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## Influence of ICT literacy Skills on Research Publication of Librarians in Federal Universities in South-East Nigeria

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**Influence of ICT literacy Skills on Research Publication of Librarians in Federal Universities in South-East Nigeria**

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## **Abstract**

The study was carried out to explore the influence of information and communication technology (ICT) literacy skills on publication output of librarians in federal universities in the south-east, Nigeria. Three research questions were used for the research. A descriptive methodology was adopted for the research. A structured questionnaire was used as data collection instrument. The population of the study was 154 academic librarians in three federal universities in the southeast, out of which a sample of 77 was selected. Librarians in key areas like Acquisition, Cataloguing and Classification were included in the sample. Frequency, mean, standard deviation and percentage were used for data analysis. Major findings are; that librarians in the three federal universities had ICT literacy skills to a great extent. The result also showed that the librarians had sufficient publication output as a result of the application of their ICT literacy skills. The librarians were also found to have applied their ICT literacy skills in all areas of academic publications to a great extent. Inadequate fund to pay for ICT services was the most critical obstacle that affected respondents' use of their ICT literacy skills in their publications. Another important challenge identified by the study was the high cost of access to available ICT services. Urgent improvement in the ICT development policy of the federal universities was recommended as the best way to improve the ICT literacy skills of the librarians. It was also recommended that the federal universities should pursue a bold and futuristic ICT literacy development policy to help librarians remain at the cutting edge of ICT literacy for purposes of their publications and other daily library services. There is also the need for the improvement in the ICT infrastructure of the universities to cover the whole gamut of the ICT literacy needs of the librarians. It was further recommended that a reward system be instituted in these institutional libraries which may not be limited to normal promotions but may include other forms of recognition and laurels.

**Keywords:** University libraries, Librarians, Publication output, Information communication Technology

## INTRODUCTION

Man's insatiable quest for knowledge as exemplified by the works of great philosophers and sages of ancient times like Aristotle and Socrates led to the expansion of frontiers of knowledge and modern education. Centres of learning which emerged in medieval Europe metamorphosed into what we know today as universities. Such universities as Oxford, Cambridge and Harvard to mention just a few, have remained through centuries, the backbone of the great civilizations of modern Europe and America. Libraries help the universities in actualizing their aim and librarians are the drivers of such actualization. The modern librarian is required to have publications output so as to be relevant in the job.

Publication output, according to Popoola (2008), can be measured by the number of publications of an academic that appeared in the referred publication outlets in a stated period. Over the years the research activities of librarians have led to an enormous output of books, journals and other publications. To ensure that the production of such books and publications are consistent, the academic librarian needs to possess adequate information and communication technology (ICT) literacy skills (Ogunsola, Akindojutimi, & Omoniyi, 2011). Such ICT literacy skills will enhance his capacity to access library resources in the electronic format which has gained ascendancy following the expanding frontiers of knowledge and volume of information output (Oguntase, 2009)

Information and communication technology (ICT) literacy skill is the ability to understand, acquire and make effective use of ICT resources to communicate ideas, events and situations in such a way as to leave nobody in doubt about the issues or ideas communicated (Ezugwu, 2011). ICT literacy skills needed by librarians include word processing skills, database skills and internet skills. Some ICT literacy skills listed by (Oguntase, 2009) included electronic/digital access to information skills, internet search skills, computer skills, use of online catalogues (OPAC), use of

specialized online databases, Boolean search techniques and use of reference managers. ICT skills have been found to enhance publications output.

The librarian needs to effectively utilize ICT literacy skills in the workplace, as well as make an informed decision in their private lives. In order to achieve this goal, Green (2010) urges that librarians should go beyond helping members of the academic community to acquire ICT skills but also to use such skills to improve their publication outputs.

