



## Trends in the Use of Search Engines and Browsers for Information Retrieval among Lecturers in Universities in Bauchi State, Nigeria

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### Abstract

*The study investigates the trends in the use of search engines for information retrieval among lecturers in Universities in Bauchi State, Nigeria; Abubakar Tafawa Balewa University and Bauchi State University, Gadau. The quantitative approach was adopted in the study to randomly administer questionnaire on the sample of two hundred and eighty six (286) lecturers in the two Universities. The findings show that the lecturers were using search engines such as Google scholars, Opera, Google chrome, Yahoo and Mozilla firefox on daily basis for their research and teaching activities; it was discovered that majority of the lecturers were competent in the use of the identified search engines; while user friendliness of the search engines, easy to use, easy access to information and easy access to wide range of information as some of the factors influencing their choice of each search engines in the Universities. The study also reveals the availability of the following ICT infrastructure to support the use of search engines in the Universities; computers, Internet service, hardware components, network bandwidth. The study concludes that search engines provide e-print in details and other types of digital works by authors in an academic department, schools or institutions which comprise of electronic thesis and dissertations and presentations by authors of different institutions. Hence, the study serves as a springboard for the Universities and Lecturers in Nigeria to re-evaluate, re-asses and re-strategise the present scenario of ICT adoption in order to improve upon the availability and accessibility to the global network of information resources and information superhighway for improved teaching and research in the Universities. The study recommends the provision of constant electricity, training and retraining of lecturers on the use of other search engines such as Bing, Alta vista, Ask jeeves, Dog pile etc. for information retrieval in the Universities.*

**Keywords:** Search engines, Information retrieval, Lecturers, Universities, Bauch state, Nigeria

### 1. Introduction

Search engine is a software system that is designed to search for information on the World Wide Web (WWW). It is an information retrieval system designed to help find information stored on computer system, such as internet, inside a corporate or proprietary network. It is a kind of information retrieval program and it has two major tasks: Searching through the billions of keywords recorded in the index to find information that match the query sent by the user and ranking retrieved records in order of importance so that the user can choose the most relevant. Search engines serve as source of information to researchers particularly lecturers in higher institutions of learning. They are the vehicles through which researchers can access past and current research publications and help to narrow and refine a search for tracing relevant information. Lecturers can also access information on various courses in the institution through these search engines. This will make them have different information resources and materials for their lectures and research work. Search engines also provide easy access to some reference materials like: gazettes, journals, conference proceeding, magazines and newspapers. Search engines provide e-print in details and other types of digital works by authors in an academic department, schools or institutions which comprise of electronic thesis and dissertations and presentations by authors of different institutions. This has improved the potential for wide banquet online search and retrieval of electronic content easily.



The aim of search engines according to Renwick (2005) is to search and circumnavigate, meaning that a successful search engine should sustain its users in an efficient search for contents, and bring detailed information resources with ease to various lecturers. Okiki (2012) stated that the search engines obtainable are very many but due to lack of awareness, researchers do not exploit them. Internet and the various search engines have brought information explosion, which means that there is large scale, rapid and spectacular expansion of information. The information explosion may confuse researchers on the information to use (Okella-obura and Ikoja-odogbo, 2010). Information retrieval is a field concerned with the structure, analysis, organization, storage, searching, and retrieval of information. It is a well-established discipline in Computer Science since the 1950s. It has however recently enjoyed increased significance because of the information explosion caused by the internet WWW and its related technologies. Not only the absolute amount of information, but also new types of information formats have drawn attention to this field (Nnamdi, 2008). While information retrieval used to be a restricted field with specialized users like librarians and information professionals, today millions of people use IR every day to search the web or search their email, resulting in the need for new user interfaces and query languages (Manning, 2012; 2011; Joe, 2011).

According to Goyal (2010), information retrieval "deals with the representation, storage, organization of, and access to information items". IR is finding material (e.g. documents) of an unstructured nature (usually text) that satisfies an information need from within large collections (usually stored on computers)." The most common task in IR is informally ad hoc retrieval: a user expresses an information need by submitting a query to the system, which tries to return documents relevant to this query. Other tasks in IR include support of users in browsing or filtering document collections, text classification, text clustering, cross-language retrieval, and multimedia retrieval (Manning 2012; Cabero, 2001; Roul and Sahay, 2012).

It is therefore, in view of the above that, the need to study the trends in the use of search engines for information retrieval by lecturers in Universities in Bauchi state arise, especially that observations have shown that there is little or no similar studies conducted in the area under study. The research is hope to measure the adequacy or otherwise the problems associated with the awareness and use of search engines for information retrieval by lecturers in Universities in Bauchi state, which if successfully conducted will no doubt fill in the gap in the area of research and add to the existing body of knowledge in the area of information retrieval. It is also hope that, the study will be significant value to the researchers, more especially the lecturers in enhancing the search engines for information retrieval and to promote their use for research and other scholarly activities. Thus, the following specific objectives guide the study;

1. To investigate the usage level of search engines by lecturers for information retrieval in the universities in Bauchi State.
2. To ascertain the extent to which the lecturers are skilled in the use of search engines in the universities study.
3. To ascertain the factors responsible for the choice of search engines by the lecturers in the universities under study.
4. To identify the ICT infrastructure available to support the use of search engines for information retrieval in the universities study.

## **2. Review of related literature**

Many survey reports have also proved that search engines such as Google and Yahoo are popular search tools that people access every day to find information on the web (Asemi, 2005; Patitungkho and Deshpande, 2005). Search engines offer a simple way to access information on the web almost instantaneously. As pointed by Mustafa (2005) search engines have completely changed how people gather information. No longer must we run to a library to look up something; rather we can pull up relevant documents with just a few clicks on a keyboard. New search engines are improving the quality of results by delving deeper into the storehouse of materials available online, by sorting and presenting those results better, and by tracking your long-term interests so that they can refine their handling of new information requests. Keeping in view the concept of search engines, the present



study has been conducted to know the awareness of search engines as well as the use of search engines for information retrieval by academics in universities in Bauchi State.

