Influence of Information Literacy Skills on Research Productivity of Academic Librarians in Public Universities in North-East, Nigeria

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Abstract
Research productivity is one of the requirements for career progression of academic librarians in Nigerian public universities. Despite its importance, studies have established low level of research productivity among librarians in Nigerian universities. Information literacy skills is crucial to enhancing research productivity of academics. However, there is a dearth of literature on ILS in relation to research productivity of librarians in North-East, Nigeria. Hence, this study examined the influence of information literacy skills on research productivity of librarians in public universities in North-East, Nigeria. The study adopted survey research design. The population of the study comprised 361 librarians in public universities in North-East, Nigeria. A sample size of 190 was determined using the Taro Yamane formula. Proportionate stratified sampling technique was used to select the respondents for the study. A structured and validated questionnaire was used to collect data. Cronbach's alpha reliability coefficients for the variables ranged between 0.85 to 0.95. One hundred and ninety (190) questionnaires were administered to the respondents, out of which, 165 (87%) were returned and used for the study. Data were analysed using descriptive (frequency count, tables, percentages, mean and standard deviation) and inferential analysis (simple linear regression) statistics. Findings revealed that information literacy skills ($R^2 = 0.056$, $F(1,163) = 9.698$, $p < 0.05$) had positive significant influence on research productivity of librarians in public universities in North-East, Nigeria. The result further shows that on a 4-point scale, the level of research productivity of librarians in public universities in North-East, Nigeria, was very low (mean = 1.93) while, the level of information literacy skills was high. The study concluded that information literacy skills had contributed to the research productivity of librarians in public universities in North-East. It was recommended that librarians in public university libraries in North-East should engage in collaborative research by co-authoring textbooks and other publications in order to enhance their research productivity. Librarians in public university libraries in North-East 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.

Keywords: Information literacy skills, Librarians, Public universities, Research productivity

Introduction
Research plays a critical role in the developmental process of any nation. Countries that fail to invest in research risk the intellectual erosion of their strength and will continue to depend on other nations at a higher cost (Simisaye, 2020). Research provides an opportunity for collaboration and networking among scholars and also allows communication with peers and

experts across the world. The ranking of universities, locally and internationally, is largely based on the active research productivity of their scholars. Research productivity is an important avenue for career progression of academic librarians in Nigerian universities. Globally, no nation can rise above the volume of its research. This perhaps explains why some countries budget hugely for their research activities in order to achieve higher quality lives for their citizens (Simisaye, 2020). The developed nations such as America, China, Japan, Germany, Britain and France, attained their status through enormous investment in research and development. Consequently, The UNESCO Institute of Statistics (2018) reported the 2018 annual investment in research and development of the following countries spread across the continents of the world: United States of America, $553 billion; China, $475 billion; Japan, $185.5 billion; and Germany, $116 billion. In Africa, Egypt takes the lead with $ 6.2 billion while South Africa, $ 4.8 billion. On the other hand, Mba and Okechukwu (2019) described Africa's research productivity and Nigeria in particular as abysmally low, representing less than one percent (1%) of the world's research productivity. Similarly, South Africa with twenty (20) universities had a research output of forty-seven thousand (47,000) publications, Egypt had thirty thousand (30,000) publications, while Nigeria's research productivity stood at only ten thousand (10,000) publications despite having over one hundred and seventy (170) universities, apart from Polytechnics, Colleges of education and research Institutes (Fonn, Ayiro, Cotton, Mbithi, Mtenje & Ezeh, 2018)

Research productivity is an index which refers to the publication of papers in professional journals in form of peer-reviewed articles, books, book chapters as well as presentation of research papers in conference proceedings that are cited and acknowledged by experts in the field of study (Kpolovie & Dorgu, 2019). Okonedo, Popoola, Emmanuel and Bamigboye (2015) defined research productivity as the quality and quantity of research published as textbooks, chapters in books, journal articles, conference and workshop proceedings, occasional papers, monographs, edited books, bibliographies, abstracts and indexes.