### **Statement of the Problem**

The need for librarians in federal universities to increase their publication outputs has been couched in the usual euphemism of “publish or perish”. For any meaningful career progression, academic librarians need to be upbeat in the number and quality of published materials. In recent times open access publishing has become the fastest way to increase one’s academic publication output replacing, to a large extent, the traditional system where academics have to wait endlessly for a reply to articles sent by surface mails. However, online publishing calls for a good and working knowledge of the use of ICT by academic librarians. Online publishing enabled by ICT has increased the volume of published materials in university libraries. Less than a decade ago the Most scholars, including librarians in Nigerian colleges, depended strongly on manual and traditional searching methods for bibliographies, abstracts and printed sources to acquire study data and publications.

Nowadays ICT based search engines have been developed which have made information gathering faster and easier. The ability to use these search engines by librarians depends on their ICT compliance rates. Its, therefore, important to find out if there is a correlation between ICT literacy skills and publications output and how they combine to influence the career progression of librarians in the institutions under study. Despite the potentials of ICT to improve the publication output of librarians, studies on the logical sequence of the relationship between the

ICT skills of librarians and their publications output is yet to be established, especially in the area where this study was carried out. Thus this study examined how ICT skills of librarians in the federal universities in southeast, Nigeria, have influenced the publication outputs of these librarians.

### **Research Questions**

The study was guided by the following research questions:-

1. What types of ICT literacy skills do librarians possess for effective publication output?
2. To what extent do the librarians apply their ICT literacy skills in their publications?
3. What are the publications outputs of the librarians in federal universities in the Southeast Nigeria?

## **LITERATURE REVIEW**

### **Concept of ICT Literacy Skills**

The individual librarians' ability to utilize and optimize available ICT resources and services in his university library can be said to be his/her ICT skills. According to (Nweze, 2010), the most important ICT skills needed by academic librarians are word processing skills, database skills and internet communication skills. The rate at which the librarian can use these skills is what is referred to as his/her ICT literacy skills. In other words, ICT literacy skills in this context are the ability to deploy the knowledge of ICT in their work by librarians in various universities.

Thelwall (2002), notes that, by generating countless e-journals, disseminating outcomes to colleagues, and providing room for studies, learning, and recreational data, the internet and the web has become increasingly essential to scholarly communication. Librarians in addition to supporting college students in writing, study abilities and the use of information technology,

information literacy should be able to define, locate and assess appropriate data to meet their data requirements.

Building on works earlier conducted by other individuals is a significant ICT literacy skill that the librarian needs to obtain in his / her quest to use ICT profitably. Anyaoku, Ezeani, & Osuigwe (2015), itemized areas where librarians need to have a high degree of ICT literacy skills to include helping users to locate information sources, in internet search and information retrieval and creation of awareness on the use of online subject database search engines. To be able to do these the authors posit that librarians need to possess skills in the use of online catalogues (OPAC), evaluation of information on the internet, searching subject specialized online databases, use of PowerPoint, knowledge of Boolean search techniques, use of reference managers and creation of web pages.

From the foregoing, it is obvious that there is a need for librarians, in Nigerian university libraries to develop appropriate strategies to continually update their ICT literacy skills. Therefore, the librarian needs to be well-grounded in designing curriculum as well as adequate skills to use ICT to improve his publication output.

### **Concept of Publication Output**

Publication output is among the benchmarks and standards used in academic institutions to assess academic staff success or failure. This publication concept has described a wide range of concepts. Bappah (2010), sees Publication results as clear and meaningful study proof. According to him, scientists can only pretend to have conducted meaningful studies when a paper has been published. In their own view, Kurubu & Osawaro (2011), defined Publication output as the complete amount of newspaper articles, books, conference presentations, chapters in edited works, secure grants and creative works.

### **Estimation of Publication Output of Librarians in Nigerian Universities**

Publication Output can be measured through different approaches including the bibliometric approach, the technological merit approach, the social merit approach and the scientific merit approach. The most pervasive issue with measuring the productivity of studies is the confusion between the number of publications and the quality of publications, either in the journal itself or in the publishing outlet itself (Le Grange, 2003). Ezugwu (2011), highlight the value of publications as the most immediate measure of study production is classified as follows: articles in referenced journals, commercially published peer-reviewed books, significant referenced conference presentations, paper in referenced conference proceedings, papers weighed by the effect of journal citations, chapters in commercially published peer-reviewed journals, competitive peer-reviewed grants, graduate degree of studies supervised at completion and editorial board of recognized publications.

