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# Awareness and Utilization of the Internet Resources and Services for Academic Activities by the Academics of Tertiary Institutions in Adamawa State, Nigeria

Idris Suleiman\*, Dauda Joshua\*\*

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## ABSTRACT

This study was conducted to investigate the awareness and utilization of the Internet resources and services for academic activities by the academic staff of tertiary institutions in Adamawa State. The researchers adopted a quantitative research method using cross-sectional survey design to collect data from the respondents. Multi-stage sampling techniques were used. Three hundred and thirty-three (333) copies of the questionnaire were administered to the respondents in the eight (8) sampled institutions and two hundred and ninety-two (292) respondents representing (87.6%) were returned and found useful. The data collected were analyzed using descriptive and inferential statistics by the use of SPSS version 20.0. The findings revealed that respondents were aware of all the Internet resources, (e-books, e-journals, and online databases), but regarding the Internet services, they were mostly aware of only the e-mail. The study further found that online database and e-mail as the most Internet resources and services utilized by the respondents. There are inverse and weak relationship between awareness and utilization of the Internet resources and services by the academic staff of tertiary institutions in Adamawa State. The study recommends increase awareness and use to other Internet resources such as the e-books and e-journal and Internet services, especially Usenet, Discussion group and Telnet by the management of the institutions through training, workshops/conferences for better academic activities.

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## 1. Introduction

The Internet is described as global connections of computers of various sizes, capacity and functionality. These networks are often referred to as “information superhighway”, where computers are interconnected with the sole purpose of providing resources, services, and information across the globe, thus reducing the entire universe into a “global village”. According to Manda (2005),

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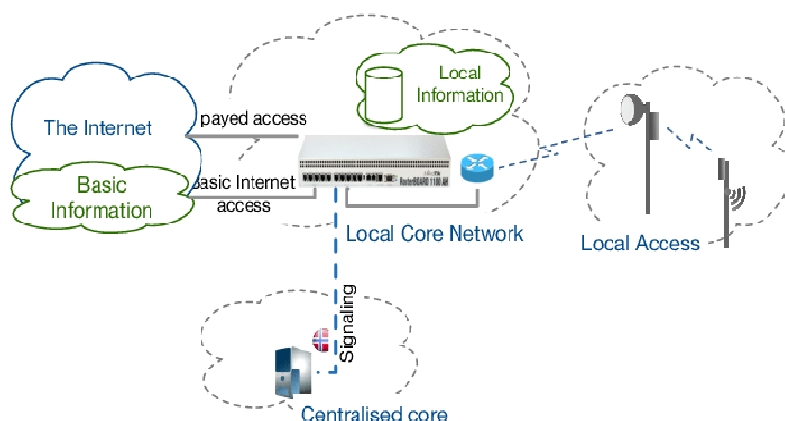
\* Assistant Librarian, Ibrahim Babangida Library, Modibbo Adama University of Technology, Yola, Adamawa State, Nigeria. (idrissuleiman2014@gmail.com) (First Author)

\*\* Librarian, Ibrahim Babangida Library, Modibbo Adama University of Technology, Yola, Nigeria. (jopromy@gmail.com) (Corresponding Author)

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the Internet is regarded as the largest global connections of computer network, making it the network of networks. The Internet is also known to be an important and major source of information and a medium through which communication, dissemination, and storage of information is facilitated. Similarly, it is perceived as a very powerful mechanism for effective communication having the largest single source of information on a global scale (Maheswarappa & Ebnazar, 2003). Historically, the Internet first came into being in the United State of America in 1969 with the launching of a national computer network known as Advanced Research Project Agency Network (ARPANET). Today, the vast network that interconnects millions of computers worldwide provides availability and accessibility to a variety of resources and services.



**Fig. 1.** Basic Internet Access

Internet resources (e-resources) are information carrying resources which are made available and accessible to users through the use of computer and similar devices in a networked environment, they include e-books, e-journal, and online databases. Internet services refer to all the Internet facilities that assist in communication and collaboration, they include e-mail, File Transfer Protocol (FTP), Bulletin board, Discussion group, chat rooms Newsgroup, Telnet, and Usenet.

Internet resources and services are capable of providing Nigerian researchers and scholars, the enabling environment to overcome the barriers of communication and collaboration and also provide scholars, researchers, individuals and their organization the advantage of presenting their research findings and ideas, in which according to (Worldometers, 2015) Nigeria with a population of 184,608,768 people is number one country in Africa and number eight in the world with 65,675,984 Internet users (Internet World Stats, 2015). Ogunjobi and Fagbami (2012) confirmed that the Internet resources and services enable: lecturers to update their knowledge, prepare up-to-date lecture notes for their students, download free e-books and e-journals, use e-mail for communication and collaboration with colleagues. Through the use of the Internet resources and services, lecturers keep abreast with research and development in their fields of study, bringing them fame, recognition improving their institutional ranking and ensure regular promotions to higher academic positions. Onwubiko (2012) observes that the Internet resources and services provides essential ingredients for enhancing both

the research efforts of academics and indeed their level of intellectual development in the global village of knowledge management, from this inference drawn, it will be equally understood that the use of the Internet resources and services will help to improve the quality of academic research as well increase lecturers' level of intellectualism.

Bankole and Oludayo (2012) maintain that Universities globally made a lot of investment on the provision of Internet access because it saves time in the production and utilization of knowledge. It also promotes multi-disciplinary research, fosters cooperation, and facilitates information sharing and exchange of ideas among researchers from various institutions, nations or regions. Imhonopi and Urim (2012) observe that academics from tertiary institutions in developed nations depended on Internet resources and services for teaching and research activities, which makes their research output visible and accessible globally. This is contrary to what is obtainable in developing or un-developed nation like Nigeria.

The need to use the Internet resources and services towards getting current and relevant information for the purpose of academic activities of teaching, learning, research, publication communication, and collaboration activities can be seen from the efforts and initiatives put in place by the Nigerian government through the National Universities Commission (NUC), in the creation of Nigerian Universities Network (NuNet) and subsequently the National Virtual Library Project (NVLP) is a step towards the proper utilization of the Internet resources and services by University lecturers for the enhancement of academic activities.

