

Influence of Research Skills on Librarians' Research Productivity in Public Universities, North-West, Nigeria

Khali Allahmagani, Yemisi T. Babalola and Vincent E. Unegbu,
Babcock University,
Ilishan-Remo, Ogun State, Nigeria.
Khad711@yahoo.com,
babalola@babcock.edu.ng,
unegbu@babcock.edu.ng

productivity by recognising and granting incentives to productive librarians.

Keywords: Librarians' Productivity, Research Skills, Universities, Nigeria

Abstract

Survey research was conducted to determine the influence of research skills on librarian's research productivity in public universities in North-West Nigeria. The population comprised 373 librarians working in 18 public universities in the zone. Stratified sampling technique was used to select a sample size of 193 from the population. Data was collected with a structured, validated questionnaire. The instrument was pretested among librarians at Tafawa Balewa University, Bauchi, North-East zone. Cronbach's alpha reliability was 0.809 for research productivity and 0.908 for research skills. A response rate of 93% was achieved and the data was analysed with Spearman correlation regression. Findings revealed that research productivity (mean 1.81) was low while research skills (mean of 3.06) was high. There was no significant influence of research skills on research productivity. Possibly, other factors than research skills influence the research productivity of librarians in public universities in North-West Nigeria, hence the study recommended the management of universities should motivate librarians towards improving research

Introduction

Research productivity is one of the mandates that institutions of higher learning need to fulfil. The output of knowledge is measured based on its production and its dissemination shown by the numbers of published articles. Scholars' research activity in Africa and around the globe is measured by the number of journal articles produced in peer-reviewed journals, books, monographs, co-authored books edited works among others. Furthermore, the other indicators include the number of technical reports and patent some academics produced during their research. Also, research findings published in varying formats serve as secondary data for researchers inputs in policy formulation and innovative solutions to improve the lives of citizens. As highlighted by Jalal (2020,) research productivity is an index that best characterises the submission of papers in conferences, publication of books and other scientific output in the context of higher education. Several studies have evaluated the research productivity of scholars using a quantitative measure that includes the number of books, journals, patents, and technical reports (Atanda and Olasupo, 2019; Simisaye, 2019; Mbachu and Unachukwu, 2022; Haruna, Gbem-Ogunleye, 2023).

Academic librarians are required to publish papers as part of the requirements for career growth

and sometimes access to research grants. Increasingly, funding bodies do a background check of applicants' research productivity as part of the criteria for grant eligibility and this had enabled prolific scholars to receive developmental interventions from host communities (Agarwal and Tu, 2022). The studies of Hollister and Jensen (2022) and Zhao, Pan and Hua (2021) reported the high research productivity among librarians, while Lund and Maurya (2021) observed that American librarians had more publications than India librarians. Low research productivity was reported among academics in Nigeria (Oyeyemi et al. 2022; Simisaye 2019; Adamu 2022 and Umar and Babalola (2021). Simisaye's (2019) survey revealed low research productivity among academics. The author observed that librarians predominantly publish journal articles and conference proceedings, but other formats of publishing were less emphasised. Similarly, Oyeyemi et al. (2022) reported low research productivity levels among academic staff of federal universities of Medicine and allied Health Science; and Fabunmi (2022) discovered a similar trend in private universities. Umar and Babalola's (2021) and Adamu (2022) reported low research productivity among librarians in public universities in the North East.

The implication of low research productivity includes career stagnation and lack of empirical data for policy formulation. Low research productivity may hinder librarians' ability to access research grants, contribute to local production of academic resources and limit their representation at international fora (Oyeyemi et al., 2022). This implies that if librarians do not participate in research to improve their productivity levels, they may not be invited to support policies affecting the profession in their country nor receive support for developmental projects. Low research productivity may be attributed to a lack of time for team research. Igiri et al. (2021) and Iqbal et al. (2018) identified heavy work schedules, commitment to family obligations, distrust, and fear of assigning proper authorship based on merit as reason for not being productive. However, a level of competence in research skills is required to execute and publish articles.

Research skill constitutes the competencies applied during execution of research project. They are referred to as information literacy skills and self-

efficacy skills (Moradi, Zargham-Boroujeni and Soleymani, 2020). Librarians apply research skills to pursue educational goals during topic selection, literature search, arrangement of bibliography, its appraisal, and ethical conduct of research writing (Gyuris, 2018). The research skills required for research productivity include in this study: critical thinking, problem solving, communication, research design skills and data management skills. Borrego, Ardanuy and Urbano (2018) associated research skills of librarians with greater cognitive skills and literature review skills for producing quality research. Shajitha (2020) on the other hand is of the view that data management skills enable researchers to reduce incidences of misplaced data, corrupted files, and loss of essential data that delays retrieval time in project execution thus enhancing decision making during research.