## **RESEARCH METHOD**

The descriptive survey design was adopted for this study. The specific type of descriptive survey design to be used in this study is the *Ex post facto* design type of descriptive survey research. The population of this study consists of all academic librarians in the federal universities in the Southeast of Nigeria. According to the nominal rolls of the academic librarians in these libraries the Nnamdi Azikiwe Library, University of Nigeria, Nsukka has 64 academic librarians, Professor Festus Aghagbo Nwako Library of Nnamdi Azikiwe University Awka has 44 academic librarians, the Michael Okpara University of Agriculture, Umudike library has 46 academic librarians, the Federal University of Technology Owerri, library has 42 academic librarians while the Federal University, Ndufu Alike library has six academic librarians giving a total of 202 academic librarians.

Two levels of random sampling were adopted the first being the random selection of three out of the five federal universities in the Southeast. The second was the random selection of



half of the total number of academic librarians in each of the three federal universities selected for this study. The instrument for data collection was structured questionnaire containing 121 items entitled: The Influence of ICT Literacy Skills on Publication Output of Librarians Questionnaire which was developed by the researcher based on the research questions of the study.

### Research Question 1: What type of ICT literacy skills do the librarians possess?

To answer these questions responses to the 1-29 items listed in the questionnaire on levels of possession of ICT literacy skills by the librarians were analyzed

**Table 1: Mean response on the extent of ICT literacy skills possessed by the librarians**

s/n	Name of institution	UNN		NAU		MOUA		Overall		D
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	
1	<b>Word processing skills</b>	<b>3.16</b>	<b>.47</b>	<b>3.07</b>	<b>.85</b>	<b>3.17</b>	<b>.57</b>	<b>3.14</b>	<b>.56</b>	GE
1	Inputting data using mouse, keyboard etc	3.63	.61	3.22	.88	3.00	.69	3.33	.76	GE
2	Storing and copying data into primary devices e.g. hard disk	3.50	.68	3.00	.91	3.00	.82	3.21	.81	GE
3	Storing and copying data into secondary storage devices e.g. flash drive, CDs	3.43	.57	3.11	.68	3.45	.67	3.36	.64	GE
4	Scanning of images for inclusion in texts	3.37	.67	2.89	.90	3.41	.67	3.26	.76	GE
5	Retrieving information from storage devices	2.90	.66	3.11	.68	3.14	.71	3.03	.68	GE
6	Printing data/information	2.93	.83	3.06	.64	3.32	.57	3.09	.72	GE
7	Using relevant packages e.g. Excel, Corel Draw, etc	2.77	.73	3.06	.73	3.09	1.02	2.94	.83	GE
8	Use of data dictionary	3.03	.89	3.33	.69	3.23	.69	3.17	.78	GE
9	Use of power point packages for public presentation of pointed materials	2.90	.92	2.89	.68	2.91	.92	2.90	.85	GE
	<b>Database skills</b>	<b>2.77</b>	<b>.56</b>	<b>2.84</b>	<b>.78</b>	<b>2.93</b>	<b>.659</b>	<b>2.84</b>	<b>.83</b>	GE
10	Accessing on-line databases	2.60	.86	2.94	.73	2.73	1.03	2.73	.88	GE
11	Downloading files from databases	2.97	1.00	3.00	.77	2.82	.85	2.93	.89	GE
12	<u>Printing from downloaded</u>	2.93	<u>.98</u>	3.39	<u>1.09</u>	3.09	<u>1.02</u>	3.10	<u>1.02</u>	GE