Ani (2012) observes that the National Virtual Library Project (NVLP) was established to enhance access to the use of Internet resources and services in the Universities across the country. According to Isah (2010) despite, numerous efforts put in place by the federal government of Nigeria, tertiary institutions are yet to seize this opportunity. This may be largely due to inadequate facilities, lack of maintenance and lack of awareness or required skills to make use of the limited facilities.

Academic staff of tertiary institutions are expected to make proper use of the Internet resources for their academic activities because of the vast and up to date information that can be obtained from them, they are also expected to make proper use of Internet services so that they will have effective communication with their colleagues and other researchers around the globe. Observation has shown that academic staff in some tertiary institutions in Adamawa are not making proper use of the Internet resources and services in the conduct of their academic activities instead they use the resources and services for non-academic purposes, such as chatting and sharing pictures, hence the need to carry out this study.

### *1.1 Statement of the Problem*

The emergence of Information and Communication Technologies (ICT's) particularly the Internet has brought about a remarkable shift from the use of print to electronic resources of recent, with this trend, information whether scholarly or otherwise is produced electronically or digitally. The Internet resources and services are very important in the conduct of academic activities by academic staff because of their awareness and access toward Information and Communication Technology (ICT) in the library. Ogunjobi and Fagbami (2012) confirm that Internet resources and services

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enable lecturers to update their knowledge, prepare up-to-date lecture notes, communication and collaboration with colleagues.

However, observation by the researchers have shown that academic staff of tertiary institutions in Adamawa state are likely not aware and have access on the Internet resources and services for effective academic activities of teaching, research, communication, collaboration, and publication, rather they use the resources and services for other activities. It is in this vain the study was conducted to investigate the level of awareness and utilization of the Internet resources and services for academic activities by the academic staff of tertiary institutions in Adamawa State, Nigeria.

### *1.2 Research Objectives*

The specific research objectives are stated below:

- i . (1-a) Determine the level of awareness of the Internet resources by the academic staff of tertiary institutions in Adamawa State.
- ii . (1-b) Determine the level of awareness of the Internet services by the academic staff of tertiary institutions in Adamawa State.
- iii. (2-a) Determine the extent of utilization of the Internet resources for academic activities by academic staff of tertiary institutions in Adamawa State.
- iv. (2-b) Determine the extent of utilization of the Internet services for academic activities by the academic staff of tertiary institutions in Adamawa State.

### *1.3 Research Questions*

The study has the following research questions:

- i . (1-a) What is the level of awareness of the Internet resources by the academic staff of tertiary institutions in Adamawa State?
- ii . (1-b) What is the level of awareness of the Internet services by the academic staff of tertiary institutions in Adamawa State?
- iii. (2-a) What is the extent of utilization of the Internet resources by the academic staff of tertiary institutions in Adamawa State?
- iv. (2-b) What is the extent of utilization of the Internet services by the academic staff of tertiary institutions in Adamawa State?

### *1.4 Research Hypothesis*

Research hypotheses:

**HO<sub>1</sub>** - There is no significant relationship between awareness and utilization of the Internet resources and services by the academic staff of tertiary institutions in Adamawa State.

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## 2. Literature Review

### *2.1 Awareness of the Internet Resources and Services for Academic Activities*

Research studies were conducted on awareness of the Internet resources and services, for instance, Upadhyay and Chakraborty (2008) posited in their study of academic staff in the Institute of technology, Banaras Hindu University shows 84.3% of the respondents are aware of the Internet resources and services while 15.6% are not aware. The 84.3% who indicated being aware had a different level of awareness with some indicating high level of awareness and some low level of awareness as well. In addition, Chandran (2013) indicates that library users at Siva Institute of Frontier Technology, India had 95.1% awareness of the Internet resources and services while 14.8% were not, the study indicated that respondents had different levels of awareness. The study further shows users were informed about the existence of the Internet resources through the library professionals, institution website, official circular, and the library board. The high response rate of awareness can be attributed to the several sources of awareness provided by the institution. In addition to this, Chetan and Amrutbhai (2012) conducted a study on user awareness of the Internet resources in pharmaceutical company's library in Ahmadabad the study indicated that there is a high level of awareness by users in the libraries. Closely related to this, Egberongbe (2011) investigated the use of Internet resources and services at the University of Lagos. It was established that 71.4% of the respondents are aware of the existence of Internet resources and services. This implies that the respondents are making use of the resources and services in their academic activities.

In a study conducted by Salaam, Ajiboye, and Bankole (2013) on the use of electronic information resources by academics in Federal University of Agriculture, Abekuta, Nigeria, revealed that 93.8% of academics have a high level of the Internet resources and services awareness. Moreover, Okiki and Asiru (2011) surveyed the awareness, attitude and use of electronic information resources among academics in the University, of Lagos, Nigeria. The study revealed that 55.6% of the respondents showed awareness of the Internet resources and services. In a similar study by Ani and Edem (2011) which indicated that the users of University of Calabar library are mostly aware of online databases such as Science Direct, EBSCOHOST, AGURA, and HINARI. In his study of e-library use at the University of Ilorin, Isah (2010) reported that the majority of the academic staff were aware of the existence of Internet resources and services. The awareness is connected to occasional e-mail posting by the University library to sensitize members of the University community on the Internet resources subscribed to the University. Owolabi et al. (2012) stated that the introduction of the Internet resources and services into academic environment particularly Universities almost predictably followed by rapid growth in awareness by students and academics, thereby improving the conduct of their academic activities.

In contrast to the above findings, Anushandhan and Maharana (2013) in a study of access, awareness and use of electronic information resources by research scholars of Berhampur University, India, revealed that 48.5% of the respondent are aware of the Internet resources and services while 52.3% are not, this signifies under-utilization of the resources. In another related study by Ndinoshiho (2010) of nursing students in the University of Namibia revealed that 86.4% of the respondent

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did not use the Internet resources and services available to them because they were not aware of them. This finding has provoked researchers to place much emphasis on the use of Internet resources and services in an academic environment. Literature revealed that many Universities libraries are subscribing for the Internet resources spending millions of naira, yet many of them are underutilized due to lack of awareness and training (Joshua, 2014; Shuaibu, Umar, & Joshua, 2015) and many more are unknown to the academic staff, in support of these statements, Angello (2010) revealed that the rate of Internet resources awareness among livestock researchers in Tanzania was very low, only 24.4% are aware and 75.6% are not.