Academic librarians are required to publish papers for several reasons, career progression, access to research grants, research visibility, to earn their institution's ranking, and earn royalties from intellectual product of research. Despite the importance of research publication to the career of librarians, low research productivity has been reported among them by various scholars (Fabunmi, 2022; Okeji, 2018; Simisaye and Popoola, 2019). Low research productivity is a major challenge that can lead to career stagnation for librarians (Adetayo et al., 2023). Research productivity may be hindered without the requisite skill sets. Academics confident of their research skills are likely to engage in research activities. Preliminary investigation by the researcher indicates that some librarians in public universities, North-West, Nigeria have been on the same cadre because of low research productivity. The literature on research productivity shows scarcity of studies of research productivity of librarians in North-West, Nigeria.

Objectives of the Study

The objective of the study is to find out the influence of research skills on research productivity of librarians in public universities, North-West, Nigeria. The specific objectives are to:

1. ascertain the level of research productivity of librarians in public universities, North-West, Nigeria.

2. determine the level of research skills of librarians in public universities, North-West, Nigeria.
3. find the influence of research skills on research productivity of librarians in public universities, North-West, Nigeria.
4. determine the influence of the indicators of research skills on research productivity of librarians in North-West, Nigeria.

Research Questions

The following questions are answered in the study by answering two research questions and two hypotheses below:

1. What is the level of research productivity of librarians in public universities in North-West, Nigeria?
2. What is the level of research skills of librarians in public universities in North-West, Nigeria?

Hypotheses

The following hypotheses were tested at 0.05 level of significance:

- H01: Research skills have no significant influence on research productivity librarians in public universities in North-West, Nigeria.
- H02: Research skills indicators have no significant influence on research productivity of librarians in public universities, research skills North-West, Nigeria.

Literature Review

The quest for academics to meet university regulations concerning number of publications for promotion has made research productivity an essential activity for tenure staff employed in institutions of higher learning. The ivory towers of knowledge use research to solve society's problems, produce literature for knowledge transfer and participate in scholarly debate with colleagues across the globe. As academic engage in research publications of scholars, they become more visible in the use of research products. Academic visibility received from research productivity has earned

researchers' invitations to serve as policy formulators, peer reviewers or external examiners. Institutions of higher learning take premium on the productivity of their academics as a way of increasing their webometric ranking.

Research products are published in diverse formats and accessible to researchers through published works. The published works include books, journal articles, conference proceedings, and unpublished works such as oral presentations, posters, grants, community works and supervision of postgraduate students (Adetomiwa and Okwilagwe, 2018). In contrast, the quality and impact of research productivity apply more to bibliometrics studies that emphasise H-index and citation (Jabeen *et al.*, 2015). Abramo and D' Angelo (2017) defined research productivity as the number of published articles produced by scholars in research institutions, measured by the H-index, that is the number of publication as well as the citations authors receive from articles. Also, the researcher observed that some librarians in developing countries publish their research in publishing outlet that are not visible online, hence the use of citation and h-index reduces their productivity count. In this study research productivity is defined as the number of published scholarly works such as journals, books, patent, conference proceedings, monographs and co-authored textbooks produced by librarians in public universities in North-West, Nigeria within a period of three years. Although measuring the H-index and google citation of authors may be more appropriate.

Research productivity has been measured by tangible and intangible outcomes that include the various products produced from research. The tangible products include number of published textbooks, patents, journal articles, proceedings, and grants received for research purpose. The intangible outcomes refer to the contributions of academics to curriculum design, participation in community service, and the supervision of postgraduate students (Adetomiwa and Okwilagwe, 2018). Research productivity may be hindered without the requisite skill sets as certain level of competence is required to engage in research activities.

Research skills are the competencies required for the execution of a research project and is sometimes referred to in the literature as information literacy skills or meta-cognitive skills (Moradi,

Zargham-Boroujeni and Soleymani, 2020). According to Porozovs and Grosberga-Merca (2021), cognitive skills are applied for problem identification, drafting article titles, conceptualising construct, selecting research methodology, designing research instruments, and data analysis. Working with peers helps in the acquisition of skills like critical thinking and problem-solving. Some institutions of higher learning have incorporated research skills' development to build the research capacity of their scholars. Doctoral students are expected to be proficient in research skills' application to scholarly work hence the minimal support given by supervisors (Mydin et al.; 2021). A scholar with competences in research skills would spend less time on a task than one without such capabilities.