### ***Use of Search Engines for Information Retrieval in Institutions of Higher Learning***

The internet search engines have positively affected all the social and economic aspects of human development by improving work performance and productivity. According to Cabero (2001), "the flexibilization time-space accounted for by the integration of Internet search engines into teaching and research processes contributes to increase the interaction and reception of information. Such possibilities suggest changes in the communication models and the teaching and research methods used by academics, giving way to new scenarios which favour both individual and collaborative learning". The use of internet search engines in educational settings, by itself acts as a catalyst for change in this domain. Search engines by their very nature are software applications that encourage and support independent teaching and research. Lecturers using search engines for teaching and research purposes become engrossed in the process of teaching and research as more and more academics use computers as information sources and cognitive tools (Reeves & Jonassen, 1996), the influence of the internet search engines on supporting how academics come up with journals articles, conference proceedings and text books will continue to increase. Internet search engines increases the flexibility of delivery of education so that learners can access knowledge anytime and from anywhere. This in turn would better prepare the academics for lifelong research as well as to improve the quality of teaching. One of the most vital contributions of Internet search engines in the field of education is- Easy Access to Learning. With the help of search engines, academics can now browse through e-books, e-journals etc. and can also have an easy access to research resources all over the world.

The incursion of the internet search engines into the educational sector, according to Bada, Adewole & Olaleka (2009) provides the possibilities to solve teaching and learning problems even more rapidly and accurately than previously conceived. This has eventually made the internet search engines the doyen of humanities as it continues to extend greater acceptance. The search engines, according to Jayesimi (1999), has become the neology in our society and possibly innovative years ahead. In schools, computers are widely used; and the need for internet search engines and literacy in the educational system has become more relevant. It has been found to be effective device for presentation of instructional programme.

In a contribution, Watson (2005) says that, in today's high, tech multi-sensory approach to learning, education, information and recreation, the use of the internet search engines becomes inevitable. It has been used in academic for one purpose or the other practically since their inception. In support of the above, Nnamdi (2008) states the relevance of the internet search engines to academic work to include: easy access to information; vast information; easy information retrieval; access to e-books; Database management system etc. Several authors have contributed variously on how the internet search engines have become an inevitable tool in the academic work. Chime (2004) in his opinion maintains that, the internet search engine is one of the major innovations of the computer that has found its way deeply into the academic sector.

According to Lindary and McLaren (2010) university researchers use search engines for research and made evaluation on the quality and type of research materials being used. In addition to the above, Brophy and Bawden (2014) noted that some of the researchers depend solely on e-resources in writing research papers. Majority of the researchers used a combination of library and online resources. This did not, however, mean that researchers were necessarily choosing the best or most pertinent sources relating to their topics. Instead, as emphasized by Lindary and McLaren (2010), they depend on giving the most positive ratings to sources that were easy to understand, easy to find and available. The e-resources are very easy, convenient and accessibility, were major factors influencing academic use. Joe (2011) conducted a survey study on information technology acceptance by professionals in Delta State University, Nigeria. To access the users using search engines, a seven item questionnaire was used to collect data from a sample of 211 users of which 201 users completed the survey, and response rate was high. He found out that 80 (97.95%) respondents used Google daily, while 65 (74.70%) respondents used Yahoo 2- 3 times a week, while 14 (15.09%) respondents used Bing once a week. It was also discovered that 12 (13.50%) respondents used Netscape twice a week, while 10 (11.49%) respondents use AOL once a month, while 10



(11.49%) respondents used Lycos twice in a month and 10 (11.49%). From the findings, it showed that many users made more use of Google than other search engines because of the knowledge of Google to them.

### **ICTs Skills of Lecturers for Information Searching**

Krubu and Osawaru (2011) in a study based on survey design found that out of the 48 respondents studied, Majority of the respondents who have good computer skills and there are 21 (43.7%), followed by those that have fair computer skills, they are 19 (39.6%) respondents; few of the respondent representing 5 (10.4%) had no skill at all. Only 3 respondents representing 6.3% had excellent computer skills. The result of the study revealed that majority of the respondents, i.e. 18 (37.5%) acquire ICT training skills via formal training; followed by 17 (35.4%) respondents which also acquired the skills via trial and error, while few i.e. 10(20.8%) respondents acquired ICT skills via self - study and the least was 3 (6.3%) respondents that acquired the skills via staff-in-house training.

Al-Ansari (2006) as cited by Nweze and Chinwe (2010) a questionnaire, expert reviewed and pilot tested, was used to collect data from the half of the 491 faculty selected as the sample of four colleges of Kuwait University i.e. Arts, Social Sciences, Sciences, and Engineering. The study focused on the Internet search engines use by the faculty members, including purpose of use, impact on teaching and research, Internet resources that they use and the problem faced while using the Internet search engines. It was discovered that majority of them have been using the computer and Internet search engines for more than five years. The Internet search engines has helped them save time, find up-to-date information and compare with their colleagues. The conclusion is that there is reasonable interest among faculty members of Kuwait University in the use of the internet and its resources, and almost all of them want to improve their Internet search engine use skill through formal training. Bassi and Camble (2011) stated that different studies have identified how researchers acquire their search skills for the use of search engines to access e-resources. Klatt (2001) opined that a majority of search engines users obtained their knowledge by trial and error or with the help of fellow users.

