The data obtained from the questionnaire were analysed using simple percentages, descriptive statistics, and inferential statistics. According to the findings of the study, university librarians in Delta and Edo states, Nigeria, possessed high levels of digital abilities. These skills included social networking, using online bibliographic instructions, and using software and digital tools. They also have low research productivity; there is a correlation between research productivity and digital capabilities. It was recommended that librarians undertake more quantitative research, which can boost their overall productivity in terms of research, among other things.*

**Keywords:** Librarians, Digital Skills, Research, Research Productivity, University Libraries

## Introduction

Academic libraries have always been considered the heart of universities, providing information and services to the academic community of the parent institution (Usman, 2015). School libraries are the legacy of every generation; they share the knowledge of the past and the hope of the future. No matter where they are in the world, school libraries are bastions that support a country's freedom of thought in culture, commerce, religion and democracy. The purpose of the school library is to create and develop a learning environment that provides teachers, staff and students with access to a variety of information to achieve excellence in learning, teaching, learning and research (Eze and Ugozie, 2013). To help academic librarians achieve these goals, librarians conduct research that contributes to knowledge.

According to Rashid (2001), research is a conscious effort to collect, verify and analyze information. Research can be understood as having two broad components, namely knowledge creation and knowledge distribution. Research plays a significant role in the developmental process of every nation of the world, hardly could any nation develop without research and that is why nations systematically spend on research to bring the desired quality of life to their citizens. As asserted by Simisaye

(2019), research if well-coordinated in a country, could bring revolutionary changes in society and make lives more pleasant by bringing in desired development. Okiki (2013) asserted that the fruits of research are new knowledge and facts, which are communicated to the academic community through scholarly publications and seminars. In universities, the recognition and advancement of individual academic staff members depend largely on the quantity and quality of their research outputs, which are communicated in the form of journal articles, books, technical reports, and other publications.

However, for librarians to be productive in research, especially in the 21<sup>st</sup> Century, they need to be digitally literate. Although there have been various arguments on what digital literacy should be; Fakunle et al. (2022) referred to it as a set of skills that enable individuals to operate effectively in information retrieval tasks in technology-oriented environments. Shannon (2017) defined digital literacy as an individual's ability to find, evaluate, utilize, share, and create content using information technologies and the Internet. A digitally literate person is an individual who can evaluate and use information critically from relevant and authoritative sources online. Digital literacy encompasses a wide range of skills, all of which are necessary to

succeed in an increasingly digital world. At present, it plays an important role in the teaching, learning, and research process. Several studies have reported findings that the frequent use of electronic information resources which is made possible by the possession of adequate digital skills is associated with the increase in publication by academics in terms of quality and quantity (Ergart, 2002; Lin, 2001; Manda & Nawe, 2008; Barjak, 2006; Rowlands & Olivieri, 2007).

From all indications, digital skills are vital instruments for lifelong learning and it is expected that university teachers, and librarians inclusive have to acquire these skills to carry out research and teaching effectively (Islam & Tsuji, 2010). Academics with low levels of digital and information retrieval skills in the ICT-dominated environment may spend too much time finding and retrieving information due to problems they might encounter while seeking information especially when dealing with electronic information resources (Okiki, 2013). Hence, librarians have to be digitally literate to be productive in research in the 21st Century which is dominated by ICTs. It is on this premise that this study seeks to examine librarians' digital literacy skills and research productivity in university libraries in Delta and Edo States, Nigeria.

According to Doyle (2020, P, 1), digital skills refer to one's ability to converse with people through various technologies and utilize technology to provide services that satisfy societal needs. Similar to Information Technology (IT) and Information Communication Technology (ICT), digitization refers to the technology used for regular, everyday tasks: sending an email, making a video call, searching the internet, using a tablet or mobile phone, and more. Digital skills could also include the ability to use older communication technologies such as telephones, radios, and televisions. Jisc (2015) defined digital literacy as the capabilities which fit someone for living, learning, and working in a digital society. Jisc further emphasizes that digital literacy changes across time and contexts, and is essentially a set of academic and professional situated practices supported by

diverse and changing technologies that allow someone to live, learn, and work in a digital society (Jisc, 2015). Acquiring digital skills is a matter of prerequisite to meet the demand of today's knowledge-driven economy (Maneschijn et al., 2013).