Previous studies have established the connections between research skills and research productivity of librarians. Okonedo (2015) surveyed librarians in public universities in Nigeria and found that high self-concept in terms of ones confidence to perform research correlated with research productivity, implying that the higher the research skills of librarians, the higher their research productivity. Similarly, Simisaye and Popoola (2019) administered 783 copies of questionnaire to academic staff working in a research institute with five percent being librarians. The findings indicated that research skills correlated with research productivity. Also, Igbokwe, Benson and Enem (2019) observed that librarians' research skills correlated with quality of research produced. The authors studied the determinants of quality research output by librarians in eight universities in the South-East, Nigeria. Copies of questionnaire designed were administered to 109 librarians in eight universities. The result revealed that research skills correlated with quality of research output produced by librarians.

Another study by Crampsie, Neville and Henry (2020) analysed the skills and behaviour leading to librarians' research productivity. An on-line survey was administered to practising librarians in the United States and Canada. The result showed that librarians were more competent in literature search, reviews, and manuscript development than other skills. Their finding aligned with that of Borrego and Pinfield (2020) which revealed that librarians were competent in various research skills ranging from literature review, literature search, management of

referencing tools and to a lesser degree skills in data analysis and writing skills used in interdisciplinary research with other scholars. Research skills are essential to research productivity. The study of Anderson et al. (2022) revealed an improvement in librarians' methodological skills and abilities to analyse data using appropriate statistical methods after attendance at a training program. Additional papers were published with the skills acquired leading to improved research productivity level.

Despite the importance of research skills in enhancing librarians research output, studies have shown that librarians lacked such skills. Bhardwaj's (2017) study investigated the research activities of library and information science professionals in India. The findings revealed that academic librarians lacked data analysis and data collection skills. Also, Tahsildar and Husani (2021) reported that academics had average research skills while writing, methodological and research productivity were at a low level. Also, Kozoka and Wema's (2020) analysed factors influencing research capacity developments in four higher education institutions in Tanzania using mixed method research design. Their findings revealed that training improved their research skills even though they still lacked grant writing skills. The lack of research skills among librarians was also reported by Lund et al. (2021). The finding of the study revealed that academic librarians faced challenges in engaging in collaborative research due to inadequate knowledge of research methodology, editorial and communication skills.

Methodology

The universities chosen for the study comprised both federal and state universities. The states are Kaduna, Kano, Katsina, Kebbi, Jigawa, Sokoto and Zamfara States. The survey research design was employed for this investigation. The study's population comprised 373 librarians working in 18 public universities in North-West, Nigeria (Administrative offices of the University libraries of the institutions 2022). A sample size of 193 was derived using Taro Yamane's formula.

$$N = N/1 + N(e)^2$$

Where:

n signifies the sample size

N signifies the population under study	$n=373/1+373(0.0025)$
e signifies margin of error	$n=373/1+0.9325$
$n=x/1+x(0.05)^2$	$n=193.25=193$
$n=373/1+373(0.05)^2$	

Table 1: List of librarians in Federal and State University Libraries in North-West, Nigeria

S/N	Name of University	Age (year of establishment)	Population of Academic Librarians	Sample of Academic Librarians used
Federal Universities				
1	Ahmadu Bello University, Zaria	1962	138	72
2	Bayero University, Kano	1964	56	29
3	Nigerian Defense Academy Kaduna	1964	9	4
4	Usman Danfodiyo University	1975	14	5
5	National Open University (Kaduna Center)	1983	5	5
6	Nigeria Police Academy Wudil	1988	8	6
7	Federal University, Dutsin-Ma, Katsina	2011	10	4
8	Federal University, Dutse, Jigawa	2011	10	5
9	Federal University, Birnin Kebbi	2013	8	7
10	Federal University, Gusau Zamfara	2013	11	2
State Universities				
11	Aliko Dankote University of Science and Technology, Wudil	2001	12	6
12	Kaduna State University, Kaduna	2004	27	14
13	Kebbi State University of Science and Technology, Alero	2006	9	5
14	Umaru Musa Yar-Adua University	2006	17	9
15	Sokoto State University	2009	9	5
16	Yusuf Maitama University, Kano	2012	17	9
17	Sule lamido University, Kafin Hausa Jigawa	2013	8	4
18	Zamfara State University	2018	5	2
Total			373	193

Sources: Administrative offices of the University libraries of the institutions (2022) Yamane formula for calculating Sample

Stratified sampling technique was used to select the respondents. The stratified sampling technique was chosen because the librarians were drawn from 10 Federal and 8 State universities. The number of librarians in each institution varies based on their year of establishment. For example, Ahmadu Bello University Zaria, Bayero University Kano, and Kaduna States University have existed for 15 years and above, compared to other newly established universities, this explains the small number of librarians in other institutions. Prior to administering the research instrument, a verified questionnaire was pre-tested at Tafawa Balewa University, Bauchi

state, from another zone in Nigeria. (North East Zone) The Kaiser-Meyer-Olkin (KMO) result for research productivity was 7.44 while research skills indicators ranged from 0.600 - 0.809.

