

Assessment of Academic Utilization of Online Information Resources by Undergraduate Students in University of Nigeria, Nsukka

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ABSTRACT

The aim of this paper was to determine the utilization of online information resources by undergraduate students in the University of Nigeria, Nsukka. It was undertaken specifically with the objectives of identifying the online information resources used; academic purposes for their use, extent, problems and strategies for improving the academic use of the resources by undergraduate students. Descriptive survey was used as the research design. The population of this study comprises of all 25,657 regular registered undergraduate students in University of Nigeria, Nsukka. The sample for this study comprises 2500 students which is 10% of the population. The results of the study shows that most of the online information resources are not used by the undergraduate students. Just a few of them are highly used. Some of the academic purposes for the use of the resources include to do course assignment and project works and to stay up-to-date on social events. The major problems responsible for the low utilisation of the resources include incessant power failure, limited available computers in the university library, and server's low bandwidth. Based on the findings, maintenance of uninterrupted power supply, provision of enough computers in the library; constant upgrade of server's bandwidth and many more were recommended as the strategies for improving the use of online information resources by undergraduate students in UNN. The implication of this study lies in the fact that solutions to the problems raised would be helpful to the university management, librarians and students in ensuring maximum and adequate provision and effective utilisation of online information a resources in the library.

1. Introduction

University is an institution of higher education, usually comprising a liberal arts and science colleges, graduate and professional schools that confer degrees in various fields. It is an institution of learning

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of the highest level authorised to confer both undergraduate and graduate degrees (Collins, 2006).

It is important to note that the most component of a university is the students. In other words, there cannot be a university without students. A student is a person engaged in study; one who is devoted to learning; a learner; a pupil; a scholar; especially, one who attends a school, or who seeks knowledge from professional teachers or from books (Agu 2002). Likewise, a student can be seen as a learned person (especially in the humanities); someone who by long study has gained mastery in one or more disciplines.

There are different categories of students found in the university; they include: diploma students, undergraduate students, graduate and post graduate (masters) students, PhD students etc. (Ogunsola, 2014). But this research will be focusing on the undergraduate students. According to the Oxford Advanced Learner's Dictionary, undergraduate is a university or college student who is studying for their first degree. Their characteristics tend to fall into a few general patterns as listed below:

- The majority of undergraduates, 66 percent, are in the age bracket of 24 and 16 years . These traditional age students make up larger percentages of undergraduate enrolments at four-year institutions. They comprised 76 percent of undergraduate enrolment at state universities, 85 percent at private colleges and 87 percent at the University of Nigeria (Aboyade & Jubril, 2005). Students in this age group tend to enrol directly from high school, and 82 percent attended full-time.
- Older undergraduates, those age 25 and older, enrol in larger percentages at two-year institutions. They comprised 48 percent of enrolments at community and technical colleges and 58 percent at private career schools. Students in this age group tend to be working adults, and 61 percent attended part-time.
- Women comprised the majority of undergraduates across all race/ethnic groups.
- Young undergraduates (those 24 and younger) are more likely to enrol full-time. Students aged 25 and older are more likely to enrol part-time.
- The typical profile of an undergraduate as a youthful student attending full-time can still be attributed to nearly 79 percent of all undergraduates, even though there has been growth in the enrolment of non-traditional aged students over the years.

Information needed by students can come from virtually anywhere – text books, media, library catalogues, blogs, personal experiences, journal and magazine articles, expert opinions, encyclopaedias, and web pages – and the type of information you need will change depending on the question you are trying to answer. But, this research work will be considering the information gotten from the web pages i.e. online information resources. The web allows one to access most types of information on the Internet through a browser. One of the main features of the web is the ability to quickly link to other related information. The web contains information beyond plain text, including sounds, images, and videos. The important thing to do when using information on the Internet is to know how to evaluate it!

The widespread availability and utilization of the online information resources through Web browsers

(such as Netscape) have enabled librarians to take advantage of the capacity of the Internet to serve as a virtual reference desk, providing access to countless information resources worldwide. The notion of a virtual reference collection, available at the click of a mouse, is undeniably seductive, particularly for students and libraries with limited physical collections. Upon closer examination, however, using the Web to provide accurate and effective information service is a complicated proposition. Technical considerations aside, attempt at gaining intellectual control and achieving precision recall over an ever expanding universe of text, image, and sound, can quickly prove daunting. Not only does utilization of the Web presupposes appropriate hardware, software, and searching skills, but Web sites are notoriously unreliable and frequently lack authority. Nonetheless, the Web has the potential to provide information far beyond that which is available in the library's collection, and librarians as well as students can't afford to ignore its capabilities. It is based on this notion that the researcher wants to consider the utilization of these online resources by undergraduate students of University of Nigeria, Nsukka for effective academic performance.

The University of Nigeria, Nsukka, commonly referred to as UNN, is a federal university located in Nsukka, Enugu state, Nigeria. It was founded in 1955 and formally opened on 7th October 1960 (Okoroma, 2010). The University of Nigeria has four campuses – Nsukka, Enugu and Ituku-Ozalla – located in Enugu state and one in Aba, Abia state, Nigeria. The University of Nigeria was the first full-fledged indigenous and first autonomous university in Nigeria, modelled upon the American educational system. It is the first land-grant university in Africa and one of the five elite universities in the country. The university has 15 faculties and 102 academic departments. It offers 82 undergraduate programs and 211 postgraduate programs. The university celebrated its 56th anniversary in October, 2016.