In Nigeria, most of researches are carried out in different fields mainly by academic staff, including librarians in universities, because, it is an important yardstick for recruitment, promotion, rewards, recognition and resource allocation. Research productivity can have a beneficial impact on the local society (Jameel & Ahmad, 2020). Publications are significant aspect of academic librarians' success, because it is perceived as a measure of personal merit (Alaaraj, 2018). Librarians employed to work in Nigerian public university libraries have been accorded academic status similar to their teaching counterparts in the faculties. This was achieved during a negotiation which culminated into an agreement between the Federal Government of Nigeria and the academic staff union of Nigerian universities in 1993. Thus, all librarians with a Bachelor's degree, master degree and PhD working as staff in the library enjoy academic status by virtue of their appointments, since research is one of the mandates which academics must fulfil in order to progress. Thus, librarians are also under obligation to be productive in research and publication. Information literacy skills is one of the factors upon which successful research could be achieved.

Information literacy is becoming increasingly important in the contemporary environment of rapid technological change and proliferation of information resources. Information is available through libraries, communities, special interest organizations, media - including graphical, aural, and textual, and the Internet. Increasingly, information comes to individuals in unfiltered formats, raising questions about its authenticity, validity, and reliability and these pose new challenges for individuals in evaluating and understanding it. Information literacy is thus required for the understanding and the capacity to use information effectively. Information literacy is the ability of individual to make good, effective and ethical use of information

resources and services regardless of the formats. An information literate librarian should be able to acquire and utilize print; electronic and web-based navigation skills to access text messages, videos, audios, images, data that are needed to satisfy his information need in order to enhance his research productivity (Oyedokun, Adekunmisi, Olusanya, Buraimo & Bakre, 2019). According to Californian University Information literacy fact sheet (2000) an information literate individual should able to: determine the extent of information needed, access the needed information effectively and efficiently, incorporate selected information into one's knowledge base, use information effectively to accomplish a specific purpose and understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally. Therefore, for librarians to conduct good research, they need to exhibit high level of information literacy skills. Basically, everybody in the society is in need of information literacy skills because it improves the society's quality of life.

Despite the fact that research productivity is a major requirement for every academic librarian in public universities in Nigeria, a number of studies such as Tsafe, Basaka & Muhammed (2018) and Umar and Kabir (2018) have revealed that some librarians have not been measuring up in writing and publishing research works, particularly among those in public university libraries in Nigeria. Personal observation by the researcher points to the fact that some librarians remained on the same rank for many years perhaps as a result of low publication deficit. The low level of research productivity of librarians ultimately results in stagnation on the same rank, frustration, low morale and poor visibility locally and internationally in their field of study. The Low level of research productivity is also evident in the 2021 global universities ranking, which used publication outputs of academic staff, including academic librarians as one of the major criteria. In Nigeria, no university has made it to the list of the best 1000 universities in the world. University of Ibadan established since 1948, ranked 1231, Ahmadu Bello University, Zaria ranked 2262 and Covenant University 1370, University of Nigeria, Nsukka 1622 and University of Lagos, 1766 in terms of their visibility in the global research (Global Webometric Ranking of Universities, 2021). This is a reflection of underproductivity largely in terms of research activities.

Perhaps the low level of research productivity of librarians in university libraries could be reversed and their productivity improved, if their level of information literacy skills was higher, in the sense that, they would be able to identify and recognize their information need, locate and access, synthesize and use information resources available in different formats for their research activities. There is a dearth of literature on information literacy skills in relation to the research productivity of academic librarians especially in public university libraries in the North-East, Nigeria. In the light of the above, this study investigates the influence of information literacy skills on research productivity of librarians in public university libraries in North-East, Nigeria.

Objectives of the study
This study examined the influence of information literacy skills on research productivity of librarians in public university libraries in North-East, Nigeria.
The specific objectives of the study were to:
1. find out the level of research productivity of librarians in public university libraries in North-East, Nigeria'
2. Ascertain the level of information literacy skills of librarians in public university libraries in North-East, Nigeria
3. Determine the influence of information literacy skills on research productivity of librarians in public university libraries in North-East-Nigeria.

Research Questions

The following research questions were framed from the research objectives to guide the study:

1. What is the level of research productivity of librarians in public university libraries in North-East, Nigeria?
2. What is the level of information literacy skills of librarians in public university libraries in North-East, Nigeria?

Research Hypotheses

The null hypothesis was formulated for this study and measured at 0.05 level of significance:

H0: Information literacy skills has no significant influence on research productivity of librarians in public university libraries in North-East, Nigeria.