Data was collected by the researcher and three trained research assistants within three weeks in the first quarter of 2023 from February 11th to March 3rd. The training was to help minimise errors and improve the quality of data collected. Informed consent was obtained before administering the research instrument to willing librarians. The response rate of questionnaire was 93%. Descriptive statistics, simple count and Spearman Correlation and Regression Analysis were used to analyse the data.

Data Analysis, Results and Discussion of Findings

Table 2: Demographic Characteristics of Librarians

Demographic variable		Frequency (n)	Percent (%)
Gender	Male	129	71.3
	Female	51	28.3
	Total	180	100
Age (years)	below 40	68	37.8
	50-59	19	10.6
	60 and above	6	3.3
	Total	180	100
Highest qualification	MLIS	153	85
	Ph.D.	27	15.0
	Total	180	100
Designation	Assistant Librarian	36	20
	Librarian I	39	21.6
	Senior Librarian	40	22.2
	Principal Librarian	14	7.8
	Deputy Librarian	5	2.8
	University Librarian	1	0.6
	Total	180	100
Years of Experience	Below 10yrs	114	63.3
	11-20yrs	52	28.9
	21-30yrs	7	3.9
	30yrs and above	7	3.9
	Total	180	100

Table 2 shows the analysis of demographic characteristics of the respondents. The result of gender distribution indicates that 129 (71.3%) respondents were males while 51(28.3%) were females, meaning there were more male respondents. The distribution by age shows that 68 (37.8%) were below 40 years, 87 (48.3%) were within 40 to 49 years, and 6 (3.3%) were 60 years and above. Also, the majority 153 (85%) have master's degree while 28 (15) % have a PhD. This shows that librarians working in universities North-

West, Nigeria had the minimum requirement as academic librarians. The librarians' designation is mostly Librarian II representing 45 (25%) followed by senior librarians 40 (22%). In terms of years of experience, 114 (63.3%) had been in service for less than 10years, 52 (28.9%) have spent 11-20 years in service, 7 (3.9%) were between 21-30 years while another 7(3.9%) have spent 30years and above in service.

Research Question 1: What is the level of research productivity of librarians in public universities in

Table 3: Level of Research Productivity of Librarians in Public Universities in North-West, Nigeria

Types of Publications	Very High Level (4)	High Level (3)	Low Level (2)	Very Low Level (1)	Mean	SD
Journals articles	70 (38.9%)	35 (19.4%)	52 (28.95)	23 (12.8%)	2.84	1.08
Conference Proceedings	27 (15%)	35 (19.4%)	42 (23.3%)	76 (42.2%)	2.07	1.10
Textbooks	14 (7.8%)	22 (12.2%)	38 (21.1%)	106 (58.9%)	1.69	0.97
Technical reports	16 (8.9%)	16 (8.9%)	39 (21.7%)	109 (60.6%)	1.66	0.97
Co-authored textbooks	19 (10.6%)	13 (7.2%)	29 (16.1%)	119 (66.1%)	1.62	1.01
Book chapters	8(4.4%)	22 (8.9%)	41 (22.8%)	109 (60.6%)	1.61	0.87
Monographs	10(5.5%)	19 (10.6%)	22 (12.2%)	129 (71.7%)	1.50	0.89
Scientific peer-reviewed bulletins	7(3.9%)	19 (10.6%)	28 (15.6%)	124 (68.9%)	1.49	0.84
Grand Mean					1.81	0.97

Table 3 shows the level of research productivity among university librarians in public universities North-West, Nigeria. The grand mean of 1.81 (SD=0.92) revealed a low-level research productivity of librarians in public universities North-West, Nigeria. However, the level of research productivity on journal publication was high (mean 2.84) while others were low, conference proceedings (mean 2.07) and scientific peer review (mean 1.49). The findings is in accordance with the work of Okeji (2018) which reported low research productivity among librarians working in university libraries in Nigeria. Low research productivity among North West, Nigeria academic could be attributed to librarians low research motivation (Ogunode, ThankGod and

Ayoke 2023). Thus, situating a university where researchers and citizens are unenthusiastic on research may have a negative influences research productivity of librarians in North-West, Nigeria. Finding further showed that journal publication was the most preferred form of research publishing implying that librarians working in public universities in North-West zone preferred this channel of disseminating research output to others. This is perhaps due to the high rating accorded journal articles for promotion purpose in institutions of higher learning.

Research Question 2: What is the level of research skills of librarians in public universities in North-West, Nigeria?