The findings of Okiki (2012) revealed that 30 respondents, representing 27% of total lecturers had 'excellent' computer skill. Further, the computer skill of 45 respondents (40%) was 'good', followed by 17 respondents (19%) with 'satisfactory' level computer skill, and 16 respondents with (14%) were 'fair' in their computer skill. The results show that University of Lagos Academic Staff members to certain degree were computer literate as a result of compulsory computer training program organized by the University Centre for Information Technology and Systems (CITS).

### ***ICT Infrastructures to Support the Use of Search Engines in Institutions of Higher Learning***

According to Vanderlinde and van Braak (2010), ICT infrastructure measures the perceived availability and suitability of the ICT tools such as hardware, software and peripheral equipment provided in the universities. In Pelgrum's (2001) study, ICT infrastructure refers to the availability of equipment, software, Internet access and other similar resources in the institution of higher learning. Additionally, resources and facilities in universities are designed and enabled in the direction of supporting continuous transformation and use of various search engines to retrieve vast information that will assist lecturer in effective delivery of learning and research (Anderson and van Weert, 2002). In the year 1998, Krysa conducted a research to determine and examine regularly occurring factors that affect the implementation of the technology among the university lecturers. A qualitative study among four university lecturers was carried out to identify the factors. Based on the findings, it was reported by one of the lecturers that the outmoded hardware limits the use of search engines in the institution of higher learning (Krysa, 1998). The lecturer was not able to effectively use search engines to retrieve information due to the old and outdated hardware. Conversely, one of the informants stated that limited software act as one of the antecedents that prevents the use of search engines as a means of accessing information (Krysa, 1998).

ICT infrastructure is significant to the universities to achieve its goals for management of information, effective uses and extension of boundaries from the four-walls to the globe. ICT infrastructure presents an opportunity to



lecturers to provide value-added information through meaningful research papers and teaching in the universities and access to a wide variety of digital-based information. Universities are using modern ICT to automate their core functions, implement efficient and effective information searching, cooperation and resource sharing through networks. They use ICT to implement the management information systems (MIS), develop institutional repositories (IR) of digital local content, and digital libraries (Rana, 2018).

### ***Factors that Influenced the Choice of Search Engines by Users***

Various user-related characteristics influence information seeker's use of search engines. Information retrieval arises out of situations pertaining to a specific task that is associated with one or more of the work roles. Review of various related research have identified factors that influenced the use of search engines among users. Okello-obura and Ikoja-Odogo (2012) maintained that, search engines provide access to a wider range of information, faster access to information, and easier access to information. Search engines therefore, provided a number of advantages over traditional print-based sources. Chiparasha and Zuvalinyenga (2012) also concur that, the following factors facilitating the use search engines: easier to find material, easier to get hold of material, extended the range of material, easier to keep up to date, improved the quality of work, saved working time, reduced browsing in libraries. Renwick (2005) buttressed that, availability of search engines has changed what users actually read and use. They now tend to use what is easily accessible. Therefore, they visit the library a lot less, and, as such discovery through serendipity is reduced. Access to search engines has decreased the time spent on searching for information in the manual retrieval system, especially when coupled with adequate searching skills.

Purcell, Brenner and Raine (2012) stated that, search engines are used for a wide variety of research purposes, and they are often the first place to go when searching for information. Search engines are so popular that they are, together with e-mail, the most commonly used service on the Internet. Search engines can help academics to supplement their lecture materials, write journals, conference and communicate with their friends. Balakrishnan (2010), in a study of 92 postgraduate students in a Malasia university revealed students preferred to use search engines such as Yahoo, Google and others to supplement materials provided by the university library, such as ProQuest, university E-Learning resources, university web resources and university library publications. Awoleye and Siyanbola (2006) who indicated that the postgraduate students of the Obafemi Awolowo University Ile-Ife in Nigeria used search engines to seek for information. Mereku, Yidana, Hordzi, Tete-Mensah and Williams (2009) on Ghana's Report on ICT reveals that the availability of computers and other technologies are some of the factors that encourage the usage of search engines in tertiary institutions. Goyal (2010) revealed that the availability of time is another factor that facilitates the use of search engines by the academics. Findings from Shen and Shakir (2009) in one public and one private university in United Arab Emirates showed that academics accessed search engines daily for the following purposes: to seek information, e-mail, online discussions and all their academic issues. Toprackci's (2007) finding showed postgraduate students used search engines for various reasons such as courses related activities, e-mail, downloading of software and reading news. Xie, (2004) outlined the followings has factors that influenced the choice of search engines as information retrieval tool; its simplicity and ease of use, its quickness, its volume and also search engine like Yahoo serve as a guide to user when he/she are not completely sure what he/she is searching for.

However, combinations of factors have made it extremely difficult for individuals and institutions to use the search engines in Nigeria. These include the lack of technical- know how, lack of adequate telecommunications infrastructure and few reliable internet service providers. Other reasons are capital, high cost of machines, (PCs) and of bandwidth (Adomi, 2007; Chibgu and Dim, 2012).

### **3. Methodology**

For this study, quantitative research approach was employed because it was considered more suitable for the study looking at the area of coverage and the study population as there is a possibility of making generalization of the findings as stated by Gorman and Clayton (2005). The researcher found it very relevant for this study as it enables the collection of relevant data from the population or its sample through a well-structured questionnaire. The



quantitative research methodology provides significant premises that best describe and explain the major objectives of the study. Survey research design was used which Glass (2005) described as the means for gathering information about characteristics, actions or opinion of a large sample population and are easy for generalization. A survey research technique is found to be suitable for the study because it is aimed at measuring the attitude and feeling on the awareness and use of search engines for information retrieval.

