

Internet Use and Search Efficacy among Undergraduate Engineering Students of Federal Universities in the North East Zone of Nigeria

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ABSTRACT

This study is an attempt to find out whether Undergraduate Engineering Students of Federal Universities in the North East Zone of Nigeria have been able to access the required information using Information and Communication Technology (ICT) resources effectively to address their information needs. In order to achieve this, five objectives were raised to guide the study and in line with the objectives, four research questions were raised along with one null hypothesis. Reviews of related literatures were made in line with the objective. Survey research method was used for the study while 343 sets of questionnaires were administered on Undergraduate Engineering Students of the Universities studied. Data collected were analyzed using descriptive statistics to answer the research questions while Chi square was used to test the null hypothesis. The findings revealed that: Search engines and e-mail were the most identified Internet resources by the students; Google, Yahoo and, MSN were the most used search engines by the Students; Undergraduate Engineering Students in North East Nigerian Universities use internet resources mostly for communication, assignment and project purposes, Undergraduate engineering students in North East Nigerian Universities are not satisfied with the information they access through internet resources, and there was a significant effect of internet search skill on the use of internet resources by Undergraduate engineering students in North East Nigerian Universities. Among other recommendations proffered includes: the students should be given more orientation on how to use the various search engines to ensure effective manipulation of internet resources; since the use of internet resources by the students depends on internet search skill, the management of the universities should incorporate computer training as prerequisite for engineering students, etc.

Keywords: Internet, Undergraduate, Information and Communication Technology

INTRODUCTION

The metaphor that says "The World is a Global Village" has become an un-debatable phenomenon owing to the clamour for the establishment of ICT centers in both public and private sectors in both developed and developing nations. It is also clear that every bit of human activities are becoming ICT driven and this could be the reason why Oyedum (2007) described Information and Communication Technology as the "use or application of computers in information processing, storage, transmission, and dissemination". Information and Communication Technology is made up of both the hardware and software and are connected to servers each with an operating system where things like database and web are installed on these servers to serve the software which are then used to store, retrieve, and manipulate information. The servers are connected to each other and to users via a network infrastructure while the users accessing these servers have their own hardware, operating systems, and software tools. Gone are the days when manual librarianship was not able to effectively connect the right users to the right materials at the right time owing to the global financial challenges experienced by Libraries.

According to Osunade, Ojo and Ahisu (2009), the Internet is now used in a variety of ways to promote productivity, communication, businesses and marketing in Nigeria. The emergence of internet resources for use in education is also receiving recognition because of the need by most institutions to operate distance learning programs and the need to connect academic staff to global resources for improved teaching and research activities. Similarly, Troll (2012) found that, freely accessible information on the web, in conjunction with the escalating cost of library materials, threatens the traditional mission of libraries to create and sustain large, self-sufficient collections for their patrons. Ediger (1994) in Gilflores (2009) asserts that, computer use facilitates learning and therefore, have a positive effect on performance and where educational activities involves the use of technology, it captures the interest of

students thereby facilitating their understanding of the contents as well as providing different ways of expressing knowledge. Brady (1996) in Tella (2007) cautioned that, despite the fact that Internet is an ideal research tool, students experience significant academic problems as they surf irrelevant websites that engage them in chatting, room gossip, conversing with pen-pals and play interactive games at the detriment of productive activity. This explains that, students may have difficulty in completing their home works, assignments, and studies for exams or getting enough sleep to be alert for class the next morning due to Internet misuse.

Although, millions of information resources are found on the internet, Sahin, Balta and Ercan (2010) pointed out that, students can only take advantage of just a few of them for their academic programs due to inadequate search skills. Peoples' behavior can often be better predicted by the beliefs they hold about their capabilities than by what they are actually capable of accomplishing. Self-efficacy therefore, helps internet users to determine what they can be able to do with the knowledge and skills they have. The inability of the students to use the internet properly explains that, they are not likely to get more of their information needs and this demoralizes their confidence to be able to produce a positive result.