Table 4: Level of Research Skills of Librarians in Public Universities in North-West, Nigeria

Research Skills of Librarians	Very High (4)	High (3)	Low (2)	VL (1)	Mean	Std.
Research design skills					3.22	0.66
My ability to administer the research instrument for data collection is ...	68 (37.8%)	99 (55 %)	11 (6.1%)	2 (1.1%)	3.29	0.63
My ability analyze main ideas of a scientific article is ...	67 (37.2%)	98 (53.3%)	16 (8.9%)	1 (0.6%)	3.27	0.64
My ability to select appropriate data collection instrument is	62 (34.4%)	99 (55%)	17 (9.54%)	2 (1.1%)	3.23	0.66
My ability to determine sample size is ...	52 (28.9%)	110 (61.1%)	15 (8.3%)	3 (1.7%)	3.17	0.64
My ability to use the appropriate method for data analysis is ...	61 (33.9%)	89 (49.4%)	26 (14.4%)	4 (2.2%)	3.15	0.74
Critical thinking skills					3.09	0.68
My ability to reflect as I read a scientific article is ...	61 (33.9%)	99 (55%)	13 (7.2%)	7 (3.9%)	3.19	0.73
My ability to analyze main ideas of a scientific article is	51 (28.3%)	107 (59.4%)	19 (10.6%)	3 (1.7%)	3.14	0.66
My ability to develop a focused and systematic way of thinking is ...	48 (26.7%)	110 (61.1%)	18 (10%)	4 (2.2%)	3.12	0.67
My ability to Interpret data and graphics is ...	41 (22.8%)	109 (60.6%)	26 (14.2%)	4 (2.2%)	3.04	0.68
My ability to logically draw conclusions from the research outcome is ...	33 (18.3%)	114 (63.3%)	28 (15.6%)	5 (2.8%)	2.97	0.67
Communication Skills					3.09	0.67
My ability to prepare research abstract is ...	77 (42.8%)	85 (47.2%)	16 (8.9%)	2 (1.1%)	3.32	0.69
My ability to use reference according to rules of scientific writing in paraphrasing text is ...	72 (40%)	92 (51.1%)	16 (8.9%)	0 (0%)	3.3	0.63
My ability to write manuscript that is logical and readable is ...	43 (23.9%)	114 (63.3%)	22 (12.2%)	1 (0.6%)	3.11	0.61
My ability to present orally the result of a review of scientific literature is ...	40 (22.2%)	99 (55%)	33 (18.3%)	7 (3.9%)	2.96	0.70
My ability to prepare manuscript for publication free of grammatical errors is ...	26 (14.2%)	112 (62.2%)	34 (18.9%)	8 (4.4%)	2.87	0.75
Problem solving Skills					3.05	0.69
My ability to approach complex issues in a variety of ways is ...	45 (25%)	115 (63.9%)	13 (7.2%)	7 (3.9%)	3.10	0.68
My ability to Suggest areas for further studies is ...	48 (26.7%)	103 (57.2%)	22 (12.2%)	7 (3.9%)	3.07	0.73
My ability to select the best solution from several options in investigative studies is ...	38 (21.1%)	118 (65.6%)	19 (10.6%)	5 (2.8%)	3.05	0.65
My ability to make persistent effort to solve research questions and not be discouraged is ...	41 (22.8%)	106 (58.9%)	28 (15.6%)	5 (2.8%)	3.02	0.70
My ability to apply result of research findings to phenomena being studied is ...	41 (22.8%)	104 (57.8%)	30 (16.7%)	5 (2.8%)	3.01	0.71

Data management skills					2.84	0.730
My ability to back up my research data regularly to prevent data loss is ...	51 (28.3%)	92 (51.1%)	30 (16.7%)	7 (3.9%)	3.04	0.779
My ability to arrange retrieved electronic resources systematically for ease of retrieval is ...	40 (%)	101 (56.1%)	35 (19.4%)	4 (2.2%)	2.98	0.713
My ability to create a data management plan for collaborative research is ...	40 (22.2%)	95 (52.8%)	40 (22.2%)	5 (2.8%)	2.94	0.745
My ability to use a standardized, naming convention for stored files is ...	21 (11.7%)	98 (54.4%)	54 (30%)	7 (3.9%)	2.74	0.712
My ability to use a codebook in documenting research process is ...	21 (11.7%)	88 (48.9%)	64 (35.6%)	7 (3.9%)	2.68	0.728
My ability to clean data, transform outliers and missed data for data analysis is ...	18 (10%)	92 (51.1%)	63 (35%)	7 (3.9%)	2.67	0.708
Grand mean					3.06	0.69

North-West, Nigeria?

Table 4 shows the level of level of research skills among public university librarians in North-West, Nigeria. The grand mean 3.06 (SD=0.69) indicates that librarian’s research skills are high. The result further reveals that research skills indicators of librarians in terms of research design skills (mean 3.22) is high, critical thinking skills mean (3.09) is high, communication skills mean 3.09 problem solving skills mean 3.05 and the other indicators are all high as displayed on the table. The result indicates the level of librarian’s research skills in public universities North-West Nigeria is high. The result aligns with

Pinfield (2020) who found that librarians possessed high competencies in some research skills but disagrees with Bhardwaj (2017) who reported low research skills among Indian librarians.