	files									
13	Accessing databases on CDs & DVDs	2.67	1.03	2.72	.83	2.91	.87	2.76	.92	GE
14	Creation of own databases	2.87	.86	2.72	.75	2.64	.79	2.76	.81	GE
15	Using of Boolcam operators, AND, OR	2.60	1.04	2.28	1.13	3.41	.80	2.77	.58	GE
	<b>Internet/communication skills</b>	<b>2.85</b>	<b>.89</b>	<b>2.70</b>	<b>.96</b>	<b>2.68</b>	<b>.79</b>	<b>2.76</b>	<b>.92</b>	<b>GE</b>
16	Data and text communication using e-mail	3.13	.82	3.56	.78	2.91	.81	3.17	.83	GE
17	Data and voice communication using voice mail	2.77	.90	2.83	1.20	2.86	.64	2.81	.91	GE
18	Use of bulletin board systems	3.07	.91	2.67	1.33	3.14	.89	2.99	1.03	GE
19	Use of search engines e.g. Yahoo, google for searching	3.03	.89	2.44	.98	2.59	.73	2.74	.90	GE
20	Use of internet for teleconferencing	2.50	.97	2.83	1.20	2.73	.83	2.66	.99	GE
21	Downloading from the internet	3.63	.61	2.89	1.02	2.73	.77	3.16	.88	GE
22	Visiting websites	3.00	1.02	2.06	.94	2.64	.73	2.64	.98	GE
23	Design of websites and how to upload and update them	2.47	.78	1.89	.76	2.23	.53	2.24	.73	LE
24	Use of telefascimile to send and receive texts and images	2.73	.94	2.00	.77	2.27	.55	2.40	.84	LE
25	Subscribing to a list of servers	2.83	1.09	2.89	.96	2.14	.77	2.63	1.01	GE
26	Posting to a list of servers	3.07	1.01	2.44	.98	2.36	.73	2.69	.97	GE
27	Local Area Network (LAN) competence	2.17	.59	2.67	.97	2.77	1.07	2.49	.90	GE
28	Wide Area Network (WAN) competence	3.10	.96	3.67	.59	3.18	.96	3.27	.90	GE
29	Internet competence: google, yahoo, Alfa vista, Excite	2.40	.93	2.89	1.02	3.00	1.11	2.71	1.04	GE
	Cluster mean	2.93	.35	2.84	.46	2.89	.40	2.89	.65	GE

The result in table 1 reveals that librarians possess most of the ICT literacy skills to a great level.

However, the librarians possessed ICT literacy skills more in word processing (m = 3.14) than in

database (mean = 2.84) and in internet/communication (m = 2.76). They were also found to possess less ICT literacy skills in the design, uploading and updating of websites (m = 2.24) as well as in the use of telefacsimile to send and receive texts and images (m = 2.40). In comparative terms librarians in MOUAU possess a greater level of ICT literacy skills in word processing (mean = 3.17) than those of UNN (mean = 3.16) and NAU (3.14). The same scenario is repeated in database skills where librarians in MOUAU scored a mean of 2.93 as against 2.77 and 2.84 for UNN and NAU respectively. However, on internet/communication skills libraries in UNN had the highest mean score of 2.85 followed by NAU (2.70) and the MOUAU (2.68) in that order. The closeness of the SD scores for the librarians in the three federal universities indicates that their levels of possession of ICT literacy skills are not far from each other.

**Research Question 2: To what extent do librarians apply their ICT literacy skills in their publications?**

To answer this research question responses to items 1-29 of the questionnaire on the extent of use of ICT literacy skills by the librarians in their publications were analyzed to ascertain the extent to which the librarians in the three federal universities used the listed ICT literacy skills.

**Table 2: Mean response on Extent of application of ICT literacy skills by Librarians in their publication**

s/n		Name of institution						Overall		D
		UNN		NAU		MOUA		Mean	SD	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	
	<b>Word processing skills</b>	<b>2.64</b>	<b>.81</b>	<b>2.79</b>	<b>.63</b>	<b>2.82</b>	<b>.52</b>	<b>2.73</b>	<b>.43</b>	GE
1	Inputting data using mouse, keyboard etc	3.00	.83	2.94	.87	2.73	.98	2.90	.89	GE
2	Storing and copying data into primary devices e.g. hard disk	2.07	.78	2.67	1.28	3.09	.87	2.54	1.05	GE
3	Storing and copying data into secondary storage devices e.g. flash drive, CDs	2.53	1.04	3.39	.98	2.23	.69	2.66	1.02	GE
4	Scanning of images for inclusion in texts	2.13	.63	2.56	.86	2.91	.97	2.49	.86	LE
5	<u>Retrieving information</u>	<u>2.77</u>	<u>1.14</u>	3.11	<u>1.13</u>	2.95	<u>1.00</u>	2.91	<u>1.09</u>	GE

