Assessment of Information and Communication Technology (ICT) Literacy Level of Undergraduate Students in University Libraries in North Central Nigeria

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Abstract

This pilot study was carried out to assess the Information Communication Technology (ICT) literacy level of undergraduate students in University Libraries in North Central Nigeria. The study adopted a descriptive survey research design. A sample size of 404 respondents from a target population of 23,231 undergraduate students who are registered library users in Federal, State and Privately owned universities in North Central Nigeria was used as the respondents for the study, questionnaires were administered as instruments for data collection, the results obtained were analysed using simple percentage statistical tool, mean and standard deviation and the decision rule of 2.5 means score. Findings from this study revealed the available of ICT facilities such as computer systems, printers, projectors, scanners, photocopying machines, internet service, Wide Area Network (WAN) i.e. WIFI, external storage and power supply was readily available in university libraries in North Central Nigeria. The study also revealed a relatively low level of ICT literacy skill amongst undergraduate students in North Central Nigeria as the majority of the students possessed only basic computer appreciation skills. Inadequate integration of ICT in the curriculum, inadequate funding, inadequate ICT infrastructural facilities, lack of training opportunity were also identified as the major factors that affected the acquisition of ICT literacy skills. Thus, the study recommended that ICT literacy should be incorporated into school curriculum, provision of more ICT infrastructures.

Keywords: ICT, literacy level, Undergraduates Students, University Libraries, North Central Nigeria

Introduction

In recent years, information communication technology has become an integral part of digital technology which now permeates into almost every dimension of people's life. ICT

literacy is one of the indispensable skills undergraduate students must acquire in today's information society. The need for ICT literacy in Nigerian universities is becoming very imperative in view of its roles in teaching, learning, knowledge acquisition and research. Libraries all over the world are applying information and communication technologies (ICT) to their operations. University libraries have been at the forefront of ICT application to library services (Oguche, 2017). According to King (2007), ICT literacy is the ability to use digital technologies, communication tools and or networks to solve information problems in order to function in the information society. Thus, there is a need for every student to acquire ICT literacy in order to connect, share and use the avalanche of information resources it comes along with for better academic performance. ICT literacy is very significant in education and it remains indispensable support to traditional learning methods and techniques of instruction as well as being relevant in social inclusion. According to Mutula (2010), information literacy is a crucial skill in the pursuit of knowledge. Rockman (2005) also defined ICT literacy as the ability to know what resources are available, what information is within these

sources and how to use technology to access and communicate information. Thus, ICT literacy involves the ability and skill to recognize when information is needed and being able to efficiently locate, accurately evaluate, effectively use, and clearly communicate information in various formats of convergence, be it textual, audio, video, multimedia or audiovisual.

In order to effectively maximize the benefits of ICT in this information age, a certain level of literacy is required especially by undergraduate students. Thus, undergraduate students are required to know the basic computer operations such as turning the computer on, opening a folder, copying a file from one disk to another, etc. In addition to these basic operations, undergraduate students are also expected to be familiar with the use of application software such as creating a new word processor document, modifying an existing word processor document, print out a document, operating in a networked environment such as local area network (LAN) and wide area network (WAN). Skills such as using the Internet for research, sending e-mails, find specific information, taking part in an online discussion or chatting (video conferencing),

and sending /attaching file to an e-mail, using a www search engine such as yahoo, google, MSN etc, using keywords or phrases to search for information on the www etc. It is thus obvious that these skills when acquired will improve enhance the academic performance of undergraduate students by helping them to explore a large number of available information materials from different sources of information with ease and in pursuits of their academic attainments (Adamu and Umar, 2010).

Statement of the Problem

ICT is now widely acknowledged as important resources for advancement in libraries all over the world particularly in this information age, thus many university libraries in Nigeria are applying ICTs to their operations and services to keep abreast with trends and to meet users' information needs. In recent times, ICT literacy is now viewed as a set of competencies that an informed citizen of an information society ought to possess to participate intelligently and actively in that society (Salako and Tiamiyu, 2011). Undergraduate students are expected to be knowledgeable enough to effectively utilize these ICT resources to meet their information

needs. Unfortunately, however, it is observed by this researcher that many undergraduate students in universities in North Central Zone of Nigeria have been encountering problems in a bid to access and utilise electronic resources to support their learning activities.