The issue of the Internet resources and services awareness is fundamental to academics overall academic development, Opeke and Odunlade (2011) in a report on the relationship between awareness and utilization of the Internet resources and services among lecturers in Nigeria Polytechnics established a weak positive correlation of ( $r=0.37$ ,  $p=0.012<0.05$ ) existed. This shows that low or lack of awareness constitute a problem to the use of Internet resources and services, a consequence of this will lead to an inefficient performance in the lecturers' academic activities.

From the literature consulted it shows that some of the respondents from the empirical studies under review are aware of the Internet resources and services and its benefit in the conduct of their academic activities while some are not aware of the resources and services. The literature further shows the respondents who are aware of the Internet resources and services to have a different level of awareness with some having high level of awareness and some having low level of awareness.

It is obvious to note from the above available literature review that little or no study was written on the awareness of the Internet resources and services for academic activities by the academic staff of tertiary institutions in Adamawa State, it is in this vein that the researchers want to investigate the level of awareness of the Internet resources and services for academic activities by academic staff of tertiary institutions in Adamawa State.

## *2.2 Utilization of the Internet Resources and Services for Academic Activities*

Basically, the role of academic staff in the tertiary institutions in Nigeria is to teach, engage in community services and conduct research in their various fields of specialization. Consequently, with time they are involved in other academic activities which include publication, communication and collaboration with colleagues in order to expand the frontiers of scholarship and knowledge. With the emergence of the Internet resources such as e-books, e-journals, and online databases, and the Internet services such as, e-mail, File Transfer Protocol (FTP), Usenet, Telnet, Bulletin board, News group, among many, academic activities engaged by the academic staff can now be effectively carried out to enhance their performance.

Babu, Sarada, and Ramaiah (2010) studied the use of the Internet resources in South Virginia (SV) University digital library; they posited that, because of the current, relevant and reliable information obtained from the Internet resources and the ability to communicate effectively with colleagues using the Internet services had impacted on the academics and researchers who are making maximum use of the resources and services. Similarly, Mahmood (2010) in a survey of the Internet resources and services utilization by library and information science professionals in Pakistan submit that, the

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most Internet resources used are the e-books, e-journal and online databases, because of the current and relevant information obtained from them, while the most Internet services used for their communication and collaboration purposes are the e-mail, File Transfer Protocol (FTP) and Usenet.

Nasir (2009) investigated Internet use by 218 faculty members from the University of Rasheshi, Bangladesh and found that (88%) used e-books and e-journals Internet resources and the following Internet services e-mail, File Transfer Protocol (FTP) (55.9%), and Mailing list (8.2%), faculty members mainly used the Internet services for making contact with overseas education and research organizations. In a related study conducted by BuMa'rafi (2009) Internet services utilization by the faculty of the University of Sharjah (UAE) and the result of the study shows that (88.5%) used e-mail for communication purposes. Similarly, Tyagi (2011) conducted a study on awareness and utilization of electronic information resources (the Internet resources and services) at IIT Roorke India, the report showed that faculty and research scholars make use of the Internet resources such as e-journal, e-books and online databases as compare to undergraduate and postgraduate students, this may be associated to the awareness level of the faculty members on the benefit and importance of the Internet resources especially getting current and reliable information. In another study conducted by Sharma (2011) on the utilization of e-books, the result showed that students are aware and used online reference materials such as Encyclopedia Britannica, Wiley Encyclopedia of life sciences and CRS Handbook of chemistry and physics. Similarly, Negahban and Talawar (2009) undertake a study aimed at assessing the Internet resources dependency by Iranian social science faculty members, the findings indicated that majority of the respondents depend on online databases for academic activities such as research and preparation of lecture notes, this dependency on online databases may be associated with having subject data bases which are specifically restricted to a particular subject area.

The Study by Tenopir (2003) of over 200 libraries, reveals how the utilization of e-books, and e-journals (the Internet resources) and e-mail, File Transfer Protocol (FTP), and Usenet (the Internet services) have been rapid in academic communities, but with variations from one discipline to another, the study further indicated that, provision of up to date and reliable information and the ability to communicate and collaborate effectively with colleagues irrespective of geographical location are the main reason for the use of the Internet resources and services respectively.

Brafi and Arthur (2013) revealed in their study of the Internet utilization among students in tertiary institutions in Ghana, how students used the Internet services relatively high to effect communication with their lecturers because of the way information is produced, accessed, retrieve, and disseminated without restriction or boundaries. Most of the Internet resources and services used by respondents are e-journals, online databases, e-mail, File Transfer Protocol (FTP), and Usenet respectively. Still in another study conducted by Ajala, Adegun, and Oyewumi (2010) on the impact of the Internet resources and services utilization on teaching and research by academic staff of Ladoke Akintola University of Technology revealed the use of e-journals, online databases, and e-mail as the highest Internet resources and services used for academic activities. Similarly, Ukpebor (2011) also asserted that, because of the ability to effectively collaborate with colleagues' e-mail, File Transfer Protocol (FTP) was the most preferred Internet services used among engineering lecturers and students of University of Edo, Nigeria.

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In a different instance, Ukpebor (2011) surveyed the Internet resources and services utilization by lecturers and students in engineering faculties in Edo state Nigeria. The study established the encouraging utilization of the Internet resources and services despite inadequate infrastructural facilities. This means that both academics and students are making effective use of the available Internet resources and services to carry out their academic activities. Similarly, Aqil and Ahmed (2011) provided the following as the Internet resources use for academic activities e-books, e-journals and online databases while Internet services include, e-mail, Mailing list, News group, and Telnet. Provision of current, and relevant and reliable information from these resources and around the clock power of communication with the Internet services is the major reason indicated for their utilization.

From the review of literature on utilization of the Internet resources and services little or no literature is available on the study area. The Internet resources such as e-books, e-journals and online databases, and the Internet services such as e-mail, File Transfer Protocol (FTP), Mailing list, Usenet, News group, and Discussion group, are identified by different scholars as the most commonly used for the conduct of academic activities, it is in this regard that the researchers wants to investigate what type of Internet resources and services are academic staff of tertiary institutions in Adamawa State are utilizing for their academic activities.