University of Nigeria, Nsukka library also called Nnamdi Azikiwe Library, has been very active in the race to embrace ICT for better information service delivery to their users through online information resources provision. The library is one of the three leading academic libraries in Nigeria where TINLIB software was introduced in the 90s. The other two were University of Ibadan Library and Ahmadu Bello University Library, Zaria. The emergence of electronic information resources is expected to tremendously transform information-handling and management in the university library (Ani & Ahiauzu, 2008). These dramatic changes have affected the way in which information is provided to the university community. A number of online resources initiatives have been put in place in the library to assist in the development, training, and use of online information resources among which are the Nigerian Universities Network (NUNUT) and MTN Foundation. The MTN Foundation, for example established a digital library project in the library to facilitate online information access and utilisation by the library users. The MTN digital library has over 500 computer systems. In addition to this collection, the library has another online resources section which has 300 computer systems all linked to the internet for registered staff and students of the university. To support online access to information resources, the university has Online Public Access Catalogue and provides regular orientation to the staff and student users. Their fundamental objective has been to create interfaces with the global knowledge systems (Egberongbe, 2011). In consideration of these, the focus of this paper is to assess the academic utilization of online information resources by undergraduate students in the University of Nigeria.

2. Statement of the problem

Online information resources are powerful teaching and learning tools in higher education; they are efficient for activating students and they provide tools for life-long learning. Students having access to the Internet can find huge amounts of information, and also quite a lot of free software. By use of the Internet, teachers and students might communicate through e-mail, course home pages and virtual discussion groups; this also gives great opportunities for distance education. The use of information technologies in higher education might influence teachers' role. Students can find information themselves to a larger extent than before, although, they still need their teacher's supervision and coach in their learning process because most of the information found on the Internet has not been peer viewed before entry.

Limited access to online information resources in this information age will greatly affect the students in different ways. For instance, they will find it difficult to do research and even write some of their assignment. They would be limited to only the information the teacher has to offer alone. And even if they graduate, they may soon forget what they learnt because they have not learnt how to learn i.e. they have not developed the ability for life-long learning.

From the researcher's observation, it is obvious that most students make use of online information resources, but it seems the undergraduate students especially the first year students are finding it difficult to use them because of their limited access/knowledge on the Internet. It appears also that many students derive little or no academic benefits from their use of online information resources, especially in enhancing their academic performance. It is therefore, a great concern that no study has been carried out into this with a view to determining the academic utilization of online information resources by undergraduate students in the University of Nigeria, Nsukka with a view to suggesting ways of enhancing their utilization. This motivated the researcher to embark on this research.

3. Objectives of the Study

The specific objectives of the study are to:

1. Identify the online information resources used by undergraduate students for academic purposes.
 2. Ascertain the academic purposes for the students' use of online information resources.
 3. Find out the extent of use of online information resources by the students.
 4. Determine the extent to which the use of online information resources by the students has met the academic purposes for their use.
 5. Identify the problems militating against undergraduate students' academic utilisation of online information resources.
 6. Suggest strategies for enhancing the academic utilisation of online information resources by the undergraduate students.
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4. Research Questions

The following research questions were formulated to guide the study:

1. What are the online information resources used by undergraduate students for academic purposes?
2. What are the academic purposes for students' use of online information resources?
3. What is the extent of use of the online information resources for academic purposes by the students?
4. To what extent has the students' use of online information resources met the academic purposes for their use?
5. What are the problems encountered by the students in the academic utilisation of online information resources?
6. What are the strategies for enhancing the academic utilization of online information resources by the undergraduate students?

5. Review of Literature

5.1 Online Information Resources Used by Students

Academic libraries served as the repository for published information as well as the intermediary for acquiring materials from the outside world. However, Croom (2010) stipulates that, during the 1990s, rapid advances in digital technology have provided campus researchers and students with considerably options. Such options of online information resources used by students include:

- **Wikipedia Online Encyclopaedia:** This is multilingual web-based, free-content encyclopaedia project based on an openly editable model. The name Wikipedia is a Portmanteau of the word Wiki (a technology for creating collaborating websites, from the Hawaiian, Wiki- means quick) and Encyclopaedia. (<http://www.ala.org>) says Wikipedia articles provide links to guide the user to related pages with additional information. Wikipedia is written collaboratively by largely anonymous internet volunteers who write without pay. The website information further explains that anyone with internet access can write and make changes to Wikipedia articles (except in certain cases where editing is restricted to prevent disruption or vandalism). The Wikipedia community has developed many policies and guidelines to improve the encyclopaedia; however, it is not a formal requirement to be familiar with them before contributing. People of all ages, cultures, and background can add or edit articles, prose, references, images and other media here. What is contributed is more important than the expertise or qualification of the contributor. Wikipedia is continually created, with articles on historical events appearing within minutes rather than months or years. Older articles tend to grow more comprehensive and balanced, newer articles may contain misinformation, un-encyclopaedic content, or vandalism. Awareness of this aids obtaining valid information and avoiding recently added
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misinformation (<http://en.Wikipedia.org/wiki/Wikipedia>)

- **Bioline:** Bioline International is an electronic publishing service founded in 1993. It is operated by Bioscientists and librarians who believe that scientific information can be distributed more widely, more cheaply and with added scientific value using electronic means. Buekholtz (2011) says, its initial content consisted of online versions of mainstream printed bioscience journals from the developed world. However, it has increasingly expanded its scope to focus on the distribution of peer-reviewed but less well known journals from developing countries, as well as to explore the potential for online – only journals. Goodyear (2012) commenting on the progress of the publishing company, says bioline international is currently working with publishers and editors to promote the provision of journal material on an open-access basis. The web-site now features more than fifteen journals that are all available in full-text HTML format, absolutely free.