The population of this study comprises of all lecturers in both Abubakar Tafawa Balewa University Bauchi and Bauchi State University Gadau, as shown in Table 1;

**Table 1:** Population of the Study

Name of institutions	Population of lecturers
Abubakar Tafawa Balewa University Bauchi	862
Bauchi State University Gadau	486
TOTAL	1348

For the selection of sample, the researcher uses simple random sampling techniques which is the basic sampling techniques where subject (sample) for the study are selected from a larger group (population) and each individual as observed by AbdulMalik (2006) is chosen entirely by chance and each member of the population has an equal chance been included in the sample. In this regard, Due to the size of the population in this study which is one thousand three hundred and forty-eight (1348) lecturers. Israel (2012), states that, if the population is 1348 at ±5% precision, the sample should be 286 at the 95% confidence level. The sample for the research is distributed among the two universities proportionately, using a formula recommended by Krejcie and Morgan (1970) represented below:

$$\frac{NXS}{TP} \tag{1}$$

Where,

N = Number (i.e. population of each university)

S = Sample

T = Total sample size

P = Population

Based on this formula, the distribution of samples across the two universities is;

ATBU

$$\frac{862 \times 286}{1348} = 183$$

BASUG

$$\frac{486 \times 286}{1348} = 103$$

## 4. Results and discussion

### 4.1 Introduction

This section deals with the presentation, analysis and interpretation of data obtained from respondents through the questionnaire distributed for the study. The responses are presented in frequency tables and percentages. The results of the study are presented according to the objectives of the study as encapsulated in Section one. The data is presented under the following sub-headings;

4.1 Introduction

4.2 Response Rate

4.3 Demographic Data of the Respondents



- 4.4 Level of Usage of Search Engines by Lecturers
- 4.5 Lecturers Skill in the Use of Search Engines
- 4.6 Factors Responsible for the Choice of Search Engines
- 7 ICT Infrastructure to Support the Use of Search Engines

**4.2 Response Rate**

A total of two hundred and eighty-six (286) copies of questionnaire were administered in which two hundred (200) copies which is 69.9% were returned. See Table 2.

**Table 2: Response Rate**

Response Rate	Frequency	Percentages
Administered	286	100%
Returned	200	69.9%
Not Returned	86	30.1%

Table 2 reveals that a total of 286 copies of questionnaires are distributed to the respondents, out of which majority 200 (69.9%) copies of the questionnaires are duly completed, returned and found usable. While 86 (30.1%) copies were not returned. This shows that there is a high return of 200 which represent 69.9% which is significant enough for analysis in this study. Hence the response rate is adequate enough for analysis in this study because it was appreciable and would give affirmation to the result of the study. Therefore, the analysis for this study is based on the 200 copies returned questionnaire.

**4.3 Demographic Data**

The study investigates the demographic data of the respondents in terms of institution, gender, age, qualification and rank, as follows;

**4.3.1 Institution/University of the respondents**

Table 3 shows the distribution of respondents by institutions

**Table 3: Distribution of Responses by Institutions**

Institution	Frequency	Percentage
ATBU	130	65%
BASUG	70	35%
Total	200	100

Table 3 reveals the Distribution of Respondents by Institutions, which shows that majority of the respondents 130(65%) are from ATBU while the remaining 70(35%) are from Bauchi State University, Gadau (BASUG).

**4.3.2 Gender of Respondents**

Table 4 shows the gender of respondents in universities in Bauchi state.

**Table 4: Distribution of Respondents by Gender**

Gender	Frequency	Percentage
Male	159	79.5%
Female	41	20.5%
Total	200	100

Table 4 shows the distribution of respondents by gender. The table revealed that 79.5% of male participates in this study. While only 20.5% of female participates in the study. This implies that there are more male participants in the study than female participants.



### 4.3.3 Age of Respondents

The Table 5 shows the age distribution of the respondents

**Table 5:** Distribution of Respondents by Age

Age	Frequency	Percentage
18-23yrs	5	2.5%
24-30yrs	32	16%
31-36yrs	87	43.5%
37-43yrs	52	26%
44yrs and above	24	12%
Total	200	100%

Table 5 reveals that the respondents with the highest age range are between 31 – 36years with 87 (43.5%) followed by 37 – 43years 52 (26%), followed by 24 – 30years, with 32 (16%), followed by 44years and above with 24 (12%). The table also reveals that only 5(2.5%) of the respondents are within the age range of 18 – 23years.

### 4.3.4 Educational Qualification

Table 6 shows the educational qualification of the respondents as follows

**Table 6:** Distribution of Respondents by Educational Qualification

Qualification	Frequency	Percentage
First Degree	30	15%
Masters	112	56%
Ph.D.	58	29%
Total	200	100

As encapsulated in Table 6 majority of the respondents are master’s degree holder 112 (56%), while 58(29%) of the respondents are Ph.D. holders and only 15% are First degree holders.

### 4.3.5 Rank of the Respondents

**Table 7:** Distribution of Respondents by Rank

Rank	Frequency	Percentage
Graduate Assistant	14	7%
Assistant Lecturer	66	33%
Lecturer II	54	27%
Lecturer I	16	8%
Senior Lecturer	32	16%
Associate Prof	18	9%
Total	200	100

Table 7 reveals the rank of the respondents, which shows that majority of the respondents 66 (33%) are Assistant Lecturer, followed by Lecturer II 54 (27%), followed by Senior Lecturer 32 (16%), this followed by the respondents who are Associate Professor 18 (9%). About 16 (8%) of the respondents were Lecturer I. It was only 14 (7%) of the respondent are Graduate Assistants. This result shows that majority of the respondents are Assistant Lecturers.