	from storage devices									
6	Printing data/information	2.77	.94	2.56	1.29	2.86	.89	2.74	1.02	GE
7	Using relevant packages e.g. Excel, Corel Draw, etc	2.77	.94	2.11	.68	2.59	.91	2.54	.90	GE
8	Use of data dictionary	2.47	.94	2.50	1.04	3.09	1.15	2.67	1.06	GE
9	Use of power point packages for public presentation of pointed materials	3.23	.68	3.28	.67	2.91	.81	3.14	.73	GE
	<b>Database skills</b>	3.07	.43	3.29	.77	2.99	.43	3.10	.43	GE
10	Accessing on-line databases	3.10	.76	3.39	.78	2.68	.78	3.04	.81	GE
11	Downloading files from databases	3.23	.50	3.28	.57	2.95	.79	3.16	.63	GE
12	Printing from downloaded files	3.07	.45	3.39	.61	3.09	.81	3.16	.63	GE
13	Accessing databases on CDs & DVDs	3.07	.58	3.22	.55	3.27	.94	3.17	.70	GE
14	Creation of own databases	3.00	.74	3.28	.67	2.73	.94	2.99	.81	GE
15	Using of Boolcam operators, AND, OR	2.93	.74	3.17	.79	3.23	.75	3.09	.76	GE
	<b>Internet/communication skills</b>	2.59	.99	2.88	.91	2.90	.95	2.76	1.00	GE
16	Data and text communication using e- mail	3.23	.73	3.28	.46	2.82	.96	3.11	.77	GE
17	Data and voice communication using voice mail	2.67	.66	3.28	.67	2.86	.94	2.89	.79	GE
18	Use of bulletin board systems	2.10	1.06	2.56	1.15	2.64	1.14	2.39	1.12	LE
19	Use of search engines e.g. Yahoo, google for searching	2.10	1.09	2.50	1.15	2.73	1.03	2.40	1.11	LE
20	Use of internet for teleconferencing	2.33	1.12	2.22	1.22	2.32	1.25	2.30	1.17	LE
21	Downloading from the internet	2.87	1.25	1.83	1.15	2.45	1.37	2.47	1.32	LE
22	Visiting websites	2.53	1.01	2.44	1.10	2.41	1.30	2.47	1.11	LE
23	Design of websites and how to upload and update them	1.90	.80	2.33	1.33	2.59	1.33	2.23	1.16	LE
24	Use of telefacsimile to send and receive texts and images	3.17	.99	3.61	.50	3.55	.67	3.40	.81	GE
25	Subscribing to a list of servers	3.13	1.01	3.67	.49	3.64	.58	3.43	.81	GE
26	Posting to a list of servers	3.20	1.03	3.72	.46	3.68	.48	3.49	.79	GE
27	Local Area Network (LAN) competence	3.30	.99	3.67	.59	3.82	.39	3.56	.77	GE

28	Wide Area Network (WAN) competence	1.90	1.18	3.11	1.28	3.14	.89	2.60	1.27	GE
29	Internet competence: google, yahoo, Alfa vista, Excite	1.77	.90	2.11	1.18	1.91	.97	1.90	.99	LE
<b>Grand Mean</b>		<b>2.70</b>	<b>.77</b>	<b>2.94</b>	<b>.54</b>	<b>2.89</b>	<b>.42</b>	<b>2.82</b>	<b>.70</b>	GE

Using the principle of the real limit of numbers, the result of the data analysis in Table 2 shows that the librarians used their ICT literacy skills in word processing (Mean = 2.73). Database (mean = 3.10) and internet/communication (mean = 2.76) to a great level. However, most of the librarians have challenges in the internet/communication skills having scored below the mean score across the universities in the use of bulletin board systems (mean = 2.39), use of search engines e.g. Yahoo, Google, etc for searching (mean = 2.40), use of internet for teleconferencing (mean = 2.30). Downloading from the internet (mean = 2.45, visiting websites (mean = 2.47) and design of websites and how to upload and update them (mean = 2.23).