It is believed that, availability of internet resources for use affects the use of internet. Tella (2007) stressed in his study that, access to internet resources by students have enhanced their academic performances. It is inferred that students' access to various search engines affects the use of internet. Sahin, Balta and Ercan (2010) pointed out that, just a few of the numerous resources students can take advantage of for their academic programs owing to knowledge of search engines. It is imagined that, the purpose for use of Internet has significant effect on internet use particularly among university undergraduate students for their academic activities. Asdaque, Khan and Rizvi (2010) found out that, students who

use internet for downloading materials such as book/journals for their assignments do improve their Cumulative Grade Point Aggregate (CGPA) compared to those who use it for other things outside academics. It is equally assumed that, effective search skill has significant effect on internet use by university undergraduate students for their academics. Goodluck and George (2014) stated that, lack of skills for searching internet resources is a barrier that affects the use of online resources. Considering the efforts made by the universities concerned in providing human and material resources toward ensuring availability of information and communication technology facilities for effective information storage and retrieval, it is expected that students should not have difficulties in accessing information through the new technology. This study is aimed at ascertaining whether there is a relationship between the ability to identify the various internet facilities; the various search engines, the purpose for use and self efficacy by undergraduate engineering students of Federal Universities in the North East Zone of Nigeria and the use of internet for academic purposes.

STATEMENT OF THE PROBLEM

The researchers' preliminary investigation found that, students in institutions of higher learning have not been utilizing the internet resources as is expected of them despite the fact that lots have been made available for them to use. According to Goodluck and George (2014) and Ur-Rhemam (2010) in their separate studies, internet connectivity, limited access to PCs, Slowness of the internet and, lack of constant technical support are some of the problems responsible for the underutilization of internet resources by both staff and students of Federal Universities in Nigeria. This study is therefore aimed at finding out whether the inability to select the right e-resources, select the right search engines, purpose for use and self-efficacy are some of the predictable variables responsible for the under-utilization of internet resource by Undergraduate Engineering Students of Federal universities in the North East Zone of Nigeria.

OBJECTIVES OF THE STUDY

The objectives of the study were to:

1. Ascertain the types of Internet resources used by the undergraduate engineering students in North East Nigerian universities
2. Determine the various search engines used by the undergraduate engineering students in North East Nigerian universities.
3. Ascertain the purpose for which the undergraduate engineering students in North East Nigerian universities use the Internet.
4. To ascertain the level of satisfaction of undergraduate engineering students in North East Nigerian universities use the Internet.
5. Ascertain whether self efficacy affect the use of internet resources by undergraduate engineering students in North East Nigerian universities.

RESEARCH QUESTION

1. What are the types of Internet resources used by the undergraduates engineering students in North East Nigerian universities?
2. What search engines do undergraduate engineering students in North East Nigerian universities use?
3. For what purpose do undergraduate engineering students in North East Nigerian universities use internet resources?
4. What is the level of satisfaction of undergraduate engineering students in North East Nigerian universities use the Internet.

Hypothesis

Ho: There is no significant effect of internet self efficacy on the use of internet resources by undergraduate engineering students in Nigerian universities use internet.

REVIEW OF RELATED LITERATURES

Just as we have passed through various technologies of writing surfaces up to the paper we use today, we equally have lots of internet resources through which one can access information. Sahin, Balta, and Ercan

(2010) reveals that, when university students first had the opportunity to use internet resources, almost all of them prefer to use these, rather than classical libraries for their studies, but when the information source satisfaction in research needs is considered, the students' trends are in the direction of using both. Internet use has become very popular in many areas as well as in education in recent years particularly, over the last 20 years. Tella (2007) stressed in his study that, access to internet resources by students have enhanced their academic performances. Accordingly, **Dhanavandan**, Saravanan, Esmail and Nagarajan (2011), e-mail and mailing lists were used by three-fourth of the library professionals while its resources and services like FAQ, finger, veronica, WAIS gopher, Archie, FTP, use net/ newsgroup, mailing lists and telnet were never used at all by a majority.