### 3. Methods

#### 3.1 Research Method

The study adopts the use of a quantitative research method using a cross-sectional survey design that evaluates a program. The population was 2,086, which comprises all the academic staff in the twelve (12) tertiary institutions in Adamawa State, which include three (3) universities made up of one federal University, Modibbo Adama University of Technology (MAUTECH), Yola, a state-owned University, Adamawa State University (ADSU), Mubi, and a private University, American University of Nigeria (AUN) located in Yola. Other tertiary institutions in the state include two (2) polytechnics, Federal Polytechnic, Mubi and Adamawa State Polytechnic, Yola. There are five (5) colleges in the state namely, Federal College of Education (FCE), Yola, Adamawa State College of Education (COE), Hong, Adamawa State College of Legal Studies, Yola, Adamawa State College of Agriculture, Ganye, and Adamawa State College of Nursing and Midwifery, Yola. The remaining tertiary institutions in the state are Adamawa State School of Health Technology and Nigerian Law School, located at Mubi and Yola respectively.

#### 3.2 Sample Size

In determining the sample size of this study, the researchers used the tabulation and formula provided in determining sample size by Research Advisors (2006) at 95% confidence and 5.0% margin of error. The table did not provide the exact population to this study 2 086, as a rule, the researchers take the next population which is 2 500 and arrived at a sampled of 333. The

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formula used to arrive at this number 333 was:

$$n = \frac{N \cdot P \cdot Q}{ME^2}$$

Where:

N = sample size

$X^2$  = Chi-square for the specified confidence level at 1 degree of freedom

N = Population Size

P = Population proportion (.50 in this table)

ME = Desired Margin of Error (express as proportion)

### 3.3 Sampling Technique

Therefore, out of the twelve (12) tertiary institutions in the state, eight (8) have been sampled to participate in the study.

It is not possible for the researchers to go with the entire population of the study because of its size and locations. Therefore, this study used multiple sampling techniques in determining the sample size. Stratified sampling technique (through the use of lucky dip) was used to sample the institutions that were involved in the study (secondary population), while simple random sampling technique was used in selecting the respondents from each institution (primary population).

### 3.4 Research Instrument

The research instrument used for data collection in this study is the questionnaire. The questionnaire adapted from Abdullahi (2016) has three (3) sections containing twenty-one (21) items as follows: Section A: Contain questions on the bio-data of the respondents; it has four (4) items. Section B: with ten (10) items asked questions on awareness to the Internet resources and services. Section C: with seven (7) items asked questions on the accessibility of the Internet resources and services.

Twenty copies of the questionnaires (20) were sent to lecturers from the department of library and information science Bayero University, Kano, Abubakar Tafawa Balewa University, Bauchi, and University Librarian of Federal University Kashere for content validity of the research instrument. They validated the contents of the instrument and all the corrections e.g substitution and/or elimination of confusing, misleading, or irrelevant items were done based on the expert's recommendations.

To establish the reliability of the instrument, the instrument was administered to fifty-five (55) respondents from Kano State University of Science and Technology, Wudil, Bayero University, Kano, Northwest University, Kano, and Federal College of Education, Kano. However, a total of forty-nine (49) questionnaires were returned and used to conduct the reliability test using SPSS (version 20.0). Cronchbach Alpha ( $\alpha$ ) was calculated for all the two (2) variables of the study.

**Table 1.** Result for Reliability Test

Variables	Cronbach's Alpha
Awareness of the Internet Resources and Services	.768
Utilization of the Internet Resources and Services	.821

The researchers personally administered the research instrument to the academic staff of the sampled institutions with the help of research assistant from each institution. The researcher has also been involved in the collection of completed questionnaire so as to allow for confidentiality, reliability, and clarification. However, the data collected were analyzed through descriptive and inferential statistics using the frequency distribution table, percentages and correlation coefficient (r) for easy understanding.

#### 4. Results

Table 2 shows that 333 copies of the questionnaire were administered to the respondents, out of which 292 (87.6%) were filled, returned and found useful, while 41 (12.3%) were not returned. This mirrors that the response rate is adequate enough for the analysis of this study, as supported by Osuala (2005), that the higher the number of response rate, the more credible the findings of the study. As such, the analysis of the study was based on the 292 copies of the questionnaire returned.

**Table 2.** Response Rate

Questionnaire	Frequency	Percentage (%)
Number of questionnaires administered	333	100%
Number of questionnaires returned	292	87.6%
Number of questionnaires not returned	41	12.3%

##### 4.1 Personal Information of the Respondents

Table 3 shows the demographic information of respondents of this study, less than half of the respondents 91 (32.2%) are from Modibbo Adama University of Technology, (MAUTECH), Yola. Followed by Federal Polytechnic Mubi, 61 (20.9%), Adamawa State University Mubi, 39 (13.4%), Adamawa State College of Agriculture Ganye, 35 (12%), Adamawa State College of Education Hong, 29 (9.9%), Adamawa State Polytechnic Yola, 28 (9.6%), College of Nursing and Midwifery Yola, 8 (2.7%), and Nigerian Law School Yola campus, 1 (.3%). The questionnaires were administered only to the number of the respondents from each institution.

**Table 3.** Demographic Information

Names of Institutions	Frequency	Percentage (%)
Modibbo Adama University of Technology, Yola	91	31.2
Adamawa State University, Mubi	39	13.4
Federal Polytechnic, Mubi	61	20.9
Adamawa State Polytechnic, Yola	28	9.6
Adamawa State College of Education, Hong	29	9.9
Adamawa State College of Agriculture, Ganye	35	12
Adamawa State College of Nursing and Midwifery, Yola	8	2.7
Nigerian Law School, Yola campus	1	.3
Total	292	100

Table 4 also shows rank of the respondents to this study, which indicates less than half of the respondents 78(26.7%) are either Graduate Assistant or Assistant Lecturers as they are called in the polytechnics and colleges of education, followed by Lecturer II or Lecturer I as they are called in the polytechnics and colleges of education, 69(23.6%), Lecturer I or Senior Lecturer as they are called in the polytechnics and colleges of education, 49(16.8%), Assistant Lecturer or Lecturer II as they are called in the polytechnics and colleges of education, 39(13.4%), Senior Lecturer or Principal Lecturer as they are called in the polytechnics and colleges of education, 38(13%), Professor or Chief Lecturer as they are called in the polytechnics and colleges of education, 11(3.8%), and Principal Lecturer or Assistant Chief Lecturer as they are called in the polytechnics and colleges of education, 8(2.7%). The table indicates that majority of academic staff in tertiary institutions in Adamawa State are, either Graduate Assistant or Assistant Lecturers this may be because of the state having more number of colleges of education and polytechnics than Universities.