Ugwuanyi (2009) enumerated the skills required for professionals to operate and function in a modern library. They include knowledge of computer operations such as (turning a computer on, opening a folder, copying a file from one disc to another, and scanning), mastery of the use of application software (word processing, printing of documents) as well as the ability to use the World Wide Web (WWW), engaging in an on-line discussion or chatting (teleconferencing), answering and sending e-mail attachments. Inyang and Mngutayo (2018) emphasized that basic computer skills involve knowledge of computer hardware and an understanding of computers and operating systems. Also, Lotriet et al. (2010) emphasized that ICT/digital skills range from basic skills to more advanced skills. Just in elaboration to that, Oyedokun et al. (2018) grouped ICT skills into basic skills, medium-level ICT skills, and advanced ICT skills.

Commenting more on the digital skills possessed by librarians for performing library operations, Emiri (2015), in his study of digital literacy skills of library professionals and found that the digital literacy skills of library professionals include social networking, use of PDAs, electronic mailing, Internet surfing, and mobile phones. Chew (2020) conducted a study on a survey of digital literacy skills among library professionals in Zambia and found that the majority 32 (53.3%) of the respondents had word processing skills, 9 (15.0%) had PowerPoint skills, 6 (10.0%) had bibliographic instruction software skills and 5 (8.3%) possessed knowledge of social media tools. The rest of the skill set was integrated search tools, web design and development, integrated library systems (ILS), and virtual reference technologies all at 2 (3.3%) each.

Information is very important and critical to every individual, especially researchers, and librarians inclusive (Okpala et al., 2017). The

skills to identify, evaluate and use information are learned over some time. Studying and understanding the basics of using information tools is very helpful to carry out research. Olijó (2018) while making a case on the importance of skill in the utilization of new technologies noted that even though progress has been recorded in the area of hardware and software competence, the challenge of low utilization is a limitation in harnessing the potential of new technologies. Commenting on the extent of digital literacy skills possessed by librarians, Ugboma (2006) in a survey, carried out a study on Information and Communication Technology literacy among 104 practicing librarians in Delta State, found that practicing librarians in the state are yet to be fully ICT literate. Ugwuanyi (2009) conducted a study on Information and Communication Technology (ICT) literacy among 55 academic librarians in Enugu state. The study revealed that the level of ICT literacy skills among academic librarians in Enugu state is low.

The study by Safahieh and Asemi (2010) revealed that the majority of the librarians at Isfahan University (Iran) did not have adequate computer skills, as nearly half of them considered the level of their skills to be "fair". None of these librarians perceived their computer skills level to be "very good". Also, Adedoyin *et al.*, (2013) conducted a study on ICT literacy among Ghanaian and Nigerian university librarians. The result of the study revealed that out of 258 professional librarians, 229 (88.76%) of them were ICT literate while the remaining 29 (11.24%) were non-literate. Hence, the study showed that there is an improvement in the ICT literacy level of Nigerian library personnel. Similarly, in a study conducted by Nwabueze and Ibeh (2016), findings revealed that librarians in Federal University libraries in South East Nigeria possess high ICT literacy in six key ICT applications: basic computing (word processing), statistical application skill, database creation, digitization, retrieval skill, and web 2.0/lib 2.0; but possess a low level in presentation skills and internet/www skills. Also, Anyim (2018) revealed that staff possessed digital literacy skills in turning on computers, connecting to the Internet, opening computer files, word-processing, sending email messages, deleting files from computers, and using the g www search engine are very high. Similarly, Oyedokun *et al.* (2018) found that

paraprofessionals and library staff in three Universities in Kwara State possessed a high level of ICT competence in basic computer skills. Bansode and Viswe (2017) examined the ICT literacy skills of library professionals in university libraries in India. The findings reveal that the ICT literacy level was satisfactory and the majority of professionals had basic literacy skills to handle daily library operations.

Deliberating on the research productivities of academics, librarians inclusive, Paul *et al.* (2013) investigated the research productivity of agricultural scientists in high-performing and low-performing institutes in India. The sample of the study comprised of randomly drawn two hundred agricultural scientists. The researchers developed a research productivity index to measure the research productivity of agricultural scientists. The study among other things revealed that there is ample scope for enhancing research productivity among the scientists as the majority (63.5%) had low to very low levels of productivity. The findings further indicated the crucial need for revisiting the system of career advancement for principal scientists and senior scientists as the t-test failed to produce a significant value of productivity difference between the principal scientists and senior scientists.