Search Engines are open access sites and are the most widely used resources for students' projects (Sahin, Balta, and Ercan, 2010). Many of the resources for projects are found on open access on Internet Explorer programs, but some are on customizable tools supplying multiple search engines like "Copernic". Resources which are accessed through these engines are mostly used by students for gathering the required information for their projects. **Dhanavandan**, Saravanan, Esmail and Nagarajan (2011) in their findings revealed the following as the most used search engines: Alta vista, Google, Hotmail, Indya, Khoj, Lycos, Rediff, Search, Sify, Yahoo, Asktems, Krackner, Opentext, msn, Hot bot, Goto, and Amese.

According to **Dhanavandan**, Saravanan, Esmail and Nagarajan (2011), the purposes for which people use Internet ranges from sending and receiving e-mail, read newspaper, visit websites and chatting respectively. Similarly, Asdaque, Khan and Rizvi (2010) found out that, students who use internet for downloading materials such as book/journals for their assignments do improve their Cumulative Grade Point Aggregate (CGPA) compared to those who use it for other things

outside academics. According to Sahin, Balta and Ercan (2010), students use the Internet resources for academic activities such as: **Academic Journals** which are essential reference tools for detailed research covering wide subject areas; **Search Engines** which are open access sites and are the most widely used resources for students' projects; Mamma.com, Askjeevees.com etc.; **Electronic Libraries** belonging to various institutions hosted on the Internet where students consult scholarly resources electronically with the aid of a library web site.

A study carried out on "Evaluation of the nature, extent and level of satisfaction with the use of internet by faculty of applied science and technology, university in Jordan" by Momani, (2007) revealed that, there is lack of satisfaction with the use of internet facilities by the university students. Contrary to Momani's finding, that the most effective way of satisfying library users as pointed out by Mohammed, (2008) in his article "Attracting Students into Library and Information Science Program in Developing Countries", is through ICT particularly, the internet and other network technologies which have continued to impact positively on information services delivery, education and, training of information providers as well as the information needs of the seekers"

According to Bandura (1995) in Kendra (2012), self-efficacy "is the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations". In other words, self-efficacy is a person's belief in his or her ability to succeed in a particular situation. This belief enforces self confidence in the individual to carry out his tasks effectively. Kendra (2012) further added that, People with a strong sense of self-efficacy view challenging problems as tasks to be mastered and develop deeper interest in the activities in which they participate from a stronger sense of commitment to their interests and activities. While People with a weak sense of self-efficacy avoid challenging tasks and believe that difficult tasks or situations are beyond their capabilities. Good-luck and George (2014) stated that lack of skills for searching

internet resources is a barrier that affects the use of online resources. Lecturers and students in universities lack necessary skills and knowledge, which could enable them to resolve internet related barriers because computer training among students and lecturers was seldom offered at convenient, times (Cuban, 2001).

The need to ensure that, Undergraduate Engineering Students of Federal Universities in the North East Zone of Nigeria acquire the basic internet search skills to help them make good use of the online resources is the aim of this study.