#### *4.2 Rank of the Respondents*

**Table 4.** Rank of the Respondents

Rank	Frequency	Percentage %
Graduate Assistant or Assistant Lecturer	78	26.7
Assistant Lecturer or Lecturer II	39	13.4
Lecturer II or Lecturer I	69	23.6
Lecturer I or Senior Lecturer	49	16.8
Senior Lecturer or Principal Lecturer	38	13
Principal Lecturer or Assistant chief Lecturer	8	2.7
Professor or Chief Lecturer	11	3.8
Total	292	100

#### *4.3 Answers to Research Questions*

*4.3.1 Research Question One:* What is the level of awareness of the Internet resources and services by the academic staff of tertiary institutions in Adamawa State?

##### **1) Awareness on the Internet Resources and Services for Academic Activities**

Table 5 shows the awareness of the Internet resources and services where the majority of the respondents 292(100%) are aware of the existence of Internet resources and services. The table further shows the level of awareness of the respondents on the Internet resources and services where more than half 183(62.7%) of the respondents are aware and those with a high level of awareness, 109(37.3%). From the table, it shows that majority of the respondents are aware of the existence of the Internet resources and services.

**Table 5.** Awareness to the Internet Resources and Services

Internet Resources Awareness	Frequency	Percentage %
Yes	292	100
<b>Internet Services Awareness</b>		
Yes	292	100
<b>Level of Awareness to the Internet Resources</b>		
Very Aware	109	37.3
Aware	183	62.7
Not sure	0	0
Not aware	0	0
Total	292	100
<b>Level of Awareness the Internet Services</b>		
Very Aware	109	37.3
Aware	183	62
Not sure	0	0
Not aware	0	0
Total	292	100

**2) Source of Awareness of the Internet Resources and Services**

Table 6 shows the source of awareness on the Internet resources by the respondents. Less than half 69(23.6%) got their awareness from colleagues and library, followed by those from library only 52(17.8%), those from colleagues only, 51(17.5%), those that got their awareness from both colleagues, library, friends/family, and workshop/conferences 34(11.6%), those from colleagues, library and friends/family, 24(8.2%), those that got their awareness from workshops/conferences, 23(7.9%), those from friends and family, 21(7.2%), those that got their awareness from colleagues, library and workshops/conferences, 13(4.5%), those that got their awareness from colleagues, friends/family and workshops/conferences, 4(1.4%), and lastly those that got their awareness from other source seminar as indicated, 1(.3%). The table shows most of the academic staff in tertiary institutions in Adamawa State got their awareness of the Internet resources from their colleagues and library.

The table further shows the source of awareness to the Internet services by the respondents to this study. Less than half 69(23.6%) got their awareness from colleagues and library, followed by those from library only 53(18.2%), those from colleagues only, 49(16.8%), those that got their awareness from both colleagues, library, friends/family, and workshop/conferences 34(11.6%), those that got their awareness from workshops/conferences, 25(8.6%), those from colleagues, library and friends/family, 24(8.2%), those from friends and family, 20(6.8%), those that got their awareness from colleagues, library and workshops/conferences, 13(4.5%), those that got their awareness from colleagues, friends/family and workshops/conferences, 4(1.4%), and lastly those that got their awareness from other source seminar as indicated, 1(.3%). The table shows most of the academic staff in tertiary institutions in Adamawa State got their awareness of the Internet resources and services from their colleagues and library, which shows the source of

their awareness to both the Internet resources and services, is the same. Therefore, the level of awareness of the services of Internet resources by the academic staff of tertiary institutions in Adamawa State was high.

**Table 6.** Source of Awareness of the Internet Resources and Services

Source to the Internet Resources	Frequency	Percentage %
Colleagues	51	17.5
Library	52	17.8
Friends and family	21	7.2
Workshops and conferences	23	7.9
Others	1	.3
Colleagues, Library, Friends and family and workshops/conferences	34	11.6
Colleagues and Library	69	23.6
Colleagues, Library and Friends and family	24	8.2
Colleagues, Library and workshops/conferences	13	4.5
Colleagues, Friends/family and workshops/conferences	4	1.4
<b>Total</b>	<b>292</b>	<b>100</b>
<b>Source to the Internet Services</b>		
Colleagues	49	16.8
Library	53	18.2
Friends and family	20	6.8
Workshops and conferences	25	8.6
Others	1	.3
Colleagues, Library, Friends and family and workshops/conferences	34	11.6
Colleagues and Library	69	23.6
Colleagues, Library and Friends and family	24	8.2
Colleagues, Library and workshops/conferences	13	4.5
Colleagues, Friends/family and workshops/conferences	4	1.4
<b>Total</b>	<b>292</b>	<b>100</b>

### 3) Awareness of Academic Staff Use of the Internet Resources and Services

Table 7 provides analysis of the respondents' awareness of the Internet resources and services for academic activities, where majority 292(100%) of the respondents indicated awareness of academic staff uses the Internet resources and services for their academic activities. It further shows the type of Internet resources academic staff are aware of, less than half 109(37.3%) of the respondents are aware of all the Internet resources, that is e-books, e-journals and online databases, followed by those that are aware of only databases, 78(26.7%), those that are aware of only e-books, 33(11.3%), those that are aware of e-books and online databases, 26(8.9%), those that are aware of e-books and e-journals 23(7.9%), those that are aware of e-journals only, 20(6.8%), and lastly those that are aware of e-journals and online databases, 3(1%). From the analysis, it shows that majority of the respondents are aware of all the Internet resources. The

table further shows the type of Internet services aware by the respondents, where less than half 108(37%), are aware of the e-mail, followed by those that are aware of both the e-mail and File Transfer Protocol (FTP), 82(28%), those that are aware of both e-mail, File Transfer Protocol (FTP), Usenet, and Discussion group, 80(27.4%), those that are aware of only Usenet, 7(1.7%), those that are aware of only File Transfer Protocol (FTP), 5(1.7%), Discussion group only, 3(1%), and lastly e-mail and Discussion group, 2(.7%). From the analysis, the majority of the respondents are aware of the e-mail Internet services.