The research output of faculty members in the fields of science and engineering at universities owned by the Federal Government in Nigeria was examined by Okafor and Dike (2010). It was discovered that 30.6% of the academicians had published zero to four journal articles, that only 2% to 7% had published thirty or more articles during the same time period, and that 42.1% had no articles published in foreign journals. In a similar vein, Jain and Gupta (2011) examined the research output of Indian scientists who made contributions to global soybean research between 1989 and 2009, utilising data from the International Crop CD database. They came to the conclusion that Indian scientists who contribute to global soybean research have a greater number of publications, as India was ranked second, just behind the United States of America, which has 13.64 percent of the global soybean publication output. Additionally, a study conducted by Okonedo (2015) examined the research and publication output of librarians employed in public universities located in the South West region of Nigeria. The results

indicated that librarians exhibited a notable surge in publication output from 2009 to 2014. Upon sorting the publications by type, it was observed that scholarly journal articles obtained the highest classification, followed by conference proceedings and book chapters. This may be due to the fact that publishing journal articles is simpler, less time-consuming, and less expensive than publishing textbooks, monographs, and the like. The research output of faculty members in the fields of science and engineering at universities owned by the Federal Government in Nigeria was examined by Okafor and Dike (2010). It was discovered that 30.6% of the academicians had published zero to four journal articles, that only 2% to 7% had published thirty or more articles during the same time period, and that 42.1% had no articles published in foreign journals. In a similar vein, Jain and Gupta (2011) examined the research output of Indian scientists who made contributions to global soybean research between 1989 and 2009, utilising data from the International Crop CD database. They came to the conclusion that Indian scientists who contribute to global soybean research have a greater number of publications, as India was ranked second, just behind the United States of America, which has 13.64 percent of the global soybean publication output. Additionally, a study conducted by Okonedo (2015) examined the research and publication output of librarians employed in public universities located in the South West region of Nigeria. The results indicated that librarians exhibited a notable surge in publication output from 2009 to 2014. Upon sorting the publications by type, it was observed that scholarly journal articles obtained the highest classification, followed by conference proceedings and book chapters. This may be due to the fact that publishing journal articles is simpler, less time-consuming, and less expensive than publishing textbooks, monographs, and the like.

It is clear from the literature that access to electronic information can increase research productivity in education (Olakunle & Olanrewaju, 2019). Research and its productivity depend on the quantity and quality of information received and used. This depends on the professional reader's level of ability to access digital information (Okiki, 2013; Okiki and Mabawonku, 2013; Barjak, 2006; Madu & Dyck,

2012). Digitally illiterate researchers may spend a lot of time collecting information because they have difficulty finding information, especially electronic information. To store information on the open web, subjects need digital literacy skills. Evidence from the research literature shows that frequent use of the Internet for information acquisition and communication is associated with an increase in the quality and quantity of scientific publications (Barjak, 2006; Lin, 2001). For this reason, digital literacy is considered important in education and profession, especially in the research of academic staff.

Commenting on the interconnection between digital literacy skills and the research output of academics, a study by Simisaye and Popoola (2019) highlighted a correlation between Information Literacy Skills (ILS), which encompasses the adept use of digital information resources, and the research productivity of academic staff in Nigerian higher institutions. Similarly, Nwosu et al. (2015) examined the relationship between ILS and the research productivity of 1,038 academic staff at Nnamdi Azikiwe University, Awka, Nigeria, utilizing a correlation research design. The findings indicated a significant connection between the possessed ILS of academic staff and their research output, further demonstrating a positive correlation.

Afolabi and Oladokun (2020) delved into a study on information literacy skills and the availability of information resources as factors influencing the research productivity of academic staff at Lead City University, Nigeria. The research unveiled a substantial relationship between information literacy skills and research productivity among scholars at Lead City University ( $R = 0.937$ ,  $F=1.435$ ,  $P < 0.05$ ). The coefficient of determination (Adjusted R Square = 0.878) suggests that 88% of the total variations in research productivity can be attributed to changes in the independent variable (information literacy skills). The significant table value of 0.001 ( $P < 0.05$ ) implies the rejection of the hypothesis, affirming a relationship between information literacy skills and research productivity.

Despite the relevance of research and the importance of being productive in research, there seems to be low productivity in research among librarians in Delta and Edo State. Also, despite the increasing use of digital technologies in university

libraries and by librarians in particular, there is a concern that librarians' digital literacy skills may not be adequate to support effective research productivity. Personal observation/interactions with fellow librarians within Delta and Edo State showed low research productivity. Many noted that they only publish as low as one or two publications in a year. This low productivity in research has raised concern in the mind of the researcher. Could it be that librarians lack the requisite digital skills to be productive in research, especially in this ICT era? It is based on this question that this study was undertaken.