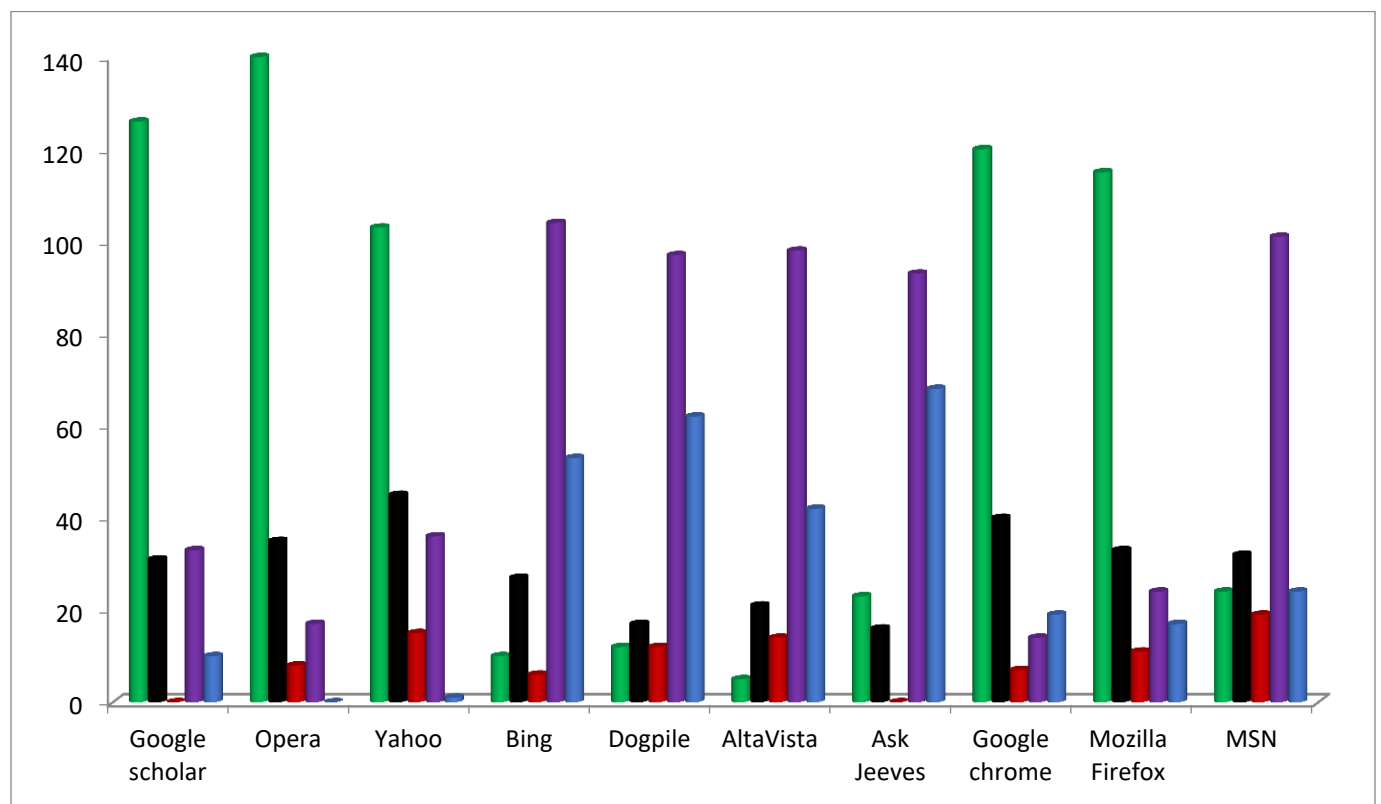


#### 4.4 Level of Usage of Search Engines and Browsers

The study sought to examine the level of usage of search engines by lecturers in the universities. Table 8 shows the details of the usage of search engines

**Table 8** Level of usage of search engines and browsers by Lecturers in the universities

sn	Search Engine	Daily	Weekly	Monthly	Occasionally	Never	Mean	Std.Dev	
1.	Google scholar	126 (63%)	31(15.5%)	0	33(16.5%)	10(5%)	4.15	1.314	
2.	Opera	140 (70%)	35(17.5%)	8(4%)	17(8.5%)	0	4.49	0.919	
3.	Yahoo	103(51.5%)	45(22.5%)	15(7.5%)	36(18%)	1(0.5%)	4.07	1.165	
4.	Bing	10(5%)	27(13.5%)	6(3%)	104(52%)	53(26.5)	2.19	1.121	
5.	Dogpile	12(6%)	17(8.5%)	12(6%)	97(49%)	62(31%)	2.10	1.116	
6.	AltaVista	5(2.5%)	21(10.5%)	14(7%)	98(49%)	42(31%)	2.05	1.014	
7.	Ask Jeeves	23(11.5%)	16(8%)	0	93(46.5%)	68(34%)	2.17	1.295	
8.	Google chrome	120(60%)	40(20%)	7(3.5%)	14(7%)	19(9.5%)	4.14	1.326	
9.	Mozilla Firefox	115(57.5%)	33(16.5%)	11(5.5%)	24(12%)	17(8.5%)	4.03	1.373	
10	MSN	24(12%)	32(16%)	19(9.5%)	101(50.5%)	24(12%)	2.66	1.230	
<b>Decision Mean</b>							<b>3.00</b>		