This implies that all academic staff of tertiary institutions in Adamawa State have a high level of awareness of the Internet resources and services. This could be attributed to the various sources of awareness available to them such as colleagues, library, friends/family, and workshops/conferences. An interesting finding is that the majority of the academic staff are aware that Internet resources and services are used as a tool for academic activities.

**Table 7.** Awareness of Academic Staff Use of the Internet Resources and Services for Academic Activities

Awareness of Internet Resources	Frequency	Percentage %
Yes	292	100
<b>Awareness of Academic Staff Use of the Internet Services for Academic Activities</b>		
Yes	292	100
<b>Internet Resources Aware as an Academic Staff</b>		
E-books	33	11.3
E-journals	20	6.8
Online databases	78	26.7
E-books, e-journals and Online databases	109	37.3
E-books, and e-journals	23	7.9
E-books and Online databases	26	8.9
E-journals and Online databases	3	1
Total	292	100
<b>Internet Services Aware as an Academic Staff</b>		
E-mail	108	37
File Transfer Protocol (FTP)	5	1.7
Usenet	7	2.4
Discussion group	3	1
E-mail, File Transfer Protocol (FTP), Usenet, and Discussion group	80	27
E-mail and File Transfer Protocol (FTP)	82	28
E-mail and Usenet	3	1
File Transfer Protocol (FTP) and Discussion group	2	.7
E-mail and Discussion group	2	.7
Total	292	100

**4.4 Research Question Two:** What is the extent of utilization on the Internet resources and services by the academic staff of tertiary institutions in Adamawa State?

**1) Use of the Internet Resources Services**

Table 8 describes the utilization of the Internet resources and services for academic activities by the respondents where the majority of the respondents 292(100%) indicated using the Internet resources and services for academic activities. The result also indicated whether they receive training on how to use the Internet resources and services or not with majority 226(77.4%) indicated to have received training on how to use the Internet resources and services while 66(22.6%) indicate not receiving training on how to use the Internet resources and services. From the table above, it will be concluded that majority of the academic staff in tertiary institutions of Adamawa State have received various forms of training on how to use the Internet resources and services for their academic activities.

**Table 8.** Utilization of the Internet Resources Services

Use of the Internet Resources	Frequency	Percentage %
Yes	292	100
<b>Use of the Internet Services</b>		
Yes	292	100
<b>Training on how to Use the Internet Resources</b>		
Yes	226	77.4
No	66	22.6
Total	292	100
<b>Training on how to Use the Internet Services</b>		
Yes	226	77.4
No	66	22.6
Total	292	100

**2) Sources of training received**

Table 9 also indicates the different forms of training received by the respondents, less than half 74(25.3%) indicated to receive training through self-initiative and guidance from friends/colleagues, followed by those that received training through only self-initiative, 66(22.6%), those that received training through both self-initiative, guidance from friends/colleagues, through the effort of their institution, and external training program, 52(17.8%), those that received training through self-initiative and through the effort of their institution, 34(11.6%), those that received their training through external training program, 28(9.6%), those that received their training from the effort of their institution alone 12(4.1%), those from other forms of training, 12(4.1%), those from self-initiative and through external training program, 11(3.8%) and lastly those from only guidance from friends/colleagues, 3(1%). From the table above, it will be seen that majority of the respondent received their training on how to utilize the Internet resources and services through self-initiative and guidance from friends/colleagues.

**Table 9.** Sources of training received

Source of Training Received		
Through self-initiative	66	22.6
Guidance from friends and colleagues	3	1
Through the effort of your institution authority	12	4.1
Through external training program	28	9.6
Others	12	4.1
Through self-initiative, guidance from friends and colleagues, through the effort of your institution, and external training program	52	17.8
Through self-initiative and guidance from colleagues	74	25.3
Through self-initiative and through the effort of your institution	34	11.6
Through self-initiative and through external training program	11	3.8
Total	292	100

**3) Effort to be trained on Utilization of the Internet Resources and Services**

Table 10 shows the different forms of efforts respondents are making to ensure they are trained on how to utilize the Internet resources and services, already majority 224(74.3%) have indicated to have received training. Those that are making effort to be trained through self-initiative and guidance from friends/colleagues, 18(6.2%), followed by those from both self-initiative, guidance from friends/colleagues, through the effort of their institution, and through enrolment in computer training centers, 15(5.1%), those that are making the effort through self-initiative, 12(4.1%), those from guidance from friends/colleagues, 8(2.7%), those from self-initiative and enrolment in computer training centers, 6(2.1%), and lastly those that received the training from enrolment in computer training centers, 4(1.4%). From the table, it shows that majority of the respondent are making the effort to be trained on the utilization of the Internet resources and services through self-initiative and guidance from friends/colleagues. The table also indicates whether the respondent knows how to retrieve documents from the Internet, majority 269(92.1%) indicates knowing how to retrieve documents from the Internet, followed by 23(7.9%) who indicated not knowing how to retrieve documents from the Internet. From the table, it shows that majority of the respondents know how to retrieve documents from the Internet.

The table also indicates since when the respondents start using the Internet resources and services for their academic activities where the table shows, less than half 123(45.5%) start using the resources between one and five years ago, followed by those from six and ten years ago, 98(33.6%), those from eleven to fifteen years ago, 33(11.3%), those from less than one year, 20(6.8%), and lastly those from over fifteen years ago, 8(2.7%). From the table, it shows that majority of the respondents start using the Internet resources between one and five years ago. The table also indicate since when the respondents start using the Internet services for their academic activities where, less than half 131(44.9%) indicate using the Internet services between one to five years ago, followed by those that start using the Internet services between six and ten years ago, 99(33.9%), those from eleven to fifteen years ago, 33(11.3%), those from less than one year ago, 21(7.2%), and lastly those from over fifteen years ago, 8(2.7%). From the table, it shows that majority of the respondents start using the Internet services between one to five years ago. The table also shows there is no difference between the time they start using Internet resources and Internet services.