Methodology

Survey research design was adopted for this study. The target population of the study consisted of 361 academic librarians, drawn from fourteen (14) public Universities in the North-East geo-political- zone, Nigeria. The universities are made up of state and federal governments, located in six states namely: Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe. While the Universities are: Abubakakar Tafawa Balewa University, Bauchi, Bauchi state university, Gadau, Borno state university, Maiduguri, University of Maiduguri, Modibbo Adama University, Yola, Adamawa state university, Mubi, Federal university, Gashua, Bukar Abba Ibrahim University, Damaturu, Federal university, Kashere, Nigeria Army university, Biu, Gombe state university of Science & Technology, Kumo, Gombe state university, Gombe, Federal university, Wukari and Taraba state university, Jalingo. Taro Yamanne Formula was used to determine the sample size of 190 from the total population of 361 participants. Proportionate stratified sampling technique was adopted to select respondents based on the strata of each university under study. The instrument used for data collection is a structured questionnaire. To determine the reliability of the instrument for data collection, a pilot study was conducted by administering 30 copies of the questionnaire to academic librarians at Kenneth Dike Library, University of Ibadan, Nigeria. The result of the Cronbach's alpha value tested at 0.005 level of significance showed, Information literacy skills 0.95 and Research productivity 0.85. Data collected were analysed using descriptive statistics (frequencies, percentages, mean and standard deviation) and inferential analysis (linear regression) with the aid of Statistical Package for Service Solution Software (SPSS V26).

Results and Discussion of Findings

Response rate: A total of 190 questionnaires were administered to the respondents, out of which 165 (87%) were returned and used for this study.

The data shown in Tables 1 – 3 were collated to enable the researcher provide answers to the research questions raised in the study.

Research Question One: What is the level of research productivity of academic librarians in public universities in North-East, Nigeria?

Table 1: Level of Research productivity of academic librarians in public universities in North-East, Nigeria

Types of Publications	V H L (4) 6 and above	H L(3) 4-5	L L (2) 2-3	V L L (1) 0-1	Mean	Std
Journal articles	35(21.2%)	58(35.2%)	44(26.7%)	28(17.0%)	2.61	1.004
Conference proceedings	7(4.2%)	41(24.8%)	57(34.5%)	60(36.4%)	1.97	0.886
Textbooks	15 (9.1%)	28(17.0%)	47(28.5%)	75(45.5%)	1.90	0.992
Monographs	12(7.3%)	22(13.3%)	68(41.2%)	63(38.2%)	1.90	0.895
Book chapters	6(3.6%)	35(21.2%)	52(31.5%)	72(43.6%)	1.85	0.881
Co-authored textbooks	10(6.1%)	31(18.8%)	49(29.7%)	75(45.5%)	1.85	0.932
Technical reports	10(6.1%)	25(15.2%)	39(23.6%)	91(55.2%)	1.72	0.934
Scientific peer-reviewed bulletins	7(4.2%)	22(13.3%)	41(24.8%)	95(57.6%)	1.64	0.869
Grand Mean					**1.93**	**0.92**

Source: Researcher's Field Survey, 2021
Decision rule: 1.5 – 2.0 = Very low, 2.1 – 2.49 = Low, 2.5 – 3.49 = High, 3.5 – 4.0 = Very high.

Table 1 presents the result on the level of research productivity of librarians in public universities in North-East Nigeria. The grand mean (1.93, SD = 0.92) reveals that the level of research productivity of librarians in public university libraries in North-East, Nigeria is very low. The result revealed that the librarians' level of publishing journal articles is high (mean = 2.61) while other types of publications are very low. This result shows that North-East Nigerian public university librarians have not given serious attention to other type of publications or are not familiar with them.

Research Question Two: What is the level of information literacy skills of librarians in public university libraries in North-East, Nigeria?