Palmer and Sandler (2003) also noted that internet is a great place to find information and check facts – if you know where to go. According to them, the following online information resources are known for being consistent, accurate and reliable:

- **Library of Congress:** This is also acclaimed to be the largest library in the world. Some of the resources available here include: historical documents, manuscripts, artworks, maps, photos, letters and films.
 - **U.S. Census Bureau:** The U.S. Census Bureau American Fact Finder is an incredibly useful tool – particularly if one is looking for population, housing, economics, and geographic data.
 - **Central Intelligence Agencies (CIA):** The CIA has a library, an online dictionary of chiefs of state and cabinet members of foreign governments, maps and a World Fact Book that offers information on countries all over the world.
 - **RefDesk:** A free and user-friendly website, RefDesk is the place to go when one needs fast fact and essential reference tools. The site has encyclopaedias, dictionaries, atlases, maps, calculators, converters quotes, a fact checker and much more.
 - **Classic Encyclopaedia:** This encyclopaedia project from lovetoknow.com is an online reprinting of the renowned 1911 edition of the Encyclopaedia Britannica, which is thought to be one of the best encyclopaedias ever written.
 - **Internet Public Library:** The Internet Public Library, which is maintained by a consortium of universities and colleges, is flush with reference books, search tools, newspapers, magazines, and a number of other dependable resources. The site also features electronic versions of renowned literature and poetry.
 - **Google Books:** This beta tool from Google is a great way to locate books and research materials on every subject imaginable. If you create a free account with Google Books, you get complete-access to book excerpts, reviews, maps and other useful tools.
 - **Farmer's Almanac:** The Original Farmer's Almanac is a classic resource for information on weather, gardening, astronomy and food. Other site features include a blog and a community forum.
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- LitSum: This site is the ultimate resource for comprehensive literature study guides, book summaries and literature notes; LitSum offers more free study guides than any other web-sites and several search engines that make it easy to find what one is looking for.
- Encyclopaedia of Life: An ecosystem of web-sites, the encyclopaedia of life is an ongoing project attempting to document all species of life on earth. It is a great resource for science writers and researchers.
- Answer.Com: With information on more than four million topics, Answer.Com is a great resource for anyone who needs answers fast. The site features original critical, as well as information created by renowned reference publishers.
- Questia: Easily the World's largest online library of books, Questia has 67,000 full-text books, as well as 1.5million articles. Site users can also take advantage of a virtual dictionary, encyclopaedia and thesaurus.

5.2 Academic Purposes for Use of Online Information Resources

Students and other online information users perceive online information resources – electronic journals in particular and the Internet as a whole to hold many advantages. According to Association of Research Libraries (2001), Faculty members at Association of Research Libraries (ARL) institutions cited convenience, timeliness, and the ability to search text as the most important factors in choosing electronic journals over print. Least important to them was animation of graphics, although others sometimes mention that as an important advantage. In other surveys, Woodward (2007) noted that students said the top reasons for using online information resources were the ability to link to additional information, the ability to search, and the currency of materials. In support of this, Eason and Richardson (2000) stated that the ability to search across a wide range of journal articles, with multiple levels of information objects were listed as the top three significant features sought in future electronic journals.

Likewise, Palmer and Sandler (2003) said that many studies have found that users believe the main advantage of online information resources is convenience of accessing articles anytime from their desktop computer. In the same view, Henderson (2002) identified some of the benefits and reasons students patronize or prefer online information resources to include; provision of speed and easy access to information, remote access to users, round the clock access to users, access to unlimited information from different sources, more information, information flexibility to be used by any individual according to his or her requirement, as well as facilitation of reformatting different sources. Feja and Siebeky (2002) also said that experienced users liked the ease of skimming and searching, the currency of information, the possibility of downloading or printing the desired document or segment, the speed of access and the ability to send articles to their colleagues instantly. In the opinion of Otolu (2004), students have to access the internet to supplement notes given by lecturers, complete class assignments, write projects and communicate via e-mail with parents and friends. Palmer and Sandler (2003) also noted that storing articles electronically, then printing out a portable print copy appeals to frequent online information users.

In the same manner, Painter and Pearson (2006) stated that students reported the top ways access

to online information resources have improved their academic careers are: access to a wider range of information, faster access to information, and easier access to information.

In England, Rose (2001) noted that Tilburg University Faculty members cited timely availability, easy access, full text searching, and access from home as factors that promote the use of online information resources.

Undergraduates in Nigeria find online information resources very useful as they help them virtually in all their academic works. This helps them in overcoming the problem of scarcity of current books in the libraries. In her opinion, Goodyear (2012) believes that in this age, students must be critical users of information if they have to succeed in the future. She added that the emergency of information communication technologies (ICTs) have brought into the world a wider source of database for students.