In comparative terms librarians in MOUAU were ahead of their colleagues in their extent of use of their ICT literacy skills in word processing with a mean score of 2.82 as against mean scores of 2.64 and 2.79 for those in UNN and NAU respectively. Scanning of images for inclusion in texts was the only word processing skill where only librarians in NAU and MOUAU scored above the minimum having scored a mean value of 2.56 and 2.91 respectively as against the mean score of 2.13 scored by those at UNN. Librarians in the three universities accepted to be deficient in the following internet competences e.g. Google, yahoo, Alfa vista, Excite etc with an overall mean of 1.90.

**Research Question 3: What is the publication output of librarians in the three federal universities in southeast, Nigeria?**

To answer this research question the frequency distribution of the different types of academic publications of the respondents were presented in Table 3

**Table 3: Frequency distribution of the academic publications of librarians in the three selected federal universities in the past four years**

Type of academic publication	UNN (N =32)		NAU (N = 22)		MOUAAU (N = 23)		Total	Mean output
	No of respondents	Frequency of publication	No. of respondents	Frequency of publication	No. of responses	Frequency of publications		
Conference proceedings	14	85	07	06	08	16	107	3.60
Text books	03	32	05	11	10	12	55	3.05
Chapters in books	13	32	06	23	09	29	84	3.00
Monographs	01	02	03	04	02	02	08	1.30
Journal articles	31	228	22	184	23	109	521	6.85
Technical reports	02	02	02	05	02	02	09	1.50
Thesis (students' projects)	14	84	07	17	15	26	127	3.52
Reviews	03	51	04	08	12	26	85	4.47
<b>Total</b>	<b>81*</b>	<b>516</b>	<b>56*</b>	<b>258</b>	<b>79*</b>	<b>222</b>	<b>996</b>	<b>+13.93</b>

\* Multiple responses

+ Mean publications output

\* Multiple responses

+ Mean publications output

UNN = University of Nigeria, Nsukka

NAU = Nnamdi Azikiwe University, Awka

MOUAAU = Michael Okpara University of Agriculture, Umudike

Table 3 shows the frequency distribution of the publication output of the respondents. The mean publication output for the four years was approximately 13 implying that each of the librarians on the average published about four (4) academic papers every year. At this rate, it stands to reason that it will take an average academic librarian in the study about ten years to produce enough academic publications to earn promotion to senior academic librarian positions.

Most of the publications were in journal articles probably due to the emphasis on journal articles for academic appraisals. For instance, 31 respondents from the UNN published a total of 228 journal articles during the period under review. Similarly, 22 and 23 respondents published 184 and 109 journal articles in NAU and MOUUAU respectively during the same period. The types of publications least patronized by the respondents were monographs followed by technical reports

### **Summary of Major Findings**

The major findings of the study are summarized as follows:

1. The findings also showed that the librarians possessed adequate ICT literacy skills to enhance their publications output.
2. It was found that most universities are ahead of others in terms of the application of ICT literacy skills in publications.
3. The findings showed that librarians in the three federal universities possessed sufficient publications output to enable them to earn relevant promotions as and when due.

### **Discussion of Findings**

#### **The levels of ICT literacy skills possessed by the librarians**

Findings from this study showed that the librarians in the three federal universities have to great extent ICT literacy skills in the three main areas of assessment namely word processing, database and internet/communication with a grand mean score of 2.89. This result is supported by Ugwuanyi (2009), which asserts that librarians in Nigerian Universities are adepts in the ICTs in the areas of word processing, internet search and database management as part of his findings in his study of ICT literacy among academic librarians in Enugu State, Nigeria. The fact that the librarians possessed ICT literacy skills more in word processing (3.14) is also in consonance with the findings of Anunobi & Nwabueze (2010), which admitted that word processing skills still remain the first port of call for university librarians before the consideration of other ICT

literacy skills if these university librarians will outwit other information literacy professionals standing at the door to take over their jobs.