Analysis and Presentation of Research Hypotheses

The hypotheses formulated for this study were tested using Spearman Correlation and Regression Methods at 0.05 level of significance as presented in Table 5.

Hypothesis 1a: Research skills have no significant influence on librarian’s research productivity in universities in North-West Nigeria public universities.

Table 5: Influence of Research Skills on Research Productivity

			Research Productivity	Research Skills
Spearman's rho	Research Productivity	Correlation Coefficient	1.000	.033
		Sig. (2-tailed)	.	.663
	Research Skills	Correlation Coefficient	.033	1.000
		Sig. (2-tailed)	.663	.

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

**.. Correlation is significant at the 0.01 level (2-tailed).

Table 5 shows the Spearman correlation coefficient ($\rho = 0.033$) of research skills has a positive relationship on research productivity, this influence is not significant at 5% level on librarians' research productivity in public universities in North-West. The null hypothesis is therefore accepted as research skills have no significant influence on librarians' research productivity in public universities, North-West, Nigeria. The findings disagreed with those of Igbokwe, Benson and Enem (2019) and Neville, Henry (2020) and Crampsie Neville and Henry (2020). The finding that high research skills of the librarians in North-east Nigeria did not translate to

high research productivity may be attributed to the excess workload. The self-report nature of this study, in which librarians report their skills, may also be responsible for the result observed as respondents may have rated their research skills highly. Furthermore, librarians in public universities North-West, Nigeria, may not be motivated to conduct research; perhaps they could be more productive if they collaborate with other researchers.

Hypothesis 1b: Research skills indicators have no significant influence on Librarian's research productivity in public universities in North-West, Nigeria's public universities.

Table 6: Influence of Research Skills indicators on Research Productivity

			Research Productivity	Critical thinking skills	Problem solving skills	Communication skills	Data management Skills	Research design skills
Spearman's rho	Research Productivity	Correlation Coefficient	1.000	-.007	-.122	.050	.151*	.015
		Sig. (2-tailed)	.	.931	.102	.504	.042	.841
	Critical thinking skills	Correlation Coefficient	-.007	1.000	.530**	.548**	.481**	.639**
		Sig. (2-tailed)	.931	.	.000	.000	.000	.000
	Problem solving skills	Correlation Coefficient	-.122	.530**	1.000	.363**	.319**	.473**
		Sig. (2-tailed)	.102	.000	.	.000	.000	.000
	Communication skills	Correlation Coefficient	.050	.548**	.363**	1.000	.478**	.553**
		Sig. (2-tailed)	.504	.000	.000	.	.000	.000
	Data management Skills	Correlation Coefficient	.151*	.481**	.319**	.478**	1.000	.434**
		Sig. (2-tailed)	.042	.000	.000	.000	.	.000
	Research design skills	Correlation Coefficient	.015	.639**	.473**	.553**	.434**	1.000
		Sig. (2-tailed)	.841	.000	.000	.000	.000	.

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

** . Correlation is significant at the 0.01 level (2-tailed).

Table 6 presents the results of the Spearman correlation analysis of research skills indicators on research productivity. The Spearman correlation coefficient critical thinking skills ($\rho = -.007$) and problem-solving skills ($\rho = -.122$) have a negative relationship on research productivity, there was also a positive relationship of communication skills ($\rho = .050$) and research design skills ($\rho = 0.15$) on research productivity of librarians in public universities, North-West, Nigeria. The influence is not significant on librarians' research productivity in public universities in North-West, Nigeria at 0.05 level of significant. Consequently, the null hypothesis is not rejected. The study connotes that critical thinking, problem-solving, communication, and research design are not predictors of research productivity of librarians in public universities in North-West, Nigeria. On the contrary, there is no significant influence of research data management skills ($\rho = .151$) on librarians' research productivity in public universities in North-West, Nigeria at 0.05 level of significance, thus it is only data management skills indicator that predicts Librarian's research productivity of librarians in public universities, North-West, Nigeria.