**Table 10.** Effort to be trained on Utilization of the Internet Resources and Services

Effort to be Trained	Frequency	Percentage %
No	224	76.1
Self-initiative	12	4.1
Seeking guidance from friends and colleagues	8	2.7
Enrolment in computer training centers	4	1.4
Self-initiative, seeking guidance and enrolment in computer training centers	15	5.1
Self-initiative and seeking guidance from friends and colleagues	18	6.2
Self-initiative and enrolment in computer training centers	6	2.1
Seeking guidance and enrolment in computer training centers	5	1.7
Total	292	100
<b>Retrieval of documents from the Internet</b>		
Yes	269	92.1
No	23	7.9
Total	292	100
<b>Years of Using the Internet Resources</b>		
Less than one year	20	6.8
1 - 5 years	123	45.5
6 -10 years	98	33.6
11 - 15 years	33	11.3
Over 15 years	8	2.7
Total	292	100
<b>Years of Using Internet Services</b>		
Less than one year	<b>21</b>	<b>7.2</b>
1 - 5 years	<b>131</b>	<b>44.9</b>
6 -10 years	<b>99</b>	<b>33.9</b>
11 - 15 years	<b>33</b>	<b>11.3</b>
Over 15 years	<b>8</b>	<b>2.7</b>
Total	292	100

**4) Use of the Internet Resources and Services for Academic Activities**

Table 11 shows the utilization of the Internet resources and services for academic activities, majority 292(100%) indicate using the Internet resources for their academic activities. The table also indicates the type of Internet resources used by the respondents where less than half 142(48.6%) indicates using the online databases, followed by those using the e-books,44(15.1%), those using the e-books and online databases, 31(10.6%), those using the both e-books, e-journals and online databases, 29(9.9%), those using the e-journals alone, 26(8.9%), those using the combination of both e-books and e-journals,18(6.2%),those using e-journals and online databases, 1(.3%), and lastly those that indicate using other Internet resources, 1(.3%), thus majority of the respondents utilize the online databases of the Internet resources for their academic activities.

The table further indicates majority 292(100%) of the respondents indicate using the Internet services for their academic activities. The table also describe the type of the Internet services mostly used by the respondents where more than half, 190(65.1%), indicate using the e-mail, followed by those using e-mail and File Transfer Protocol (FTP), 75(25.7%), those using the

Usenet, 8(2.7%), those using the e-mail, File Transfer Protocol (FTP), Usenet and Discussion group, 5(1.7%), those using the File Transfer Protocol (FTP) alone 5(1.7%), those using Discussion group alone, 4(1.4%) those using e-mail and Usenet, 3(1%), those using the File Transfer Protocol (FTP) and Discussion group, 1(.3%), and those using e-mail and Discussion group, 1(.3%). From the table shows that majority of the respondents are utilizing the e-mail Internet service for their academic activities.

**Table II.** Use of the Internet Resources and Services for Academic Activities

Use of the Internet Resources for your Academic Activities	Frequency	Percentage %
Yes	292	100
<b>Internet Resources Use most for Academic Activities</b>		
E-books	44	15.1
E-journals	26	8.9
Online databases	142	48.6
Others	1	.3
E-books, e-journals and online databases	29	9.9
E-books and e-journals	18	6.2
E-books and online databases	31	10.6
E-journals and online databases	1	.3
Total	292	100
<b>Use of Internet Services for your Academic Activities</b>		
Yes	291	99.7
No	1	.3
Total	292	100
<b>Internet services Use most for Academic Activities</b>		
E-mail	190	65.1
File Transfer Protocol (FTP)	5	1.7
Usenet	8	2.7
Discussion group	4	1.4
E-mail, File Transfer Protocol (FTP), Usenet and Discussion group	5	1.7
E-mail and File Transfer Protocol (FTP)	75	25
E-mail and Usenet	3	1
File Transfer Protocol (FTP) and Discussion group	1	.3
E-mail and Discussion group	1	.3
Total	292	100

**5) Utilization of the Internet Resources and Services**

Table 12 shows how often the respondents use the Internet resources for their academic activities where less than half, 122(41.8%) indicate using the Internet resources between one to five hours a week, followed by 94(32.2%), indicate using between six and fifteen hours a week, those using for sixteen to twenty five hours a week, 56(19.1%), those using for twenty six to fifty hours a week, 16(5.5%), and those using for over fifty hours a week, 4(1.4%). From the table, it shows that majority of the respondents use the Internet resources between one to five hours a week. The table also shows how often the respondents use the Internet services per week where less than

half 121(41.8%) indicate using the Internet services for between one to five hours a week, followed by 95(32.2%), who use the services for between six to fifteen hours a week, those using the services for between sixteen and twenty five hours a week, 55(18.8%), those using the services for between twenty six and fifty hours a week 17(5.8%), those using the services for over fifty hours a week, 4(1.4%). From the table it shows that majority of the respondents use the Internet services for between one to five hours a week, it also shows that there is no difference between the number of hours the respondents take in using the Internet resources and the Internet services per week.

Table further shows the number of hours the respondents use the Internet resources and services for other activities where, less than half 116(39.7%), indicate using the Internet resources and services for other activities between one to five hours a week, followed by those using the resources and services for between six to fifteen hours a week, 72(24.7%), those using for between sixteen to twenty five hours a week, 66(22.6%), and those using for between twenty six to fifty hours a week, 38(13%). It shows that majority of the respondents use the Internet resources and services for other activities between one and five hours a week. The table also shows that there is no difference between the number of hours the respondents use Internet resources and services for academic activities and other activities.

**Table 12.** Showing hours of Utilization of the Internet Resources and Services per Week

Time of Utilizing the Internet Resources for Academic Activities	Frequency	Percentage %
1 - 5 hours a week	122	41.8
6 - 15 hours a week	94	32.2
16 - 25 hours a week	56	19.1
26 - 50 hours a week	16	5.5
Above 50 hours a week	4	1.4
Total	292	100
<b>Time of Utilizing the Internet Services for Academic Activities</b>		
1 - 5 hours a week	121	41.8
6 - 15 hours a week	95	32.2
16 - 25 hours a week	55	18.8
26 - 50 hours a week	17	5.8
Above 50 hours a week	4	1.4
Total	292	100
<b>Time of Utilizing the Internet Resources for other Activities</b>		
1 - 5 hours a week	116	39.7
6 - 15 hours a week	72	24.7
16 - 25 hours a week	66	22.6
26 - 50 hours a week	38	13
Total	292	100
<b>Time of Utilizing the Internet Services for other Activities</b>		
1 - 5 hours a week	116	39.7
6 - 15 hours a week	72	24.7
16 - 25 hours a week	66	22.6
26 - 50 hours a week	38	13
Total	292	100

#### 4.5 Hypothesis Testing

Hypothesis testing is a fundamental activity in inferential statistics. This section was designed to test the hypotheses developed in this study. The correlation coefficient ( $r$ ) was used to test the hypothesis of this study using SPSS version 20.0. In conducting the test 0.05 was used as the level of significance in testing the hypothesis. Hence, for the interpretation to test whether the hypothesis should be rejected or retained, the decision rule is that, when the computed correlation ( $r$ ) is greater than the critical p-value ( $p > 0.05$ ), then the null hypothesis should be retained. On the other hand, if the computed correlation ( $r$ ) is less than the p-value ( $p < 0.05$ ) the null hypothesis should be rejected, and the alternative hypothesis will be retained.