**Fig 1:** Bar chart showing the level of usage of search engines by lecturers in the universities

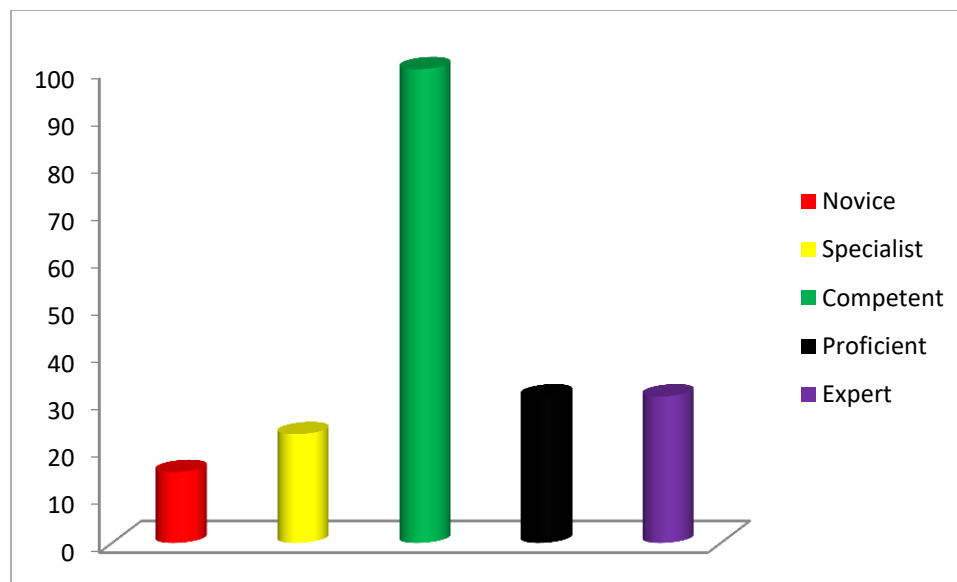
Table 8 shows the level of usage of search engines by lecturers in the universities. The Table reveals that items 2, 1, 8, 3 and 9 with mean scores of 4.49, 4.15, 4.14, 4.07 and 4.03 respectively have the mean scores greater than the decision mean (3.00). This implies that those items have higher levels of usage by lecturers in the universities under study. On the other hand, Items 4, 5, 6, 7 and 10 have mean scores below the decision mean of 3.00. The implication of this is that the level of usage of these search engines by lecturers in the universities is poor. In the

same vein, Fig I buttresses the information on the usage of search engines by lecturers in the universities in a Bar chart format.

This result is in agreement with Duke (2010), who conducts a study to find out the search engines lecturers are aware of and used in higher institutions of learning, with an assignment that was specified to use search engines, in University of Uyo Nigeria. From the total population of 98 respondents, the study discovered that the respondents that used Yahoo and Google were more than those that don't, which was about 74% of the total population. The findings show that majority of the respondents used Yahoo and Google. It also goes in line with Ozoemelem (2008) who carried out a research on perception and use of search engines as a search tool amongst researchers, to assess the researcher's usage of the search engine in South Africa using questionnaire as instrument for data collection. The study found that from a sample of eighty (80) researchers, seventy-five (75) completed the survey showing high response rate. Out of 75 respondents, 10 (11.44%) made use of Google and Yahoo regularly for their research, while 65 (74.70%) of the respondents reported that they lack knowledge of other search engines like Google Scholar, Bing, Ask and WebCrawler and never made use of them. From the findings of this study the researchers were only aware and make use of Yahoo and Google. This study also agrees with Duke (2010) and Ozoemelem (2008) because both research works were survey-based researches.

#### 4.5 Lecturers skills in the use of search engines

The study sought to find out the lecturers skills in the use of search engines. Figure 2 shows the detail of skills of lecturers on the use of search engines.



**Fig 2:** Bar Chart showing the lecturers skills in the use of search engines

Table 9 shows the lecturers skilled in the use of search engines. The Table and the Chart reveals that 100 (50%) of the respondents are competent in the use of search engines. Also, 31 (15.5%) of the respondents show proficient and experts in the use of search engines while 23(11.5%) and 15(7.5%) of the respondents are specialists and novice respectively in the use of search engines. The findings reveal that the extent at which the respondents use the search engines is at competent level.

This agrees with the earlier studies of Krubu and Osawaru (2011) in a study conducted on the impact of ICTs in Nigerian universities in which they found that, majority of the respondents 21 (43.7%) had good computer skills, followed by those that have fair computer skills with 19 (39.6%) respondents; few of the respondents representing 5 (10.4%) had no skill at all. Only 3 respondents representing 6.3% have excellent computer skills.

#### 4.6 Factors influencing the choice of search engine

The study investigated the factors that influence the choice of search engines by lecturers in their teaching and research activities. The results are shown in Table 10

**Table 10:** Factors influencing the choice of search engine as information retrieval tools

S/N	Factors	Yes	No
1.	Easy access to information	159(79.5%)	41(20.5%)
2.	Save users' time/user friendliness	164(82%)	36(18%)
3.	Availability of search tools	135(67.5%)	65(32.5%)
4.	Currency	75(37.5%)	125(62.5%)
5.	Ease of use	179(89.5%)	21(10.5%)
6.	Reliability	82(41%)	118(59%)
7.	Quick response time	132(66%)	68(34%)
8.	Access to wider range of information	182(91%)	18(9%)

Table 10 shows the factors influencing the choice of search engine as information retrieval tools. The table reveals that six (6) out of the eight (8) items in the table are selected by the respondents as factors responsible for the choice of search engine as information retrieval tools. The factors are items 1, 2, 3, 5, 7 and 8, while items 4 and 6 were not the major factors influencing the choice of search engine as information retrieval tools.

This is in congruence with Okello-obura and Ikeja-odogo (2012) who maintain that, search engines provide access to wider range of information, faster access to information and easier access to information. It is also in line with Awoloye and Siyanbola (2006) who indicate that the postgraduate students of Obafemi Awolowo University Ile-Ife in Nigeria used search engines to seek information because they find it easy to use and quick access to information. The study is also in agreement with the findings of Mereku (2009) on Ghana's report on ICT which revealed that the availability of computers and other technologies are some of the factors that encourage the usage of search engines in tertiary institutions. It is also consistent with Chiparasha and Zuvalinyenga (2012) who postulate that, the following factors facilitating the use search engines: easier to find material, easier to get hold of material, extended the range of material, easier to keep up to date, improved the quality of work, saved working time, reduced browsing in libraries.