### Objectives of the Study

The main objective of this study is to examine librarians' digital literacy skills and research productivity in university libraries in Delta and Edo States, Nigeria. Specifically, this study seeks to:

1. ascertain the types of digital skills possessed by librarians in university libraries in Delta and Edo States, Nigeria;
2. find out the extent of digital skills possessed by librarians in university libraries in Delta and Edo States, Nigeria;

3. investigate the level of librarians' research productivity in university libraries in Delta and Edo States, Nigeria; and
4. find out the relationship between librarians' digital skills and research productivity in Delta and Edo States, Nigeria university libraries.

### Methodology

The descriptive survey research design was adopted for the study. The population of the study comprised 130 librarians. This constitutes the total number of librarians practicing in fifteen (15) university libraries across Delta and the Edo States. The entire population of the study will be sampled using the total enumeration sample technique because of the small and manageable size of the population. The instrument that will be used for this study is the questionnaire. A total of 130 copies of the questionnaire were distributed and returned. There was therefore 100% response rate. The data obtained from the questionnaire was analyzed using simple percentages, descriptive and inferential statistics. The criterion mean was placed at 2.50.

## Results

### Types of Digital Skills Possessed by Librarians

**Research Objectives 1:** Types of digital skills possessed by librarians in university libraries in Delta and Edo States, Nigeria.

**Table 1:** Types of Digital Skills Possessed by Librarians

S/N	Digital Skills	Frequency	Percentage (%)
1.	Skills to turn a computer on, open a folder, copy a file from one disc to another, scan, etc.	130	100.0
2.	Skills to utilize information databases such as Online Public Access Catalogue (OPAC).	130	100.0
3.	Electronic mailing and Internet surfing Skills.	130	100.0
4.	Skills to operate word processors and spreadsheets.	130	100.0
5.	Skills to utilize social networking tools	130	100.0
6.	Skills to utilize the e-conferencing tool.	130	100.0
7.	Skills to utilize online bibliographic instruction and software.	130	100.0
8.	Web design and development Skills	130	100.0
9.	Skills to utilize different digital tools such as laptops, iPads, Smartphones, tablets, etc.	130	100.0
10.	Skills to upload and download digital information.	130	100.0

From Table 1, it can be concluded that all the librarians possessed digital skills such as skills to turn a computer on, open a folder, copy a file from one disc to another, scanning, etc., electronic mailing, and Internet surfing, skills to utilize social networking tools, skills to utilize online bibliographic instruction and software,

skills to utilize different digital tools such as laptops, iPads, Smart-phones, tablets, etc.

### Extent of Digital Skills Possessed by Librarians

**Research Objectives 2:** Extent of digital skills possessed by librarians in university libraries in Delta and Edo States, Nigeria.

**Table 2:** Extent of Digital Skills Possessed by Librarians

S/N	The extent of digital skills possessed by librarians	VHE	HE	LE	VLE	Mean
1	I can turn a computer on, open a folder, copy a file from one disc to another, scan, etc.	83	36	11	0	3.55
2	I can use information databases such as Online Public Access Catalogue (OPAC).	80	42	5	3	3.53
3	I have the skills to utilize electronic mailing and can surf the Internet.	96	31	3	0	3.72
4	I can operate and utilize word processors and spreadsheets.	98	30	2	0	3.74
5	I can independently make use of social networking tools	87	23	11	9	3.45
6	I can independently make use of the e-conferencing tool.	90	27	5	8	3.53
7	I can independently make use of online bibliographic instruction and software.	72	44	8	6	3.40
8	I can independently design a Web Page or Website.	25	11	53	41	2.15
9	I can independently use different digital tools such as laptops, iPads, Smartphones, tablets, etc.	95	35	0	0	3.73
10	I can independently upload and download digital information.	96	29	5	0	3.70
<b>Aggregate Mean</b>						<b>3.45</b>
<b>Criterion Mean</b>						<b>2.50</b>

With an aggregate mean of 3.45 which is greater than the criterion mean of 2.50, it can be concluded that the extent of possession of digital skills by librarians in university libraries in Delta and Edo States, Nigeria is high.

### Librarians' Research Productivity

**Research Objective 3:** Level of librarians' research productivity in university libraries in Delta and Edo States, Nigeria

**Table 3: Librarians' Research Productivity**

S/N	Level of Librarians' Research Productivity in University Libraries	6 and Above yearly (EP)	4-5 Yearly (VP)	2-3 Yearly (P)	1-None Yearly (NP)	Mean
1.	Publishing of Textbooks	0	0	2	128	1.02
2.	Chapters in a Book	0	35	54	41	1.95
3.	Articles in Journals	15	47	36	32	2.35
4.	Paper Presentation at Conferences	0	29	68	33	1.97
5.	Publishing of Technical Reports	0	0	68	62	1.52
6.	Publishing of Monographs	0	0	45	85	1.35
7.	Publishing of Newspaper Articles	5	16	64	45	1.85
<b>Aggregate Mean</b>						<b>1.72</b>

**Criterion Mean****2.50**

With an aggregate mean of 1.72 which is less than the criterion mean of 2.50, it can be concluded that the level of librarians' research productivity in university libraries in Delta and Edo States, Nigeria is low.