Implications of the Findings

The study investigated the influence of research skills on librarian's research productivity in public universities in North-West Nigeria. However, findings of the study revealed that research skills of librarians despite being high, did not translate to improving librarians research productivity by the low level of research output published. The finding that the high research skills of librarians did not translate to high research productivity may be attributed to the non-teaching role of academic librarians and excess workload as revealed in the study. The self-report, a significant nature of this study in which librarians relied on their skills, may also be responsible for the observed result as most respondents may not want to rate their research skills as low. Furthermore, librarians in public universities in North-West Nigeria may not be motivated to conduct research alone. They may perform better by collaborating with other researchers. This implies that librarians working in public universities, North-West Nigeria are not motivated to improve their

productivity levels, hence they may continue to experience career stagnation, invisibility, dependence on others for teaching resources and inaccessibility to grants. There is urgent need for educational stakeholders and researchers to find other means of improving librarians research productivity. Establishing library schools in public universities North-West, Nigeria would enable academic librarians working in university libraries to transfer their services as teaching staff. The supervisory role to students thus allows librarians to collaborate with supervisees to research and publish additional papers.

Conclusion

The study set out to investigate the research skills on research productivity of librarians in public universities, North-West, Nigeria. Research productivity helps early career researchers and librarians to establish their career path with other benefits such as visibility, earning royalties, and recognition in their disciplinary domain. Although librarians have high research skills, their research productivity levels remain low. High research skills were identified in design of research instrument, writing abstract and literature review. The increase in research skills did not influence research productivity as expected except research data management skills indicator. The study concludes that research skills did not contribute to Librarian's research productivity in public university libraries in North-West, Nigeria.

Recommendations

The following recommendations are made based on the result of the findings:

1. Management of public universities, North-West, Nigeria should motivate librarians towards improving their research productivity through recognition and granting incentives to productive librarians. Incentives that include payment of publishing fees and recognition of productive librarians could improve research productivity.
2. Librarians working in public universities, North-West, Nigeria, should embrace other channels of sharing knowledge such as textbooks, technical reports, co-authored textbooks,

monographs, and scientific peer reviews bulletins instead of journals only.

3. Management of public universities should organise practical training programmes in publishing of research output through online platforms. This may motivate librarians to be more productive by disseminate research findings for improve service delivery.

References

- Abramo, G., D'Angelo, A. C. and Murgia, G. (2017). The Relationship among Research Productivity, Research Collaboration, and their Determinants. *Journal of Informetric*, 11 (4) 1016-1030.
- Adetomiwa, B. and Okwilagwe, A.O. (2018). Awareness and Use of Electronic Databases as Determinants of Research Productivity of Academic Staff in Nigerian Private Universities. *Global Knowledge, Memory, and Communication*, 67 (6/7) 396-411.
- Agarwal, R. And Tu, W. (2022). NIH Funding, Research Productivity, and Scientific Impact: A 20-Year Study. *Journal of General Internal Medicine*: 1-6.
- Anderson, R.K., Fisher, K., Williams, E. And Usmanov, G. (2022). Building Librarians' Research Skills through Experiential Learning. *Georgia Library Quarterly*, 59 (1) 9.
- Atanda, A. and Olasupo, I. (2018). A Survey of Academic Staff Research Output in the University of Ibadan, Ibadan, Nigeria. *East African Journal of Educational Research and Policy* 13 (1).
- Bhardwaj, R. K. (2017). Research Activities of Library and Information Science Professional in Indian Higher Educational Institutions: Competencies, Support and Engagements. *DESIDOC Journal of Library and Information Technology*, 37 (1) 30-37.
- Borrego, Á., Ardanuy, J. and Urbano, C. (2018.) Librarians as Research Partners: Their Contribution to the Scholarly Endeavour Beyond Library and Information Science. *The Journal of Academic Librarianship*, 44 (5) 663-670.
- Fabunmi, Samuel Olabode (2022). Use of Print and Non-Print Resources as Factors Influencing Research Productivity of Librarians in Private Universities in Southwest, Nigeria. *FKJOLIS* 8 (1).
- Friday, J. E. and Okeke, I.E. (2020). Relationship Between Job Satisfaction and Research Productivity of Librarians in Public University Libraries in South-South Nigeria. *UNIZIK Journal of Research in Library and Information Science*, 5 (1) 101-120.
- Gbemi-Ogunleye, P. F. (2023). Institutional Factors and Academic Staff Research Productivity in Selected Nigerian Universities. *Samaru Journal of Information Studies*, 23 (2) 159-183.
- Gyuris, E., (2018). Evaluating the Effectiveness of Postgraduate Research Skills Training and its Alignment with the Research Skill Development Framework. *Journal of University Teaching and Learning Practice*, 15 (4) 5.
- Hollister, C. and Jensen, J. (2023). Research Productivity among Scholarly Communication Librarians. *Journal of Librarianship and Scholarly Communication*, 11(1).
- Igiri, B. E., Okoduwa, S. I., Akabuogu, E.P., Okoduwa, U. J., Enang, I. A., Idowu, O. O., Abdullahi, S., Onukak, I. E., Onuruka, C. C., Christopher, O. P. and Salawu, A. O. (2021). Focused Research on the Challenges and Productivity of Researchers In Nigerian Academic Institutions Without Funding. *Frontiers in Research Metrics and Analytics*, 6 :.727228.
- Iqbal, H. M., Mahmood, K. and Iqbal, S.A. (2018). Factors Contributing towards Research Productivity and Visibility: A Case Study of Pakistan. *Libri*, 68 (2) 85-98.
- Jalal, A., 2020. Research Productivity in Higher Education Environment. *Journal of Higher Education Service Science and Management (JoHESSM)* 3 (1).