The need for ICT literacy acquisition cannot be overemphasized because ICT has become a supportive input for any tertiary institution. An ample level of ICT literacy can help improve undergraduate student's performance as it has been observed that not having access to the right information at the right time can hinder students from performing better. In view of the foregoing, this study seeks to assess the ICT literacy level of undergraduate students in University Libraries in North Central Nigeria so as to suggest the best possible ways to improve their literacy levels and consequently, their use ICT.

Aims and Objectives of the Study

The aim of this study is to evaluate the Information and Communication Technology (ICT) Literacy Level of Undergraduate Students in University Libraries in North Central Nigeria. Thus, the study seeks to achieve the following specific objectives:

1. identify the types of ICT facilities available to support undergraduate students learning in University Libraries in North Central Nigeria?

2. determine the ICT literacy level of undergraduate students in University Libraries in North Central Nigeria?

3. determine the factors affecting ICT literacy level of undergraduate students University Libraries in North Central Nigeria?

Research Questions

The following research questions guided the study:

1. What are the types of ICT facilities being used to support undergraduate students learning in University Libraries in North Central Nigeria?

2. What is the ICT literacy level of undergraduate students in University Libraries in North Central Nigeria?

3. What are the factors affecting ICT literacy level of undergraduate students University Libraries in North Central Nigeria?

Significance of the Study

The findings of this study will be of enormous benefits to library curriculum and policy implementation, librarians, lecturers, students and future researchers as well as other researchers and library profession in general. The findings of the study will be of immense benefits to the staff and students as it will provide them with handy information on how to effectively use e-Library resources in their academic pursuit to achieve their daily information needs. It will also provide them with the platform of information utilisation in achieving specific objectives. More so, the findings of this study will provide them with additional ways of using the electronic information resources in their university libraries for specific use at any time.

Literature Review

ICT refers to a range of computer-based technologies such as the internet, email and multi-media. Thus ICT literacy can be defined as the knowledge, skills and abilities in operating the range of technologies that are applied in the process of collecting, storing, editing, retrieving, and transferring of information in various forms (Olakulehin, 2007), to meet personal, educational and labour market goals. ICT literacy is also defined as the ability to use digital technologies, communication tools, and networks appropriately to solve information problems in order to fit in into the society. This includes the

ability to use technology as a tool to research, organize, evaluate and communication and the possession of the ethical and legal issues surrounding the access and use of information (Education Testing Services, 2002). Oguche (2017) explained information communication technology (ICT) literacy as the relative measure of an individual's capacity to make appropriate use of ICT for information acquisition, organization, retrieval and dissemination. Leu, Kinzer, Coiro and Cammack (2004) further stated that ICT literacy skills possessed by the users enable them to understand how to construct, design, manipulate, and upload their own information to add to the constantly growing and changing body of knowledge that defines the internet. According to Igun (2006), an essential requirement to operate in this 21st-century knowledge society is ICT skills which start from turning on a computer to create, store, retrieve and access information online. ICT literacy skill is the proficiency in using digital technology, communication tools, and network appropriately to solve information problems in order to function in the knowledge society. This thus reflects the use of the importance of computers in education as learning tools to help students to gain a level of competence in applying information technology to every day problem-solving. Ugwuanyi (2011) posits that ICT literacy skills are very necessary as the new literacy is required for effectively using ICT to accomplish functions in an information age. He further states that the capacity of library users to exploit the internet depends on the level of literacy, education and mastery of the technologies concerned. These skills include use of application software such as creating a new word processor document, modifying an existing word processor document, print out a document, operating in a networked environment such as local area network (LAN) and wide area network (WAN). Skills such as using the Internet for research, sending e-mails, find specific information, taking part in an online discussion or chatting (video conferencing), and sending /attaching file to an e-mail, using a www search engine such as yahoo, google, MSN etc, using keywords or phrases to search for information on the www etc (Oguche, 2017).

A study by Thammasaeng, Pupat and Petchaboon (2016) examined the situations of Information Communication Technology literacy of the students in the secondary educational service area. The study revealed that situation of ICT literacy of students in secondary educational service area was found at "Moderate" level

Amua-Sekyi and Asare (2016) in their study examined the information and communication technology literacy level among lecturers in a public university in Ghana, as well as the influence of gender and age on lecturers' the level of ICT literacy. The findings of the study indicate that lecturers' level of competence with ICT is good. However, their familiarity with the university's academic resources is poor, it was also revealed that ICT level literacy among lecturers is not gender sensitive neither is if affected by the age of lecturers. Oguche (2017) in his work also examined the impact of Information and Communication Technology

(ICT) literacy on the duties of library staff in selected federal university libraries in Nigeria. Results from his findings revealed an average level ICT literacy competence among the library staff in the Nigerian federal university libraries.