METHODOLOGY

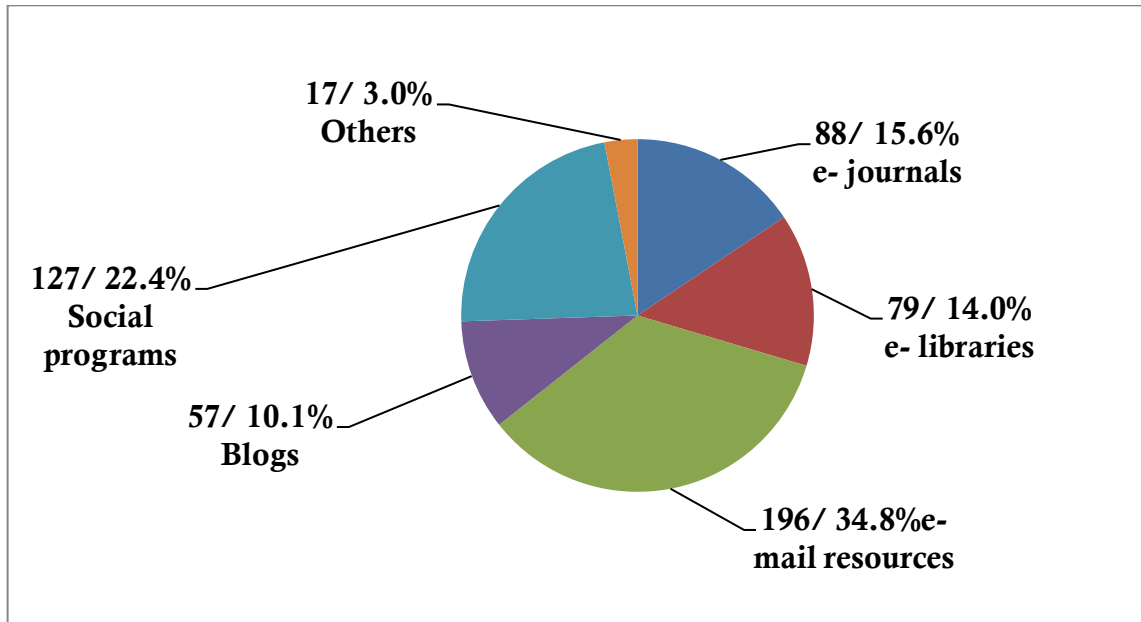
For the purpose of this work, Survey research method was used as it studies both large and small population by selecting and studying sample chosen from the population (Osuala, 2005). A total of 3,535 undergraduate engineering students from University of Maiduguri, Modibo Adama University of Technology, Yola and Abubakar Tafawa Balewa University, Bauchi were used as the target population for the study with a sample size of 354 using proportionate random sampling technique. Questionnaire was used as the main instrument for data collection while data collected was analyzed using descriptive statistic to answer the research questions and inferential statistic of Chi Square was used to test the null hypothesis.

RESULTS AND DISCUSSION

Out of the 354 questionnaires administered, 343 (96.9%) were adequately filled, returned and were found usable for the analysis, that is, 130(36.72%) from UNIMAID, 104(29.38%) from MAUTECH and, 109(30.79%) from ATBU respectively. The finding equally revealed that the bulk of the students were males amounting to 225(65.6%) while 118(34.4%) were females.

Research Question 1: What are the Types of Internet Resources Used by the Undergraduate Engineering Students in North East Nigerian Universities?

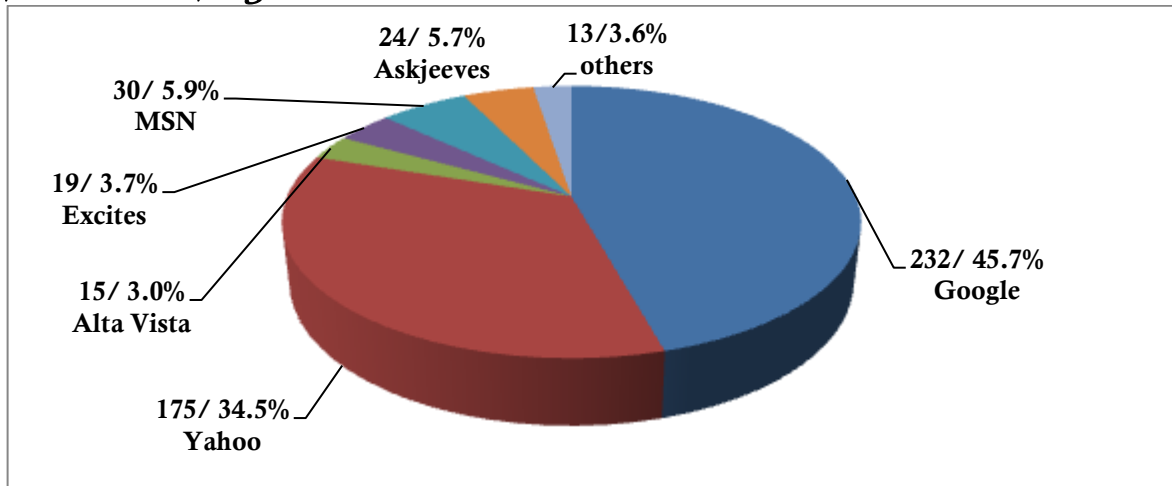
Bar 1: Internet Resources Used by the Undergraduates Engineering Students