The librarians at MOUUAU possess a higher level of ICT literacy in word processing (3.17) than those at UNN (3.16) and NAU (3.07) maybe as a result of a more deliberate effort at staff development by MOUUAU. The same scenario is replicated in their scores for database skills where librarians at MOUUAU had a mean score of 2.93 as against 2.77 and 2.84 for those at UNN and NAU respectively.

### **The extent to which librarians apply ICT literacy skills in their publication**

The findings of this study showed that skills mostly applied by the librarians are word processing (2.73), database (3.10), and internet/communication (2.76) to a great extent in their publications. This finding is supported by the work of Agaba (2010), in his assessment of the utilization of Makerere University electronic information resources by academic librarians. The result of Agaba's study showed that the most frequently consulted sections of the electronic information centre were the computing/word processing section and the internet services section. These sections still command the attention of librarians who want to be relevant through their publications output. The implication of these findings is that the librarians in the three federal universities under study had the ICT literacy skills in the areas that would most enhance their publications output

### **Publication output of librarians**

The findings from the study showed that the publications output of the librarians in the three federal universities spanned through the major areas of the academic publications to include, conference proceedings, textbooks, chapters in books, monographs, journal articles, technical reports, thesis (students' projects) and book reviews. In specific term, journal



publications scored highest in the study with a mean value of 6.85 while publication of monographs scored lowest with a mean value of 1.30.

Using the above approach this study found that the mean publications output of the librarians for the four year period was thirteen. The implication of this result is that it will take an average librarian in the three federal universities at least 10 years to get to senior academic librarian positions if promotions are conducted every three years. This finding is close to that of Creamer (2012), who found that the mean publication output of librarians in some selected universities in South Africa was four per annum.

### **Types of Publications where the librarians used their ICT literacy skills**

The findings of this study showed that the librarians used their ICT literacy skills in the following; publications: thesis/dissertation, e-journal, book reviews, textbooks, They, however, used their ICT literacy skills to a great extent in the publication of thesis/dissertation, e-journals, book reviews and textbooks while these skills were used to a less extent in the publications of journal articles, technical papers, conference proceedings, chapters in books and monographs.

### **Recommendations**

Based on the findings of this study, the following recommendations that are expected to improve the ICT literacy skills of the librarians and how such skills can be used to improve their publications output are hereby presented.

1. There is a need for a bold and futuristic ICT literacy development policy by university libraries to help university librarians in this study and elsewhere in Nigeria to remain at the cutting edge of ICT literacy for purposes of their publications and other daily uses.
2. There is also a need for improvement in the ICT infrastructure of the universities under study to cover the whole gamut of the ICT literacy needs of the librarians.

3. The study suggests a reward system for librarians with superior publications output which may not be limited to rapid promotion but to include other forms of special recognition.
4. Increased commitment to ICT literacy skills development for library staff should be the main thrust of staff development policy for all cadre of library staff.
5. Adequate funding for ICT literacy skills development programme should be accorded priority in funds allocation to university libraries.

Subsidization of use of ICT facilities for librarians should be considered as an important approach towards the improvement of ICT literacy skills of the librarians.

### **Conclusion**

The role of ICT literacy skills in the improvement of the publications output of the academic librarians is not in doubt. Librarians need to be encouraged to operate at the cutting edge of ICT literacy for them to remain relevant in today's information age where ICTs dominate. Apart from ICT literacy being important for Librarians who need to improve their publications output, it is also important for the efficiency of the librarian to render services to his/her wide-ranging clientele. It is, therefore, important for institutions/universities to develop robust ICT literacy programmes for their library staff if the whole academic community shall enjoy the benefits of modern library services.

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