5.3 Problems Associated with Academic Use of Online Information Resources

According to Anunobi (2009), the problems of utilization of online information resources arise from basically: information pollution, destabilization potential, information insecurity, socio-technical issues and potential lack of control over communication. He further expatiated on the aforementioned above that information pollution arises from dysfunctional provision of information that is caused by: (a) The amount of information available exceeding the capacity of recipient to examine, filter, assimilate relevant information. (b) Provision of wrong information resulting in incorrect decision and control that are not optimally effective in the extreme case “garbage in, garbage out” occurs, where computerized information are used to “sanitize” the garbage that is treated as management of information. Epic (2001) stated that the proliferation of sources for articles and the sheer amount of information now available may be confusing to some users. Retrieving too much information is a problem mention by some, as is getting lost on a tangent and not knowing when to quit searching. In similar view, the almost unlimited availability of information and communication network, Gbaje (2007) lamented, can make vast amounts of information available to anybody whether they need it or not; this creates information anxiety, new behavioural pattern etc.

Students at one university complained on how “access to online information resources has hindered their academic career”. Although not nearly as many agreed to hindrances as they did to improvements, the top three hindrances mentioned were that online access is time consuming (16.4%), it detracts from doing work (13.5%), and lack of information technology knowledge hinders effective use (11.1%). In agreement with the above, Gregorian (2002) stated that the Internet frequently becomes the “Wide World Wait” due to slow response time on busy servers or high volume traffic jams on network transmission lines or at hub intersections. At peak afternoon and evening usage hour, some internet resources become virtually unusable due to slow response time waiting for the information packets to traverse jammed network lines. In the same view, Painter and Pearson (2006) tracked that the speed with which web pages are delivered to the screen is one of the most annoying features of online information services. The graphics embedded in many pages demand a lot of transmission capacity and there are a number of servers and clients that suffer from relatively slow telecommunication links. This will get worse rather than

better as the volume of traffic increases.

Another problem of online information resources and services that hitches directly on Africa and Nigeria in particular, Rogars (2001) outline them to include: poor and inadequate telecommunication facilities, poor level of computer literacy among many university students and researchers, (even among library staff), poor level of awareness of internet facilities, poor computer facilities, and importance of information among Nigerians, ignorance of decision/policy makers on the power of information technology for industrial and economic development of a nation. In addition, Epic (2001); Uzoigwe (2002), stated that the major facilities of information technology in Nigeria namely the Nigeria Telecommunication Limited (NITEL) and Power Holding Company of Nigeria (PHCN) have always rendered epileptic services. Worst still, they present to clients throat cutting bills even when they have not provided any services.

Aboyade (2005) said that the funding of higher education in Nigeria has been comparatively poor and is witnessing the worse financial allocation in many years. The effect is that academic libraries are unable to acquire and install information communication technology facilities. In support of this assertion, Ozioko (2007) pointed out the lukewarm attitude of the Nigerian government towards online services and concluded that the risk inherent in developing countries like Nigeria is that of being marginalized by the rapidly accelerating global revolution in creating, accessing, and using vital information. Reiterating this assertion, Anunobi (2009) noted that the overriding obstacle of full internet presence in Nigeria is the lukewarm attitude of the Federal Government which places electronic services at the lowest priority level.

5.4 Strategies for Enhancing the Academic Utilization of Online Information Resources

According to Aboyade and Jubril (2005), the good governance, eradication of corruption, economic growth of the nation and adequate funding of institutions of higher learning will go a long way in improving students' use of online information services. In similar view, Gbaje (2007) noted that the acquisition of online information resources can be very easy and cheap if university management is fair enough. By using the right people with necessary expertise and going on affordable facilities. The issue of giving out purchase and supply contracts to relations who lack the necessary expertise should be checked. Information disseminations especially those of the library and information extraction should be cautious of ICT and online information resources available in the world at large for effective service delivery. Omoike and Oke (2014) suggested that in as much as the employers have the responsibility of training their staff, information disseminators should not wait on government or employers to train them on ICT and consequently online information resources. They should be alert on what is happening in ICT/WWW world and be ready to learn on their own as well as pay for their training for proper self-development. In a related review, Quint (2005) emphasized that, online service providers should live up to expectation by providing what they claim and revisit content and keep up to date. This will help at least bridge up the access to information gap between developed and developing world.

6. Research Methodology

The research design of this study is descriptive survey. Descriptive survey is concerned with finding, describing and interpreting the conditions or relationships that exist, practice that prevail, beliefs, points of view or attitude that are held, processes that are going on, effects that are being felt or trend that are developing. The area of the study is Nsukka. Nsukka is a town and local government area as well as a senatorial zone in Enugu State of Nigeria. It is in Nsukka that the University of Nigeria is located. The population of this study comprises of all undergraduate students of UNN i.e. who are studying for their First Degree. There are a total of 25,657 regular registered undergraduate students in University of Nigeria, Nsukka.

The sample for this study comprises 2500 students which is 10% of the population of regular registered undergraduate students of the in university. The stratified random sampling technique was adopted for data collection; this helped to avoid bias in distribution of the questionnaire to the respondents. The instrument for data collection is a structured questionnaire titled "Utilization of Online Information Resources by Students Questionnaire" (UOIRSQ), which is formulated in accordance with the research questions. The questionnaire was designed by the researcher and consists of 6 sections (A-F) designed in line with a 4-point rating scale and required respondents to tick any of the options to indicate their level of agreements on a four scaled response format. There were also open ends on which they could make further comments from their own point of view.

The researcher used simple random technique to select 40 departments out of the 102 departments in UNN where they distributed the questionnaire. They did this by rapping all the names of the departments in different pieces of paper, mix them in a container and pull 40 out of them. This was done in other to avoid bias and give each department equal chance to be selected.