Table 2: Level of information literacy skills of librarians

Information literacy skills of librarians	Very high	High	Low	Very Low	Mean	Std.
Ability to identify information need					**3.38**	**0.592**
My ability to:						
recognize a need for information and data to achieve a specific purpose is	92(55.8%)	66(40.0%)	7(4.2%)	-	3.52	0.580
define concepts of a topic for a research presentation is	71(43.0%)	84(50.9%)	10(6.1%)	-	3.37	0.597
identify different formats in which information may be provided is	71(43.0%)	81(49.1%)	13(7.9%)	-	3.35	0.623
identify different types of information that will best meet my information need is	59(35.8%)	97(58.8%)	9(5.5%)	-	3.30	0.568

Ability to locate and access information					**3.35**	**0.616**
My ability to:						
differentiate between primary and secondary sources of information is	82(49.7%)	72(43.6%)	10(6.1%)	1(0.6%)	3.42	0.636
search information resources subject, title, author and date is	77(46.7%)	76(46.1%)	12(7.3%)	-	3.39	0.622
select appropriate information search tools to access the needed information	67(40.6%)	89(53.9%)	9(5.5%)	-	3.35	0.582
construct keywords and related terms to search information for my research is	71(43.0%)	74(44.8%)	20(12.1%)	-	3.31	0.677
select appropriate electronic resources is	61(37.0%)	9155.2%)	106.1%)	3(1.8%)	3.27	0.567
Ability to evaluate information					**3.26**	**0.629**
My ability to:						
draw conclusions based upon information I got on the internet is	71(43.0%)	82(49.7%)	12(7.3%)	-	3.36	0.614
assess the quality, accuracy and relevance of information resources found on the internet is	68(41.2%)	85(51.5%)	12(7.3%)	-	3.34	0.610
cite information resources obtained from the Internet is	58(35.2%)	83(50.3%)	22(13.3%)	2(1.2%)	3.19	0.706
select information materials based on reliability, validity, accuracy, authority, currency or bias is	46(27.9%)	103(62.4%)	16(9.7%)	-	3.18	0.587
Ability to use information					**3.17**	**0.722**
My ability to:						
integrate the new and prior information to support research is	61(37.0%)	80(48.5%)	23(13.9%)	1(0.6%)	3.22	0.699
create new knowledge in research is	55(33.3%)	85(51.5%)	23(13.9%)	2(1.2%)	3.17	0.704
use a range of information technology applications in carrying out an assignment is	55(33.3%)	84(50.9%)	23(13.9%)	3(1.8%)	3.16	0.724
manipulate digital text, images, and data, as needed is	58(35.2%)	75(45.5%)	29(17.6%)	3(1.8%)	3.14	0.764

					Mean	SD
Ability to organize, apply and communicate information ethically					**3.18**	**0.695**
My ability to:						
cite bibliographic references in research reports using appropriate style (e.g. APA, Chicago) is	64(38.8%)	80(48.5%)	21(12.7%)	-	3.26	0.671
apply information resources to the problem at hand is	53(32.1%)	94(57.0%)	15(9.1%)	3(1.8%)	3.19	0.671
use computers and/or mobile technologies to create a multimedia presentation is	59(35.8%)	79(47.9%)	26(15.8%)	1(0.6%)	3.19	0.712
understand issues of copyright, plagiarism, information privacy and security in the electronic environment is	50(30.3%)	85(51.5%)	27(16.4%)	3(1.8%)	3.10	0.729
Grand Mean					**3.27**	**0.651**

Source: Researcher's Field Survey, 2021
Decision rule: 1.5 – 2.0 = Very low, 2.1 – 2.49 = Low, 2.5 – 3.49 = High, 3.5 – 4.0 = Very high.

The result in table 2 shows the level of information literacy skills of librarians in public universities in North-East Nigeria. The grand mean (3.27) and SD (0.651) indicates that the level of information literacy skill of the librarian is high. This implies that to a high extent, the librarians can identify information need, locate and access information, evaluate information, use information and organize, apply and communicate information ethically. However, there is still room for improvement. The result further reveals that the librarians' ability to recognize a need for information (mean = 3.52) is very high, the ability of the librarians to differentiate between primary and secondary sources of information (mean = 3.42) is high. The results also show that the ability of the librarians to select information materials based on reliability, validity, accuracy, authority, currency (mean = 3.18) is also high, likewise, ability to create new knowledge in research (mean = 3.17) is high and ability to understand issues of copyright, plagiarism, information privacy and security in the electronic environment (mean = 3.10) is high. This result indicates that the level of information literacy skills of the librarians in North-East, Nigeria is high.

Test of hypothesis
The hypotheses formulated for this study were tested using simple linear regression method at 0.05 level of significance and presented in the tables below.