Thus the acquisition of ICT literacy skill is indisputably a step in the right direction towards effective utilization of digital library resources and services. This has however been lagged by many challenges. Jordan (2003) opined that lack of integration of ICT in the academic curriculum a major problem associated with the acquisition of ICT literacy skill. It was believed that the proper integration of ICT related courses in academic curriculum will equip students beforehand with relevant ICT skill. A study by Lwoga, Sife, Busagala, and Chilimo (2016) also attributed this to material and human factors, this was also in line with the study of Chiware (2007) which include funding, human resources, inadequate ICT facilities, underutilization of the few available ICT facilities, inadequate ICT training and retention of skills, internet connectivity, telecommunication infrastructure, and copyright issue. Lack of fund has always been a problem whenever the issue of skill acquisition raises the head. This is because skill is an asset and to acquire an asset fund is required, thus Haneefa (2007) also stated that lack of fund, infrastructure and skilled professionals to embark on automation of all library management activities and application of ICT as a problem of ICT literacy acquisition. Lack of enthusiasm for training in ICT has been discovered to be one of the causes of inadequate

ICT literacy skill. Womboh and Abba (2008) observe laissez-faire attitude among lecturers, students and librarians who fold their alms waiting for their employer to train them in ICT instead of making their own efforts. They opine that people should employ self-effort in becoming ICT literate as cybercafés is springing up in every street corner.

Research Methodology

A descriptive survey was adopted for the study as it described the relationship among variables of the study through data collection. This design was appropriate for this study because the study seeks to collect data on and describe in a systematic manner the level of ICT literacy of undergraduate students in university libraries in North Central Nigeria. The entire population consisted of six universities in FCT Abuja. The design will also provide for the use of a reliable technique to collect data from a defined population or systematically selected segment of the population for the purpose of determining the attribute of the population needed for proper breakdown of the problem under study.

The population of the study was 23,231 undergraduate students who are registered library users in federal, state and privately owned universities in North Central Nigeria comprising Niger, Benue, Kwara, Nasarawa, Kogi, Plateau States and the Federal Capital Territory (FCT), Abuja. The universities include; University of Jos, Jos, University of Ilorin, Ilorin, Federal University of Agriculture, Makurdi, University of Abuja, Abuja, Federal

University of Technology, Minna, Federal University, Lokoja, Federal University, Lafia, Ibrahim Badamasi Babangida University Lapai, Kogi State University, Ayimgba, Kwara State University, Malete, Plateau State University, Bokkos, Salem University, Lokoja, Alhikma University, Ilorin, Africa University of Science and Technology, Abuja, Nile University, Abuja, Varitage University, Abuja, Benue State University, Makurdi, University of Mkar, Benue State, National Open University of Nigeria, Head Quarters Abuja., Nassarawa State University, Keffi, Landmark University Omo Aran, Kwara State , Bingham University, New Karu, Carital University, Abuja.

Cluster sampling technique was used to select nine (9) out of 23 universities in the North Central Zone of Nigeria, each cluster is designed based on the ownership of the universities that is federal, state and private,

three universities were selected from each cluster so as to have a uniform distribution of sampled universities, the selected universities are University of Jos; Federal University of Agriculture, Makurdi; Federal University of Technology, Minna; Kogi State university Ayimgba; Kwara State University; Nassarawa State University; Salem University Lokoja; Alhikma University Ilorin and Africa University Abuja respectively. In selecting the sample size for each university Neyman's allocation formula for proportionate stratified random sampling technique Stat-trek, 2012 was used.

$$n_h = \frac{n \times (N_h \times S_h)}{[\sum N_i \times S_i]}$$

S/N	Universities	Population	Selected Sample Size
1	University of Jos	1,471	78
2	Federal University of Agriculture, Makurdi	374	68
3	Federal University of Technology, Minna	753	94
4	Ibrahim Badamasi Babangida University, Lapai	186	44
5	Kogi State University, Ayimgba	205	40
6	Kwara State University Malete	190	38
7	Salem University Lokoja	85	20
8	Alhikma University, Ilorin	111	22
9	Africa University of Science and Technology, Abuja	82	17
	Total	6267	404