The data was organized and analyzed following the research questions. Since the research design is descriptive, descriptive method of data analysis was used in answering the research questions. The research question one was analyzed using percentage (%). Any item scoring 50% and above was considered as positive or acceptance while any below 50% was considered as negative or rejection by the respondents. 'Mean' was used to analyze research questions two to six. Most of the results are presented in a tabular mode. The real limit of numbers was used to take decisions on research questions two to six as follows:

- 0.50-1.49 – Very Little Extent (VLE); Strongly Rejected (SR); Not Appropriate (NA)
 - 1.50-2.49 – Little Extent (LE); Rejected (R); Fairly Appropriate (FA)
 - 2.50-3.49 – High Extent (HE); Accepted/Agreed (A); Appropriate (A)
 - 3.50-4.0 – Very High Extent (VHE); Strongly Agreed (SA); Very Appropriate (FA)
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7. Results and Discussion

A total of 2500 copies of the questionnaire was used for the study. The data are presented in tables and analyzed in line with the specific objectives of the study and research questions.

Research Question 1: *What are the online information resources used by undergraduate students in University of Nigeria?*

Table 1. Undergraduate students' response on the online information resources used

S/N	ITEMS	Freq.	(%)	Dec.	Rank
	Wikipedia Online Encyclopaedia	2162	86.50	Acc.	1 st
	Google Books	2075	83.00	Acc.	2 nd
	The Punch, Vanguard	1725	69.00	Acc.	3 rd
	Answer.Com	1362	54.50	Acc.	4 th
	UNN Library Website	1237	49.50	Rej.	5 th
	E-Journals	1137	45.50	Rej.	6 th
	Internet Public Library	1100	44.00	Rej.	7 th
	Classic Encyclopaedia	850	34.00	Rej.	8 th
	Encyclopedia of Life	850	34.00	Rej.	8 th
	New York Times, Cosmopolitan	575	23.00	Rej.	9 th
	Library of Congress data base	537	21.50	Rej.	10 th
	EBSCO host Research Database	362	14.50	Rej.	11 th
	Bioline International	337	13.50	Rej.	12 th
	Agora	275	11.00	Rej.	13 th
	Nigeria Bureau of Statistics	225	9.00	Rej.	15 th

From the result obtained as presented in table 1 showing responses of the undergraduate students on the online information resources used by them, it is evident that most of the online information resources are not used by the undergraduate students. Just a few of them are highly used, such as: the Wikipedia Online Encyclopaedia, Google Books and the Punch/Vanguard with 86.5%, 83% & 69% respectively. The least used among them are the Nigeria Bureau of Statistics, Agora and Bioline International with percentage weight of 9%, 11%, & 13.5% respectively. This is contrary to the findings of Jagboro (2006) in a study carried out in Obafemi Awolowo University, Ile-Ife. He revealed that, the use of internet ranked high among the sources of research material. It can be deduced from this finding that most of the undergraduate students are not aware of many of these online information resources available. That could be the reason why they are being underutilized.

Research Question 2: *What are the academic purposes for students' use of online information resources?*

The students were first asked to indicate their general uses of online information resources. In their responses, sending e-mails has a mean weight of 3.33, followed by social networking with 3.32, and staying up to date in social events with 3.30. Others include listen to music and watch digital movies, picture with 2.91 and online business transaction with 2.50.

They were also asked to indicate academic purposes for their use of online information resources. Their responses are presented in table two.

Table 2. Students' responses on the academic purposes for their use of online information resources

S/N	ITEMS	Total weight	\bar{X}	Dec.	Rank
	For my course assignment	9462	3.79	Acc.	1 st
	For my project work	8925	3.57	Acc.	2 nd
	To download articles and germane information materials	8562	3.43	Acc.	3 rd
	To keep abreast with trends in my profession or my area of research interest	8462	3.39	Acc.	4 th
	To send and receive e-mails to and from lectures, course mates and other colleagues	8325	3.33	Acc.	5 th
	To submit assignment to some of my lecturers	6050	2.42	Rej.	6 th

Using the table 2 above, result reveals that most of the itemized purposes for students' use of online information resources are accepted. The major purposes of use of online information resources by undergraduate students are, for course assignment, project work and to download articles and germane information materials with mean weight of 3.79, 3.57 & 3.43 respectively. The least purpose for the use of online information resources by students wasto submit assignment online with mean weight of 2.42. This is similar to the views of Okoroma (2010) that students have to access the Internet to supplement notes given by lecturers, complete class assignment, write project and communicate via e-mails with parents and friends.

The students were further asked to indicate specific Internet applications and and other resources they used to access online resources for academic purposes. The responses reveal that online databases ranked highest with mean of 3.87 followed by the library portal with mean of 3.66 and CD-ROM with mean of 3.42.

The result is quite justifiable in view of the academic requirements of degree programs of universities which include writing project work, research and continuous assessment, which are compulsory for all students. This may be in form of written text, quiz and course assignments. In the case of course assignment and project work, downloading of articles is inevitable.