- Lund, B. D., Wang, T., Shamsi, A., Abdullahi, J., Awojobi, E. A., Borgohain, D. J., Bueno De La Fuente, G., Huerta, G. P., Isfandyari-Moghaddam, A., Islam, M. A. and Khasseh, A.A. (2023). Barriers to Scholarly Publishing among Library and Information Science Researchers: International Perspectives. *Information Development*, 39 (2) 376-389.
- Lund, B. D. and Maurya, S. K. (2021) . Research Productivity of Library and Information Science Faculty in India and the United States: A Comparison Based on Publications, Citations and H-Index. *COLLNET Journal of Scientometrics and Information Management*, 15 (1) 89-105.
- Mah, D. K. and Ifenthaler, D., (2018). Students' Perceptions Toward Academic Competencies: The Case of German First-Year Students. *Issues in Educational Research*, 28 (1) 120-137.
- Mbachu, U. C. and Unachukwu, G. O. (2022). Comparative Analysis of Research Outputs of Academics in Private and Public Universities in South - East Nigeria. *World Journal of Advanced Research and Reviews*, 13 (1) 565-575.
- Moradi, R., Zargham-Boroujeni, A. and Soleymani, M. R. (2020). Factors Related to the International Research Collaboration in the Health Area: A Qualitative Study. *Journal of Education and Health Promotion*, 9.
- Mydin, F., Rahman, R. S. A. R. A. and Mohammad, W. M. R. W. (2021). Research Collaboration: Enhancing the Research Skills and Self-Confidence of Early Career Academics. *Asian Journal of University Education*, 17 (3) 142-153.
- Ogunode, N. J., ThankGod, P. and Ayoko, V. O. . (2023) Public University Education in North-West Geo-Political Zone of Nigeria: Problems and Way Forward. *European Journal of Innovation in Nonformal Education*, 3 (1) 29-36
- Okonedo, S. (2015). Research and Publication Productivity of Librarians in Public Universities in South-West, Nigeria. *Library Philosophy And Practice*, p.1.
- Oyeyemi, A. Y., Oyeyemi, A .L., Lawan, A., Abubakar, A. and Rufai, A. (2022). Research Productivity of Academics in Medicine and Allied Health Sciences Disciplines in Nigerian Universities: A Cross-Sectional Multi-Stage Cluster Study. *Philippine Journal of Allied Science*, 6 (1).
- Pimentel, J. L. and Pimentel, J. L., 2019. Some Biases in Likert Scaling Usage and Its Correction. *International Journal of Science: Basic And Applied Research (IJSBAR)*, 45 (1) 183-191.
- Porozovs, J. and Grosberga-Merca, S., 2021. Students' and Teachers' Opinion on the Possibilities of Improving Students' Research Skills in Biology Lessons. In Rural Environment. Education. *Personality. (REEP)*. Proceedings of The International Scientific Conference (Latvia). Latvia University of Life Sciences and Technologies.
- Shajitha, C. (2020). Digital Curation Practices in Institutional Repositories in South India: A Study. *Global Knowledge, Memory, and Communication*, 69 (8/9) 557-578.
- Simisaye, A.O. (2019). A Study of Research Productivity of the Academic Staff in Research Institutes in South-West Nigeria. *Samaru Journal of Information Studies*, 19 (2) 75-99.
- Willison, J. and Buisman-Pijlman, F., 2016. Phd Prepared: Research Skill Development Across the Undergraduate Years. *International Journal for Researcher Development*, 7 (1) 63-83.
- Zhao, Z., Pan, X. and Hua, W., 2021. Comparative Analysis of the Research Productivity, Publication Quality, and Collaboration Patterns of Top Ranked Library and Information Science Schools in China and The United States. *Scientometrics*, 126: 931-95.

Khali Allahmagani holds PhD degree obtained from the Department of Information Resources Management at Babcock University, Ilishan, Ogun State, Nigeria.

Yemisi T. Babalola is Professor in the Department of Information Resources Management at Babcock University, Ilishan, Ogun State, Nigeria.

Vincent E. Unegbu is a lecturer in the Department of Information Resources Management at Babcock University, Ilishan, Ogun State, Nigeria. He had been a Seminary Librarian, a Deputy University Librarian, and a University Librarian in the same University.