Where; nh is the sample size for stratum h

    n is the total sample size

    Nh is the population size for stratum h

    Sh is the standard deviation of stratum h

        (Neyman, 1994)

Using the above stated formula respondents,

undergraduate students were selected from each of the selected university in all clusters, this equaled a total of 404 respondents. the selected sample are described;

Table 1: Determination of Sample Strata Size Using Neyman's Allocation formula

The questionnaire was designed to collect data as relating to the research questions posed. The questionnaire was divided into sections A to C i.e. biodata of respondents, types of ICT facilities available, ICT literacy level resources. Administration of questionnaires was carried out with the aid of two research assistants and analysed using descriptive statistics such as simple percentages and frequency.

RESULTS

Out of the four hundred and four (404) copies of the questionnaire administered to respondents 376 representing 93.1% were returned and found useful for the study.

Table 2: Response Rate

S/N	Universities	Questionnaires Administered	Questionnaires Returned
1	University of Jos, Jos	78	68
2	Federal University of Agriculture, Makurdi	68	60
3	Federal University of Technology, Minna	94	87
4	Ibrahim Badamasi Babangida University Lapai	44	40
5	Kogi State University Ayimgba	40	40
6	Kwara State University Malete	38	32
7	Salem University Lokoja	20	20
8	Alhikma University, Ilorin	22	19
9	Africa University of Science and Technology, Abuja	17	13
Total		**404**	**364**

A total of four hundred and four (404) copies of questionnaire were distributed to undergraduate students in the nine selected universities in North Central Nigeria. Out of which, three hundred and sixty-four (364) copies of the questionnaire representing 90.0% were properly filled which was used for the analysis while fourteen (40) representing 10.0% were not returned.

Table 3: Distribution of respondents by Faculties

Faculties	Frequency	Percentages (%)
Engineering	38	10.4
Law	25	6.9
Sciences	46	22.0
Vet/Medicine	13	3.6
SOS/Sciences	70	9.9
Education	42	11.5
Business/Management	76	20.9
Art/Humanities	54	14.8
Total	364	100.0

Highest respondent was discovered from Faculty of Sciences while low responses were discovered from Faculties of Veterinary Medicine and Health Sciences. Usually Faculty of Social Sciences attracted massive number of undergraduate students because of the management and administrative courses. The fields of Tertiary Medicine and Health Sciences are too technical and usually attract few number of applicants because of the practical and academic requirements involved.

Research Question 1: What are the types of ICT facilities available in the university libraries in North Central Nigeria?

Table 4: Availability of ICT facilities in university libraries in North Central Nigeria

S/N	Items	Available	%	Not Available	%
1	Computer Systems	392	97.03	12	2.97
2	Printers	384	95.05	20	4.95
3	Scanners	375	92.82	29	7.18
4	Projectors	264	65.35	140	34.65
5	Photocopying Machine	251	62.13	153	37.87
6	Internet Service	387	95.79	17	4.21
7	Wide Area Network (WiFi)	234	57.92	170	42.08
8	Search Engines	243	60.15	161	39.85
9	Online Databases	126	31.19	278	68.81
10	OPAC	114	28.22	290	71.78
11	E-journals	187	46.29	217	53.71
12	E-books	152	37.62	252	62.38
13	External Storages (CD-ROMs, USB Drives)	186	46.04	218	53.96
14	Power Supply (Inverter, Generator)	145	35.89	259	64.11

From table 4, it is obvious that basic ICT facilities such as computer systems, printers, scanners, photocopying machine, internet service, WAN, were readily available in university libraries in North Central Nigeria, this were used in assisting teaching and learning activities of undergraduate students. It was however observed that some other advanced facilities such as OPAC, Online databases, e-journal, e-books, External Storages (CD-ROMs, USB Drives), Power Supply (Inverter, Generator) had relatively low level of availability as compared to others.

Research Question 2: What is the level of ICT literacy of undergraduate students in North Central Nigeria?