**Relationship between Librarians' Digital Skills and Research Productivity**

**Research Objective 4:** Relationship between librarians' digital skills and research productivity in university libraries.

**Table 4:** Relationship between Librarians' Digital Skills and Research Productivity

Model	R Square		Sum of Squares		Mean Square		F	Sig.
	B			df				
1	Regression	.723	-.877	28.685	1	28.685		
	Residual		.751	11.001	128	.086	333.768	.000
	Total			39.685	129			

From Table 4, a significant regression equation was found ( $F(1,128) = 333.768, p < 0.000$ ), with an  $R^2$  of 0.723. It was found that librarians' possession of digital skills predicted their research productivity ( $-.877 + .751$ ) by 72% implying a very high prediction. The null hypothesis is therefore rejected implying that there is a significant relationship between librarians' digital skills and research productivity in university libraries in Delta and Edo States, Nigeria. This means that an increase in librarians' digital skills will lead to a corresponding increase in their research productivity.

**Discussion of Findings**

This study found that librarians in university libraries in Delta and Edo states possessed digital skills such as skills to turn a computer on, open a folder, copy a file from one disc to another, scanning, etc., electronic mailing and Internet surfing, skills to utilize social networking tools, skills to utilize online bibliographic instruction and software, skills to utilize different digital tools such as laptops, iPads, Smart-phones, and tablets. In line with Ugwuanyi's (2009) identification of essential digital skills for professionals in modern libraries, which encompass basic computer

operations, mastery of application software, and proficiency in using the World Wide Web for activities like online discussions and emailing attachments, this study similarly observed a high level of possession of digital skills among librarians in university libraries in Delta and Edo States, Nigeria. This aligns with Osinulu's (2021) findings that library officers in state and federal universities in Ogun state, Nigeria, demonstrate a high level of digital literacy competence.

Supporting these findings, Okeji et al. (2020) reported that a significant number of respondents in their study confirmed their ability to use various digital devices such as laptops, smartphones, iPads, and desktops. Additionally, they indicated their participation in social networks like LinkedIn and Facebook, possession of critical thinking skills, possession of email addresses, and membership in the Nigerian Library Association online forum. These collective observations underscore the widespread digital literacy and competency among librarians in the specified regions and emphasize their engagement with a variety of digital tools and platforms.

In contrast to Okonedo's (2015) findings regarding the publication productivity of librarians in public universities in the South West region of Nigeria from 2009 to 2014, this current study reveals a comparatively low level of research productivity among librarians in university libraries in Delta and Edo States, Nigeria. Furthermore, the study establishes a significant relationship between librarians' digital skills and their research productivity in these regions. This implies that an enhancement in librarians' digital skills is correlated with an increase in their research productivity, aligning with the findings of Afolabi and Oladokun (2020), who identified a substantial relationship between information literacy skills and research productivity among scholars at Lead City University.

### Conclusion and Recommendations

The study was carried out to examine

librarians' digital literacy skills and research productivity in Delta and Edo State, Nigeria. This study has established that librarians in university libraries in Delta and Edo states possessed digital skills such as skills to turn a computer on, opening a folder, copying a file from one disc to another, scanning, etc., electronic mailing and Internet surfing, skills to utilize social networking tools, skills to utilize online bibliographic instruction and software, skills to utilize different digital tools such as laptops, iPads, Smart-phones, tablets, etc.; the extent of possession of digital skills by librarians in university libraries in Delta and Edo States, Nigeria is high. It is also safe to conclude from this study that the level of librarians' research productivity in university libraries in Delta and Edo States, Nigeria is low. Conclusively, there is a significant relationship between librarians' digital skills and research productivity in Delta and Edo states university libraries. Based on the findings, the researcher recommends that:

1. Librarians should keep updating their digital skills through training, conferences, and seminars to become productive in research.
2. Librarians should intensify their efforts in conducting qualitative research that can improve their overall productivity research-wise.
3. The government through the library management should make research grants available for librarians as this will encourage them to be more serious and comfortable when conducting research.

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