Hypothesis: H0: Information literacy skills have no significant influence on research productivity of librarians in public university libraries in North-East, Nigeria.

Table 3: Influence of Information Literacy Skill on Research Productivity

Predictors	B	Beta (β)	T	P	R^2	Adj. R^2	F	ANOVA (Sig.)
(Constant)	0.810		2.234	0.027				
Information literacy skills	0.342	0.237	3.114	0.002	0.056	0.050	9.698	0.002

Dependent Variable: Research productivity
Predictor: (Constant), Information literacy skills
DF (F-Statistic) = 1, 163

Source: Field Survey Results, 2021

Table 3 shows the simple linear regression analysis result for testing of the formulated hypothesis. The independent variable (information literacy skills) was regressed against the dependent variable (research productivity). The result shows that information literacy skills (β=0.237, t (164) = 3.114, $p < 0.05$) had a positive and significant influence on research productivity of librarians in North-East Nigerian public universities. The R^2 (0.056) of the regression model indicate that 5.6% of the change in research productivity is explained by information literacy skills. The F (1, 163) = 9.968, $p < 0.05$ shows that the regression model developed from Table 4.6 can be used in research productivity. The established simple linear regression model is:

RP = 0.810 + 0.342 ILS + u …………………………………….Model 1

Where:

RP = Research productivity

ILS = Information literacy skills

u = Stochastic error term (Those variables that can influence RP but are not captured in the study)

The regression model shows that holding information literacy skills constant at zero, research productivity would be 0.810. This implies that in the absence of information literacy skills, research productivity would still be effective since other vital factors (denoted by u) not investigated in the study can still improve research productivity without information literacy skills. The model also shows that improving information literacy skills by one unit on a measurement scale will increase research productivity by 0.342 (34.2%). This result showed that information literacy skills is a significant predictor of research productivity of librarians in North-East, Nigeria public universities. This implies that the level of information literacy skill of the librarians can influence their research productivity. Therefore, the null hypothesis was rejected. Hence, public universities that fail to improve the information literacy skills of their librarians will be less effective in research productivity based on the fact that they did not take into consideration the information literacy skills of their librarians. This result suggests that when public universities in North-East, Nigeria provide an enabling environment where the information literacy skills of librarians are nurtured, research productivity of librarians will increase.

Table 4: Summary of results on the research hypotheses

Research Hypotheses	Findings	Remark
Ho₁: Information literacy skills have no significant influence on research productivity of librarians in public universities in North-East, Nigeria.	$R^2 = 0.056$, Adjusted $R^2 = 0.050$ $F(1, 163) = 9.698$, $p < 0.05$	Ho₁ rejected

Discussion of Findings

This study examined information literacy skills and research productivity of librarians in public universities in North-East, Nigeria. This section reports the findings of this study and discusses them in line with previous scholarly literature. The research questions and hypotheses drawn for the study were intended at determining the influence of information literacy skills on research productivity of librarians in public universities in North-East, Nigeria.

Research question one sought to find out the level of research productivity of librarians in public universities in North-East, Nigeria. The study found that the level of research productivity of librarians in public university libraries in North-East, Nigeria is very low. This low level of research productivity of librarians found out in this study is consistent with the submission of Simisaye (2019) which indicated that the level of research activity of academic staff in research institutes in South-West, Nigeria is very low. Adetomiwa (2018) also made similar observation regarding the low research productivity of academic staff in Nigeria. This finding also agrees with the finding of Lawal and Olawale (2020) who asserted that the level of productivity of librarians in Bowen University is low. On the other hand, this finding disagreed with the finding of Okonedo (2015) who found that there is a high level of research productivity of librarians in public universities in South-West, Nigeria. Also, a report released by the University World News on the proportion of publications from Nigeria in comparison with other African countries also corroborated the low level of research productivity in Nigeria. The country's low research output probably reflects the low priority accorded to research and development by government and decision-makers in Nigeria.

The findings of this study showed that journal articles constitute greater part of research productivity of librarians in public university libraries in North-East, Nigeria. This is probably attributed to the fact that journal articles are giving more importance by academe or that journal articles are easy, less time consuming and cheaper to publish to other types of publications. This finding is consistent with Okiki and Mabawonku (2013), Simisaye (2019) and Okonedo (2015) who found out that journal articles ranked highest by publication types followed by conference proceedings. It also is worth noting that the number of articles published is one of the parameters for promoting researchers and academics.