Table 5: ICT Literacy skill possessed by undergraduate students in North Central Nigeria

S/N	ICT Literacy Skill	VH	H	L	VL	Mean
1.	Booting a Computer	234	120	43	7	3.44
2.	File Navigation	263	132	9	0	3.63
3.	Using External Drives	215	95	87	7	3.28
4.	Setting up network connection (WAN, LAN)	113	128	105	58	2.73
5.	Internet Navigation	172	126	76	30	3.09
6.	Searching the world wide web	182	106	74	42	3.06
7.	Downloading Files from the Internet	154	163	63	24	3.11
8.	Email Communications	73	119	124	88	2.44
9.	Online Communications and Chat	98	102	123	81	2.54
10.	Word Processing	215	128	42	19	3.33
11.	Spreadsheet Processing	54	135	121	94	2.37
12.	PowerPoint Presentation	96	83	136	89	2.46
13.	Searching Database	64	91	134	115	2.26
14.	Downloading Files from Databases	42	83	144	135	2.08
15.	Computer Programming	76	98	125	105	2.36

Key: 0.00 – 0.59 = Very Low (VL), 1.00 – 2.49 = Low (L), 2.50 - 3.49 = High (L) and 3.50 – 4.00 = Very High (VH)

Table 4 shows the level of ICT literacy skills possessed undergraduate students in universities libraries in North Central Nigeria. Results from the above table shows that undergraduate students possess basic computer appreciation skills to a very high levels these skills include booting computer, file navigation, using external drives, searching the world wide web and word processing. However on a general note, It was observed that there was relatively low level of ICT literacy skills amongst undergraduate students in North Central Nigeria, results from the study revealed that majority of the students lacked other fundamental ICT literacy skills such as setting up network connection, downloading files from internet, email communications, online communication and chat, spreadsheet processing, PowerPoint presentation, searching information database, downloading files from database and computer programming

Research Question 2: What are the factors affecting ICT literacy level of undergraduate students University Libraries in North Central Nigeria?

Table 5: Factors affecting ICT literacy level of undergraduate students University Libraries in North Central Nigeria?

S/N	Factors Affecting ICT Literacy	SA	A	D	SD	Mean
1.	Inadequate integration of ICT in curriculum	212	123	43	26	3.29
1.	Inadequate funding	241	112	21	30	3.40
1.	Inadequate ICT Infrastructural facilities	231	111	54	8	3.40
1.	Lack of skilled professionals/trainers	95	104	109	96	2.49
1.	Underutilization of available ICT facilities	98	87	117	102	2.45
1.	Lack of commitment to learning ICT skill	78	98	143	85	2.42
1.	Lack of training opportunity	126	94	88	96	2.62
1.	High cost of ICT literacy training	71	123	118	92	2.43
1.	Lack of interest in learning ICT literacy skill	47	57	145	155	1.99

Keys: 0.00 – 0.59 = Strongly Disagree (SD), 1.00 – 2.49 = Disagree (D), 2.50 - 3.49 = Agree (A) and 3.50 – 4.00 = Strongly Agree (SA)

Results from Table 5 shows the analysis of factors affecting the acquisition of ICT literacy skills among undergraduate students in North Central Nigeria. Results from this study showed inadequate integration of ICT in curriculum, inadequate funding, inadequate ICT infrastructural facilities, lack of training opportunity all with mean score greater than 2.50 are the major factors that were affecting the acquisition of ICT literacy skills among undergraduate students. However, from the results obtained, it was shown that some factors such as Lack of skilled professionals/trainers, Underutilization of available ICT facilities, Lack of commitment to learning ICT skill, High cost of ICT literacy training, Lack of interest in learning ICT literacy skill did not contribute to the acquisition of this skills as most respondents disagreed with an overall mean score less than 2.50 in all cases.

Discussion of Findings

Results obtained from the findings and observations made by the researcher showed that there are basic ICT facilities such as computer systems, printers, projectors, scanners, photocopying machines, internet service, Wide Area Network (WAN) i.e. WIFI, external storage and power supply were readily available in university libraries in North Central Nigeria. This was in line with the findings of Harley (2007) who discovered the resources in a digital library to include both 18 electronic information resources and the facilities used to access them. Some examples include visual materials such as digital camera, CD-ROM, projector, PowerPoint presentation; portals that provide links or URLs relevant to particular disciplinary topics, online reference digital readers, digital film or video, maps, online or digitized documents, audio materials, digital facsimiles, curricular materials and web sites, etc. other online information resources,

including bibliographic databases, electronic books, search engines etc, it was also observed that students perceived the unavailability of ICT facilities such as Online databases, Online Public Access Catalogue (OPAC), e-journals and e-books in their institutions, this could be attributed to the lack of awareness about the availability of such facilities.