Research Question 3: *What is the extent of use of online information resources for academic purposes by students?*

Table 3. Students’ responses on the extent of use of the under-listed online information resources

S/N	ITEMS	Total weight	\bar{X}	Dec.	Rank
	Wikipedia Online Encyclopaedia	7987	3.20	HE	1 st
	Google Books	7962	3.19	HE	2 nd
	Answer.Com	6450	2.58	HE	3 rd
	The Punch, Vanguard	6437	2.57	HE	4 th
	Internet Public Library	6287	2.52	HE	5 th
	UNN Website	5925	2.37	LE	6 th
	E-Journals	5775	2.31	LE	7 th
	Encyclopaedia of Life	5300	2.12	LE	8 th
	Classic Encyclopaedia	5187	2.10	LE	9 th
	New York Times, Cosmopolitan	5000	2.00	LE	10 th
	Library of Congress database	4687	1.90	LE	11 th
	Agora	4262	1.71	LE	12 th
	Bioline International	4175	1.67	LE	13 th
	Nigeria Bureau of Statistics	3987	1.60	LE	14 th
	EBSCOHOST Research Databases	3975	1.59	LE	15 th

The table 3 clearly shows that majority of the online information resources were found to be used to a little extent by students. These include EBSCOHOST Databases and Nigeria Bureau of Statistics. Few of them are very highly used. Some of them include general purpose online databases or search engines like Wikipedia Online Encyclopaedia, Google Books and Punch/Vanguard. This result is in agreement with the findings of Okoroma (2010) which reveals that majority of undergraduates have not used most of the online information resources extensively but only focus on few ones like Google Books.

Research Question 4: *To what extent has the use of online information resources met the academic purposes for their use?*

Table 4. Students’ responses on the extent that online information resources have met the purposes for their use

S/N	ITEMS	Total weight	\bar{X}	Dec.	Rank
	For my course assignment	9325	3.73	VHE	1 st
	For my project work	8587	3.44	HE	2 nd
	To download articles and germane information materials	7812	3.26	HE	3 rd
	To keep abreast with current trends in my profession or my area of research interest	7837	3.14	HE	4 th
	To send e-mails to my colleagues	7687	3.10	HE	5 th
	To submit assignment to some of my lecturers	5525	2.21	LE	6 th

Data presented in the table 4 above reveals the extent to which online information resources meet the purposes for their use. It is obvious that most of the purposes for their use are met but the highest ones are for course assignment, project work and to stay up-to-date on social events with mean weight of 3.73, 3.44, and 3.40 respectively. While the least met are for online-business transaction, online submission of assignment and for watching of digital movies, pictures etc. with mean weight of 2.15, 2.21 and 2.70 respectively.

The students were also asked to indicate the extent to which they are satisfied with the use of specific Internet applications and other resources they used to access online resources for academic purposes. The responses reveal that they were mostly satisfied with the use of goggle to access information with mean of 3.18; use of online databases followed with mean of 2.88 and followed by the library portal and use of OPAC with mean of 2.62 and 2.54 respectively.

This result is corroborated by the finding of Fati and Adetimirin (2015) which stated that the major way access to online information resources has improved students' utilisation of information resources is easier access to information which meet their research interest. The result is expected because most cited works by undergraduate students as seen in their project works included online information resources.

Research Question 5: *What are the challenges associated with the students academic use of online information resources in the library?*

Table 5. Students' responses on the challenges associated with their academic use of online information resources

S/N	ITEMS	Total weight	\bar{X}	Dec.	Rank
	Incessant power failure in the country	8237	3.28	Acc.	1 st
	The available computers in the university library are not enough to serve the user population	8100	3.24	Acc.	2 nd
	The server may have low bandwidth	7862	3.15	Acc.	3 rd
	The subscription cost of online information resources is discouraging	7337	2.94	Acc.	4 th
	I don't have enough time to browse due to pressure from my academic work	6937	2.78	Acc.	5 th
	Inability to develop appropriate search strategy for specific information	6500	2.60	Acc.	6 th
	Downloading and printing information is too expensive	6400	2.56	Acc.	7 th
	I don't get all the information I want from the online information resources	6012	2.41	Rej.	8 th
	Online information resources are complicated to use	5487	2.20	Rej.	9 th
	I don't know how to browse or get information online	4337	1.74	Rej.	10 th

From the result as presented in table 5, it is clear that the major problems encountered by students are; incessant power failure, limited available computers in the university library and server's low bandwidth with mean weight of 3.28, 3.24 and 3.15 in that order. This is similar with the assertion

of Uzoigwe (2002) who stated that the major facilities of information technology in Nigeria namely, the Nigeria Telecommunication Limited (NITEL) Power Holding Company of Nigeria (PHCN) have always rendered epileptic services. On the other hand, the least problems are; not knowing how to browse, complicated use of online information resources and not getting all the information wanted from the online information resources with mean weight of 1.74, 2.20 and 2.41 respectively.

The finding is quite unexpected because regular visits to one corner of the university by students especially on daily basis for internet access is a clear indication that the bandwidth is low, which means that students do not have ubiquitous access to the internet. Even in the university library, the number of computers is not enough and this makes students to queue up on daily bases to have access to online information resources in the library.