**HO<sub>1</sub>:** There is no significant relationship between awareness and utilization of Internet resources and services for academic activities. The result of the test is presented in table 13.

Table 13 indicates the relationship between Awareness and utilization of the Internet Resources and Services. Therefore, the null hypothesis was rejected since the correlation ( $r$ ) is 0.01 which is less than the p-value (0.05) and the alternative hypothesis is retained. Meaning that there are inverse and a weak relationship between awareness and utilization of the Internet resources and services by the academic staff of tertiary institutions in Adamawa State.

**Table 13.** Relationship between Awareness and Utilization of the Internet Resources and Services

Spearman's rho	Awareness_1	Correlation Coefficient	1.000	-.471**
		Sig. (2-tailed)	.	.000
		N	292	292
	Utilization_1	Correlation Coefficient	-.471**	1.000
		Sig. (2-tailed)	.000	.
		N	292	292

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

## 5. Discussion

This study investigates the awareness and utilization of the Internet resources and services for academic activities by the academic staff of tertiary institutions in Adamawa State. The discussions are based on the two (2) research questions addressed in the study. A quantitative research method, employing cross-sectional survey research design that evaluates program was adopted through the use of a questionnaire which was administered to the respondents. Three hundred and thirty-three (333) copies of the questionnaire were administered out of which two hundred and ninety-two (292) were returned and found useful to the study. This is obvious that the response rate is appreciable and would give affirmation to the findings of the study. This corroborates with the recommendation of Osuala (2005) that the higher the number of response rate, the more the credible the study will be.

On the awareness of the Internet resources and services, the study found that the academic staff of tertiary institutions in Adamawa State have a high level of awareness of usage of Internet resources and services. This could be attributed to the various sources of awareness available to them such as colleagues, library, friends/family, and workshops/conferences. An interesting finding is that majority of the academic staff are aware that the Internet resources and services are used as a tool for academic activities which contradicts the findings of Anushandhan and Maharana (2013), Ndinoshiho (2010), Angello (2010), Opeke and Odunlade (2011), and Agboola and Bamigboye (2011) which concluded that academic staff do not have adequate knowledge of the Internet resources and services as such they do not use it in the conduct of their academic activities. The study also found that, majority of the respondents are aware of all the Internet resources, but concerning the Internet services, majority are only aware of the e-mail which further confirm the finding of Chandran (2013), Okella-Obura (2010), Egberongbe (2011), Bankole and Oludayo (2012), and Okiki (2012) where they concluded that academic staff are mostly aware of e-books, e-journals, and online database but still lack knowledge of other Internet services such as Usenet, Telnet and Discussion group.

On the utilization of the Internet resources and services, the study found most of the academic staff are utilizing Internet resources and services for their academic activities, this confirmed the findings of Mahmood (2010) which conclude that most of the Internet resources and services utilize by library and information professionals in Pakistan are e-book, e-journals, online databases, e-mail, and File Transfer Protocol (FTP). Similarly, Nasir (2009) conclude that faculty members of the University of Rasheshi, Bangladesh use e-books, e-journals, online databases, e-mail, File Transfer Protocol (FTP) and Mailing list, this may be attributed to the fact that the majority of them have received various forms of training on how to use the Internet resources and services.

The study further found the majority of the academic staff knew how to retrieve documents from the Internet and have started using Internet resources and services from one to five years ago. Online databases and e-mail are the most Internet resources and services utilized by the academic staff which confirmed the finding of Okpebor (2011) which conclude that, because of the reliability and relevance of information obtained from the Internet resources and the ability to effectively collaborate with colleagues, lecturers, and students of the University of Edo, Nigeria uses the online databases and e-mail Internet resources and services respectively. In contrast to the finding of Aliyu (2011) which states that academic staff in Modibbo Adama University of Technology, Yola uses the Internet resources and services for non-academic activities more than academic activities, this study found that there is no difference between the number of hours the Internet resources and services are used for academic and other activities.

## **6. Conclusion**

The study concludes that academic staffs of tertiary institutions in Adamawa state have an overwhelming awareness of the Internet resources and services. They mostly use the online database and e-mail Internet resources and services respectively. Lastly, the study concludes that there is a significant relationship between awareness, accessibility, and utilization of Internet resources and services.

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## 7. Recommendations

The academic staff of tertiary institutions in Adamawa state should be encouraged to make use of other Internet resources and services rather than depending only on the online database and the e-mail. They should utilize e-resources like e-dissertations, e-theses, and repositories.

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### [ About the authors ]

**Idris Suleiman** has MLIS from Bayero University Kano, Nigeria and currently is the Asst. head of technical services division of Ibrahim Babangida library. He teaches several courses and supervises undergraduate projects from the department of Library and Information Science both at Modibbo Adama University of Technology, Yola, Adamawa state Nigeria. He has contributed in some journals of repute at national level in Nigeria. His contact details are +234- 8067209043 or [idrissuleiman2014@gmail.com](mailto:idrissuleiman2014@gmail.com).

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**Dauda Joshua** has MLIS and PhD in Library and Information Science from the University of the Philippines and University of the Western Cape South Africa. He is currently the Head of Readers' Services Division of Ibrahim Babangida Library, Modibbo Adama University of Technology, Yola in Adamawa state, Nigeria. He has published articles in both local and international journals. He teaches LIS courses and supervises undergraduate projects from the department of Library and Information Science at Modibbo Adama University of Technology, Yola. His contact details are +234-8130580243, +234-8084219708 jopromy@gmail.com, jopromy@yahoo.com.

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