The study is also in sharp contrast with the findings of Shen and Shakir (2009) who find that lecturers of public and private Universities in United Arab Emirates accessed search engines daily for the following purposes: to seek information, e-mail, online discussions and all their academic issues as they perceived it (search engines) as ease of use, time saving and access of current information. The findings is consistent with Xie (2004) who outlines the followings as factors that influenced the choice of search engines as information retrieval tool; its simplicity and ease of use, its quickness, its volume. It also agrees with Toprackci's (2007) finding which reported that postgraduate students used search engines for courses related activities, email, downloading of software and reading news because of its simplicity and quick access to information.

#### 4.7 ICT infrastructure available to support the use of search engines

The study wants to find out the ICT infrastructure available to support the use of search engines in the universities. The Table 11 shows details on the available ICT infrastructure to support the use of search engines.

**Table 11:** ICT Infrastructures available to support the use of search engines in the universities

S/NO	INFRASTRUCTURES	SA	A	UN	D	SD	Mean	Std.Dev.	
1.	There is Internet service in the universities	98(49%)	63(31.5%)	5(2.5%)	34(17%)	0	4.13	1.089	
2.	Computers are made available	65(32.5%)	103(51.5%)	10(5%)	22(11%)	0	4.06	0.903	
3.	Network bandwidth availability	45(22.5%)	96(48%)	15(7.5%)	36(18%)	8(4%)	3.67	1.130	
4.	Hardware components availability	74(37%)	106(53%)	3(1.5%)	16(8%)	1(0.5%)	4.18	0.849	
5.	There is constant power electricity supply	29(14.5%)	58(29%)	22(11%)	76(38%)	15(7.5%)	3.05	1.247	
<b>Decision mean</b>							<b>3.00</b>		

Table 11 shows the Infrastructure available to support the use of search engines for information retrieval in the universities. The Table reveals that Items 1, 2 and 3 have the mean scores of 4.13, 4.06 and 4.18 respectively which are far above the decision mean of 3.00. This implies that infrastructure such as Internet service; computers and printers are available to support the use of search engines for information retrieval in the universities. However, Items 3 and 5 have the mean score slightly above the decision mean.

This is in consistent with the findings of Younger (2005) who conducted a research to determine ICT infrastructure that support the use of search engine. A quantitative study among four universities was carried out to identify the factors. Based on the findings, it was reported that ICT infrastructures such as computers, high network bandwidth, strong electricity supply among others are infrastructures that support the use of search engines. The present study is also in line with Vanderlinde and van Braak (2010) who reports that hardware, software and peripheral equipment's were found to be ICT infrastructures that support the use of search engines. The study justifies the fourth mapping of the construct of the model and the variable of the study, which suggested the provision of motivation that will encourage the use of ICT. Through incentives such as computer laboratory, increase in internet bandwidth, hardware and other ICT infrastructures.

## 6. Conclusion and Recommendations

The study concludes that search engines provide e-print in details and other types of digital works by authors in an academic department, schools or institutions which comprise of electronic thesis and dissertations and presentations by authors of different institutions. Hence, the study serves as a springboard for the Universities and Lecturers in Nigeria to re-evaluate, re-asses and re-strategise the present scenario of ICT adoption in order to improve upon the availability and accessibility to the global network of information resources and information superhighway for improved teaching and research in the Universities. The study recommends the provision of constant electricity, training and retraining of lecturers on the use of other search engines such as Bing, Alta vista, Ask jeeves, Dog pile etc. for information retrieval in the Universities.

## References

Anderson, J. and van Weert, T. (Eds.) (2002). Information and communication technology in education: A curriculum for schools and programme of teacher development. Unesco, division of higher education: Paris.