Research Question 6: *What are the strategies for enhancing the academic utilization of online information resources by the undergraduate students?*

Table 6. Students’ responses on the strategies for enhancing the academic utilisation of online information resources by them

S/N	ITEMS	Freq.	\bar{X}	Dec.	Rank
	Universities should be provided with enough computers	9412	3.77	VA.	1 st
	There should be uninterrupted power supply in the library	9375	3.75	VA	2 nd
	Undergraduates should be given orientation or more education on how to use online information resources	9262	3.71	VA	3 rd
	Universities should create web-sites for faculties and departments where relevant information will be disseminated to users	9250	3.70	VA	4 th
	The bandwidth of the server should be upgraded	9025	3.61	VA	5 th
	University administration should provide laptops to students at a subsidized rate to enable them browse at their easiest convenience	8950	3.58	VA	6 th
	Undergraduate students should be taught advanced searching skills	8887	3.56	VA	7 th
	University library administrator should make the cost of downloading and printing affordable/free	8825	3.53	VA	8 th
	University library should be adequately funded by the university to enable it maintain its subscription cost	8775	3.51	VA	8 th
	Online information resources should be supplemented with print resources in the library	8562	3.44	A.	9 th

Key: VA = Very Appropriate; A = Appropriate; FA = Fairly Appropriate; NA = Not Appropriate

The findings as presented in table 6 shows that amongst the strategies for improving the use of online information resources by undergraduate students are, that universities should be provided with enough computers; there should be uninterrupted power supply in the library and students should be taught advanced searching skills. Uzoigwe (2002) also added that in

the case of national electric power and telecommunication providers, one should hope that the privatization exercise will give way to efficient power supply and telecommunication services. This is because without regular power supply, the aim of installing and providing online services may not be achievable.

Online information resources have a lot of gains to the university students and other researchers. They are also dynamic and fascinating. Palmer and Sandler (2008) noted that, libraries which traditionally are information processors and disseminators are in the best position to provide good online services to students with new technologies. They believe that, any library that works with the application of information technology in this world has an added advantage of meeting up to the enormous demands for information by users. In a study by Haris (2009), he stated that libraries must play a leading role in providing subject access to information on the Internet, by this, they will not only be creating useful resources for users, but also be developing knowledge of the particular online literature that are available, knowledge that will prove useful in providing reference and instructional services to the students. From Uzoigwe (2002), concrete plans and steps must be taken to make internet and other online information resources available to all students. In the same vein, Palmer and Tonya (2001) reiterated that stake holders should appreciate the importance and essential need for ICTs and online information resources, integration, application and utilization. Schubert and Chennupati (2001) also hinted that universities should indulge in high internet connectivity, provide adequate computers, and introduce adequate use of online resources that can help to address the information needs of users.

In agreement with the above, Ogunsola (2014) pointed that the ideal model for improving information use for students in universities include training in skills, networking the library catalogue and improving internet access. Taking a much more definite step, Fati and Adetimirin (2015) stated that to assist undergraduate students in using materials, academic libraries must balance the task of contents on how to use online information services such as CD-ROM and online database.

These strategies are expected because the university needs a broad internet bandwidth that will serve students in their hostels and staff in their residential areas. This will also decongest students who queue up for internet access. These students also need online searching skills to maximize access to online information resources either in the library or elsewhere.

8. Conclusion

Utilization of online information resources by undergraduate students in UNN is a research that was undertaken with the objectives of identifying the online information resources used; academic purposes for their use, extent, problems and strategies for improving the academic use of the resources by undergraduate students. Its significance lies in the fact that the solutions to the problems raised would be helpful to the university management, librarians and students in different ways. It is evident from the result that most of the online information resources are not used by the undergraduate students. Just a few of them are highly used. Some of the academic purposes for the use of the resources include to do course assignment and project works and to stay up-to-date

on social events. The major problems responsible for the low utilisation of the resources include incessant power failure, limited available computers in the university library, and server's low bandwidth. Based on the findings, maintenance of uninterrupted power supply, provision of enough computers in the library; constant upgrade of server's bandwidth and many more were recommended as the strategies for improving the use of online information resources by undergraduate students in UNN. However, the task of facilitating the utilisation of online information resources requires the commitment of every stakeholder including students, library management, the university management, and the library staff.

9. Recommendations

Based on the findings of the study the following recommendations were made.

1. Universities should increase budgetary allocations to libraries in order to provide enough computers that will serve the user population.
 2. There should be a functional alternative power supply in the library to ensure uninterrupted power supply and ensure that use of online information resources is not disrupted. Oketunji (2004) advised the Federal Government of Nigeria that since electricity supply is the basis for effective utilization of online information resources, the government should do everything within its cover and powers to stabilize electricity supply in the country. Alternative power supply should be provided by the libraries and maintained at all time. Uzoigwe (2002) also added that in the case of national electric power and telecommunication providers, one should hope that the privatization exercise will give way to efficient power supply and telecommunication services. This is because without effective and efficient telecommunication services, the idea of online connection of libraries cannot be achieved.
 3. More online training facilities should be provided to undergraduates in order to equip them on how to use online information resources.
 4. University should ensure that relevant information is disseminated to users in the websites created for Faculties and Departments.
 5. The server's bandwidth should be constantly upgraded to ensure maximum service or faster navigation.
 6. The students should be provided with and given improved access to computer systems, preferably laptops. They could be made to purchase them at subsidized rates that are affordable to them.
 7. Students should be taught advanced searching skills by the library. This can be done through organisation of workshops and seminars for the library users.
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References