Research question two examined the level of information literacy skills of librarians in public university libraries in North-East, Nigeria. The finding of this study shows that the level of information literacy skills of librarians in public universities in North-East Nigeria is high. This finding agrees with Anunobi and Udem (2015) who found out that researchers in Federal Universities in South-East, Nigeria possessed high information literacy skills. The result of this study is in line with that of Anyaoku, Ezeani and Osuigwe (2015) who showed that librarians possess high information literacy skills. The finding is also similar to the study of Okiki and Mabawonku (2013) who found that academics possessed high information literacy skills, which include ability to recognize a need for information resources, distinguish potential information resources, construct strategies for locating information, compare and evaluate information obtained from different sources, locate and access information resources, organize,

apply and communicate information, and ability to synthesize and build on existing information and these had greatly influenced their teaching and research productivity.

The outcome of the level of information literacy skills among academics is in agreement with earlier position of Kurbanoglu, Akkoyunlu and Umay (2016) who reported that in any human society, the attainment of high-level efficiency in one's profession is as important as possessing information literacy skills. The librarians in public universities in North-East, Nigeria did not fall short of this requirement as established in the finding of this study. Conversely, the finding of this study is in contrast with the study of Umeji, Ejedafiru and Oghenetega (2013) who found out that the librarians in Madonna University, Okija did not have information literacy skills.

Hypothesis: The result revealed that information literacy skills had a positive and significant influence on research productivity of librarians in public universities in North-East, Nigeria. This finding is inconsistent with the study done by Obiora and Egbuna (2020) who indicated that there was a very low and negative relationship between information literacy skill and research self-efficacy. However, this finding supports that of Afolabi and Oladokun (2020) who found that information literacy significantly influenced research productivity of scholars in Lead City University. This finding is also consistent with the study done by Madu and Dike (2012) who found that information literacy skills correlate with research productivity of academic staff in North-Central, Nigeria. Nwosu et al (2015) found that there is a positive correlation between information literacy skill and research output of academic staff in Nnamdi Azikiwe University. Similarly, this finding corroborates Obiora et al (2015) who revealed that there was a significant correlation between information literacy skill and research productivity among lecturers. Also, the study of Bassak and Govender (2017) found that researchers who had information and medial literacy skill had higher research output than who did not possess that skill. In the same vein, Simisaye and Popoola (2019) discovered that a significant and positive relationship exist between information literacy skill and research productivity of researchers in Nigeria. Consequently, this study concluded that information literacy skill is vital to research productivity of librarians in public university libraries in North-East, Nigeria.

The major findings from the study are summarized as follows:
The level of research productivity of librarians in public university libraries in North-East, Nigeria is very low. Whereas, the level of information literacy skills of librarians in public university libraries in North-East, Nigeria is high and Information literacy skills have a positive and significant influence on research productivity of librarians in public university libraries in North-East, Nigeria.

Conclusion
Research productivity is an important indicator of academics' performance in Nigerian university system. Librarians conduct research and publish their findings in reputable outlet in form of books, chapters in books, co-authored books, journal article and conference proceedings. The result of this study shows a clear indication that the librarians have a low level of research productivity. The implication of low productivity is that, it makes those affected stagnant on the same rank without promotion, it also results into low morale, poor visibility and recognition among their professional colleagues both locally and internationally. This result is quite unexpected because of the importance of research productivity in the lives of academic librarians. Literature reviewed show that publication output is highly associated with librarians' appointment, tenure, promotion/career advancement, contribution to knowledge as well as personal/institutional visibility.

Recommendations

1. The management of the public university libraries in the North-East, Nigeria. should organize workshop/seminars on research related skills for academic librarians in order to enhance their research productivity

2. Librarians in public universities in the North-East, Nigeria, should engage in collaborative research by co-authoring textbooks and other publications in order to improve their research productivity.

3. Librarians in public universities in the North-East, Nigeria should enhance their level of information literacy skills through training and retraining in order to attain the highest level of information literacy skills that would lead to higher research productivity.

4. Managements of public universities in the North-East, Nigeria, should encourage continuous training programs on information literacy skills of academic librarians with the aim of improving their research productivity.

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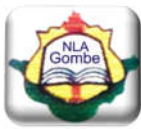
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