- Asemi, A. (2005). Information searching habits of internet users: a case study on the medical sciences University of Isfahan, Iran. *Webology*, 2(1). Article 10. Available at: <http://www.webology.org/2005/v2n1/a10.html> Access 10/8/2020.
- Adomi, E.E. (2005) Internet development and connectivity in Nigeria. Program: *The Electronic Library and Information Systems*, 39 (3), 257-268.
- Awoloye, O., & Siyanbola, W. (2006). Examining the level of penetration and impact of Internet usage amongst Undergraduates in Nigerian Universities-a case study approach. *Current Developments in Technology-Assisted Education*. 3, 1708-1713.
- Abdulmalik, Y. O. (2006) *Research Methodology in Business and the Social Sciences* Al-malikand Company.
- Bada, T. Adewole, A. and Olalekan, O. (2009). Use of computer and its relevance to teaching and learning in Nigerian educational system. *Educational Research and Review* 4(10):443-447. Accessed April 8, 2020. <http://www.academicjournal.org/ERR>.
- Balakrishnan M. (2010). Academic use of Internet among undergraduate students: A preliminary case study in a Malaysian university. *International Journal of Cyber Society and Education*. 3(2), 171-178.
- Brophy, I., and Bawden, D. (2014). IS Google enough? Comparison of an internet search engine with academic library resources. In *Aslib proceedings* 57, (6), 498-512. Emerald Group Publishing Limited.
- Bassi, M. D. and Camble, E. (2011). Gender Differences in the use of Electronic Resources in University Libraries in of Adamawa State, Nigeria. *Library Philosophy and Practice* (e-journal) Paper 549. Accessed 11/3/2020 from <http://digitalcommons.unl.edu/libphilprac/549>
- Cabero, J. (2001). *Tecnología educativa. Diseño y producción de medios en la enseñanza*. Barcelona, Paidó.
- Chime, C. A. (2004). E-Learning: A great tool towards educational quality and growth. *The Science Teacher Today: The Journal of School of Science*, 2 (1), 25-30.
- Gorman G. E. and Clayton, P. (2005). *Qualitative research for the information professional: a practical handbook*.
- Goyal, A. (2010). Information, direct access to farmers, and rural market performance in Central India. *American Journal of Applied Economics*, 2(3): 22-43.
- Israel, G. D. (2012), Determining sample size. Program evaluation and organisational development. University of Florida: IFAS, POED-6. Available at: <http://edis.ifas.ufl.edu>. Accessed 12/10/2014.
- Jayesimi, S. B. (1999). Programming the unprogrammable. Inaugural Lecture Series 76. *Journal of Information Systems Management*. 5( 3): 26-36.
- Joe, R. (2011). Information technology acceptance by professionals. *Journal of information science*, 6(10), 65-67.
- Krejcie, R. V. and Morgan, D. W. (1970). Determining sample size for research activities. *Educational Psychological Measurement*, (30), 607-610.
- Krubu, D. and Osawaru, K. (2011). *The Impact of ICT in Nigerian University libraries*. Lincoln: University of Nebraska.
- Krysa, R. (1998). Factors affecting the adoption and use of computer technology in schools. Accessed 14/4/2018 from <http://www.usask.ca/education/coursework/802papers/krysa.PDF>.
- Lindary, O. and McLaren, P. (2010). Advantages and Disadvantages of online searches. Retrieved 8/4/2020 from <http://www.elsevier.com/locate/compedu>
- Manning, C. D. (2012), Knowledge management, databases and data mining, computer science. Cambridge University Press: Cambridge.
- Mereku, D. K., Yidana, I., Hordzi, W., Tete-Mensah, I., Tete-Mensah, W. and Williams, J. B. (2009). *Pan African research agenda on the pedagogical integration of ICTs: Ghana report*. Accessed 11/12/2019 from [http://www.ernwaca.org/panaf/pdf/phase-1/Ghana-PanAf\\_Report.pdf](http://www.ernwaca.org/panaf/pdf/phase-1/Ghana-PanAf_Report.pdf).
- Mostafa, J. (2005), "Seeking better web searches", *Scientific American*, Vol. 292 No. 2, pp. 51-57.
- Nnamdi, O.E. (2008). Information and communication technology facilities in conducting educational research and publishing. *Nigerian Journal of Library, Achival and Information Science*, 1(6):7-12.
- Nwezeh, M. T., and Chinwe, M. (2010). The Use of ICTs in Nigerian Universities: A Case Study of Obafemi Awolowo University, Ile-Ife. *Journal of library philosophy and Practice*, 2(3), 30-49.



- Okello-Obura, C. and Ikoja-Odongo, J. R. (2012). Electronic information seeking among LIS postgraduate students at Makerere University, Uganda. *Library Philosophy and Practice* (e-journal). 499. <https://digitalcommons.unl.edu/libphilprac/499>
- Okiki, O. C. (2012). Electronic information resources awareness, attitude and use by academic staff members of University of Lagos, Nigeria. *Library Philosophy and Practice* (e-journal) Paper 834.
- Patitungkho, K. and Deshpande, N.J ,2005. Information Seeking Behaviour of Faculty Members of Rajabhat Universities in Bangkok. *Webology*, 2 (4) Available at:<http://www.webology.org/2005/v2n4/a20.html> (accessed 12 August 2020).
- Pelgrum, W. J. (2001). Obstacles to the integration of ICT in education: results from a worldwide educational assessment. *Computers and Education*, 37, 163-178.
- Purcell, K., Brenner, J. and Raine, L. (2012). *Search Engine Use 2012. Search*. Washington, DC. Accessed from [http://pewinternet.org/~media/Files/Reports/2012/PIP\\_Search\\_Engine\\_Use\\_2012.pdf](http://pewinternet.org/~media/Files/Reports/2012/PIP_Search_Engine_Use_2012.pdf)
- Rana, K. (2018). ICT in rural primary schools in Nepal: context and teachers' experiences. A thesis submitted to the school of teacher education university of Canterbury at Christchurch, New Zealand.
- Reeves, T. C. and Jonassen, D. H.(1996). Learning with technology: Using computers as cognitive tools. In D. H. Jonassen (Ed.), *Handbook of research for educational communications and technology* (1st ed.). Retrieved from <http://www.aect.org/edtech/ed1/> 10/5/2020.
- Renwick, S. (2005). Knowledge and use of electronic information resources by medical sciences faculty at the university of the west indies. *Journal of Medical Librarians Association*, 93(1): 21-31.
- Shen, K. and Shakir, M. (2009). Internet usage among young Arab students: preliminary findings. Paper presented at The European, Mediterranean and Middle Eastern Conference on Information Systems, at Izmir, Turkey.
- Toprakci, E. (2007). The profiles of the use of the internet for study purposes among university students. *The Turkish Online Journal of Educational Technology*. 6(3), 129-144
- Vanderlinde, R. and van Baraka, J. (2010). The e-capacity of primary schools: development of a conceptual model and scale construction from a school improvement perspective. *Computers and Education*, DOI:10.1016/j.compedu.2010.02.016.
- Watson, E. F. (2005). Access to audio visual and multimedia materials: What are the challenges for developing countries? Accessed April 13,2020 at <http://www.loc.gov/preserve/care/paper.html>.
- Younger, P. (2005), "The effective use of search engines on the internet". *Nurse Stand* 9 No. 48, pp. 56-64.
- Xie, H. I. (2004). Online IR system evaluation: Online databases versus Web search engines. *Online Information Review*, 28(3), 211–219.