- Aboyade, S., & Jubril, A. (2005). *School Enrolment and Its Implications*. Ibadan: Stirlingshire.
- Agu, C. (2002). *Who is a Student?*. New York: Pergamum.
- Anunobi, W. L. (2009). A Successful Implementation of a National Information Technology Infrastructure. *MIS Quarterly*, 1-20.
- Association of Research Libraries. (2001). *ARL Statistics and Supplementary Statistics*. 2013.
- Buekholtz, K. (2001). *Electronic Publication of Bioline International*. Retrieved from <http://www.bioline.org>
- Collins, B. (2006). Beyond Cruising. *Reviewing Library Journal*, 15, 122-124.
- Croom, M. (2000). Wikipedia Online Encyclopaedia. *Library Trend*, 20(5), 233-238. Retrieved from <http://www.ala.org>
- Eason, K., & Richardson, S. (2000). Patterns of Use of Electronic Journals. *Journal of Documentation*, 56(5), 477-504.
- Epic, R. (2001). Social Analysis of Computing: Theoretical Perspectives in Recent Empirical Research. *Computing Surveys*, 12(1), 61-110.
- Fati, O. I., & Adetimirin, A. (2015). OPAC Awareness as a Factor Affecting OPAC Use by Undergraduates in Two Nigerian Libraries. *International Journal Academic Library Information Science*, 3(3), 72-80.
- Feja, J., & Siebeky, A. (2002). *Living and Books*. (2nd ed.). New York: Columbia University press.
- Gbaje, D. (2007). Towards Improved User Education Programme in Nigerian University Libraries. *Africa Journal of Library Archives and Information Science*, 6(1), 31-36.
- Goodyear, R. (2012). Supporting Undergraduate Learning Through the Collaborative Promotion of E-Journals by Library and Academic Department. *Information research*, 9(2), 173.
- Gregorian, M. (2002). *The Direct Use of Online Bibliographic Information Systems by Untrained End Users: A Review of Research*.
- Gwang, J. M. (2011). Provision of Information Services to Nigerians: Meeting the challenges of 21st Century. *Library Philosophy and Practice*. Retrieved on <http://unilib.unl.edu/lpp>
- Haris, L. M. (2009). *Profiling the End-User: A Study of the Reference Needs of End-Users on Telebase system, Inc.'s Easynet*, National Online Meeting Proceedings.
- Henderson, C. (1992). Virtual Dreams Give Way to Digital Reality. *Library Journal*, 42-44.
- Jagboro, V. (2006). The Strategic Use of Information Resources: An Exploratory Study. *IEEE Transactions on Engineering Management*, 38(4).
- Kumar, S., & Ranjana, V. (2011). Online public access catalogue usage at Panjab University Library, Chandigarh. *Journal of Library and Information Technology*, 31(4), 302-310.
- McKnight, C. (1998). *Electronic Journals: What Do Users Think of Them?*. Proceedings of the International Symposium on Research Development and Practice in Digital Libraries: ISDL '97'. Retrieved from <http://www.dl.ulis.ac.jp/ISDL97/proceedings/mcknight.html>
- Ogunsola, L. (2014). Nigerian University Libraries and the Challenges of Globalization: The way forward. *Electronic Journal of Academic and Special Librarianship*, 5(2-3), 44-52.
- Oketunji, I. (2004). Library development and the role of Information and Communication Technologies,
-

- being a paper presented at National Workshop on Strategies for Managing Technology Services in Libraries and Information Centres, NLA Cataloguing, Classification and Indexing Section, held at Stella Obasanjo Complex, Lokoja, 17th-24th.
- Okoroma, F. (2010). Retrospective conversion in two Nigerian university libraries: A comparative study of Kenneth Dike Library and Obafemi Awolowo University library. *Library Philosophy and Practice*. Retrieved from <http://www.webpages.uidaho.edu/~mbolin/okoroma.htm>
- Omoike, A., & Oke, T. A. (2014). Online Public Access Catalogue [OPAC] In Nigerian Libraries: A Case Study of the Kenneth Dike Library and University Of Lagos Library. *Ozean Journal of Social Sciences*, 6(3), 18-26.
- Otolo, M. (2004). *End-Users of Online Information Systems: An Analysis*. New York: Mansell Publishing Limited.
- Ozioko, C. J. (2007). The Education of Library Users in Nigeria. *Education Libraries Bulletin*, 26(1), 1-3.
- Painter, S., & Pearson, K. (2006). Online Information System: an Overview. New York: Pergamum.
- Palmer, Janet P., & Sandler, M. (2008). *What Do Faculty Want?*. Net-connect (Winter), 26-28.
- Palmer, P. N., & Tonya, J. (2001). *Scholarly Work in the Humanities and the Evolving Information Environment Washington*. D.C. Council on Library and Information Resources. Retrieved from <http://www.clir.org/pubs/abstract/pub104abst.htm>
- Quint, M. J. (2005). The Dimensions of Perceived Accessibility to Information. *Implications for the Delivery of Information Science*, 36(5), 302-308.
- Rogars, Sally A. (2001). Online Information Resources Usage at Ohio State University. *College & Research Libraries*, 62(1), 25-34.
- Rose, S. (2001). The World Wide Web and Emerging Internet Resources Discovery Standards for Scholarly Literature. *Library Trends*, 43(4), 630.
- Schubert, F., & Chennupati, K. R. (2001). A Study of Graduate Student End-Users' Use and Perception of Electronic Journals. *Online Information Review*, 24(4), 302-315.
- Ukpebor, O. C. (2011). *Use of Library: Transition from traditional to modernity*. Ibadan: Avalanche Publication. 44-68.
- Uzoigwe, C. (2002). Result of the Office of Policy's 2001. *User Satisfaction Survey*, 64(4), 33.
- Woodward, R. L. (1997). Untangling the Web: The World Wide Web as a Reference Tool. *RQ*, 34(4), 444.

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