It was observed that there was relatively low level of ICT literacy skills amongst undergraduate students in North Central Nigeria as majority of the students possess basic computer appreciation skills which include booting a computer, file navigation, using external drives, searching the world wide web and word processing, it was shown that the students lacked other fundamental ICT literacy skills such as setting up network connection, downloading files from internet, email communications, online communication and chat, spreadsheet processing, PowerPoint presentation, searching information database, downloading files from database and computer programming. The consequence of lack of adequate ICT literacy skill according to Leu, Kinzer, Coiro and Cammack (2004) limits the ability of digital library users to understand how to construct, design, manipulate, and upload their own information to add to the constantly growing and changing body of knowledge that defines internet.

Finally, the result from findings of the study showed the factors affecting the acquisition of ICT literacy skills among undergraduate students in North Central Nigeria which includes inadequate integration of ICT in curriculum, inadequate funding, inadequate

ICT infrastructural facilities, lack of training opportunity. The findings agree with Adeyoyin (2005) who posits poor infrastructural development, poor funding and lack of ICT training opportunity among staff as problems facing Nigerian university libraries in the acquisition of ICT literacy skill. On the other hand, the finding agrees with Jordan (2003) who observed that lack of integration of ICT in academic curriculum affect ICT literacy skill of students. It was however shown that some factors such as Lack of skilled professionals/trainers, Underutilization of available ICT facilities, Lack of commitment to learning ICT skill, High cost of ICT literacy training, Lack of interest in learning ICT literacy skill did not contribute to the acquisition of this skills.

Conclusion

Based on the foregoing, it was concluded that ICT facilities such as such as computer systems, printers, projectors, scanners, photocopying machines, internet service, Wide Area Network (WAN) i.e. WIFI, external storage and power supply were readily available in university libraries in North Central Nigeria. However, there was perceived unavailability of some facilities such as Online databases, Online Public Access Catalogue (OPAC), E-journals and E-books which was attributed to lack of awareness of their availability. It was also concluded that there was a relatively low level of ICT literacy skill

Findings revealed that a relatively low level of ICT literacy skills amongst undergraduate students in North Central Nigeria as majority of

the students possessed only basic computer appreciation skills such as booting a computer, file navigation, using external drives, searching the world wide web and word processing. Fundamental ICT literacy skills such as setting up network connection, downloading files from internet, email communications, online communication and chat, spreadsheet processing, PowerPoint presentation, searching information database, downloading files from database and computer programming were low amongst the students. The factors that affected the acquisition of ICT literacy skills were identified by the students to be majorly inadequate integration of ICT in curriculum, inadequate funding, inadequate ICT infrastructural facilities, lack of training opportunity.

Recommendations

In view of suggestion ways to improve ICT literacy amongst undergraduate students lin North Central Nigeria, the researcher has made the following recommendations:

1.   More ICT facilities should be provided in the universities libraries also adequate awareness should be made about the available facilities in order to capture students interest in acquisition of ICT literacy skills.

2.   The universities curriculum should be revised so to accommodate courses where ICT literacy skills should be taught to undergraduate students.

3.   Students should be provided with ICT literacy programmes such as workshop, seminars and in-house training to enable them learn how to access various digital information resources and services.

References

Adamu, H., & Umar, B. Application of Information and Communication Technologies (ICTs) for Service Delivery in the Reference Section of the Bayero University Kano Library.

Adeyoyin, S. O. (2005). Information and Communication Technology (ICT) Literacy among the staff of Nigerian University Libraries. *Library Review,* 54 (4): 257 – 266.

Amua-Sekyi, E. T., & Asare, Y. (2016). A Survey of Information Communication Technology Literacy among Lecturers. *Information and Knowledge Management,* 6(8), 1-7.

Chiware, E. R. T (2007). Training librarians for the digital age in African University Libraries. Pre-IFLA satellite meeting, Durban, August. Available at): http://www.ifla.org/iv/ifla73/satelite/progr amme-en.pdf Accessed 05/03/18.

Haneefa, M. (2007). Application of Information and Communication technologies in special libraries in kerala (India). *Library Review,* 56 (7): 603-620

Igun I. E. (2006). Human Capital for Nigerians Libraries in the 21st century. *Library Philosophy and Practice (e-journal),* 8 (2) 1-5.

Ilo, P. & Ifijeh, G. (2010). Impact of the Internet