Bar 1 above reveals that 196(34.8%) of the students use e-mail resources, 127(22.4%) respondents use social programs, 88(15.6%) respondents use e-journals, 79(14.0%) students use e-libraries, 57(10.1%) respondents use blogs while 17(3.0%) respondents use others respectively. This concludes that social programs and e-mail are the most available Internet resources identified by undergraduate engineering students in Nigerian universities. Looking at the findings, one will begin to wonder why the clamour for internet facilities in university education in Nigeria because the purpose for which these facilities are meant to serve are being abused.

Research Question 2: What search engines do Undergraduate Engineering Students in North East Nigerian Universities Use?

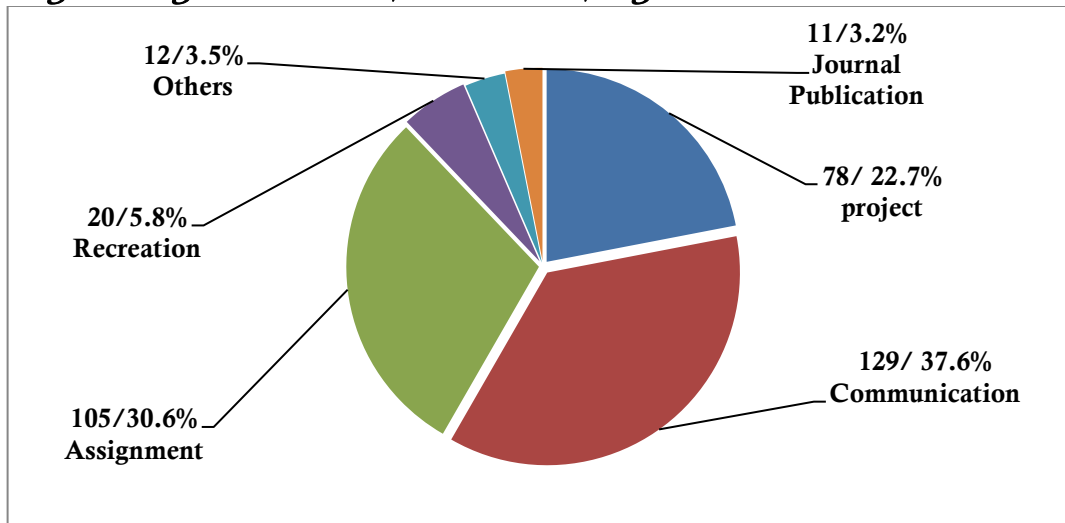
Table 2: Search engines used by Undergraduate Engineering Students in North East Nigerian Universities.



Bar 2 above shows that, Google had the highest vote of 232(45.7%), followed by Yahoo with 175(34.5%), MSN with 30(5.9%), Askjeeves had 24(4.7%), Excite with 19(3.7%), AltaVista with 15(3.0%) and others with 13(2.6%) respectively. This concludes that, Google, Yahoo and, MSN are the most used internet facilities by Undergraduate Engineering Students in North East Nigerian Universities. It is clear that Undergraduate Engineering Students in North East Nigerian Universities have not been finding it easy with internet facilities with regard to identifying the various search engines to use in order to be able to get the most relevant and up-to date information for their academic activities.

Research Question 3: For what purposes do undergraduate engineering students in North East Nigerian Universities use internet resources?

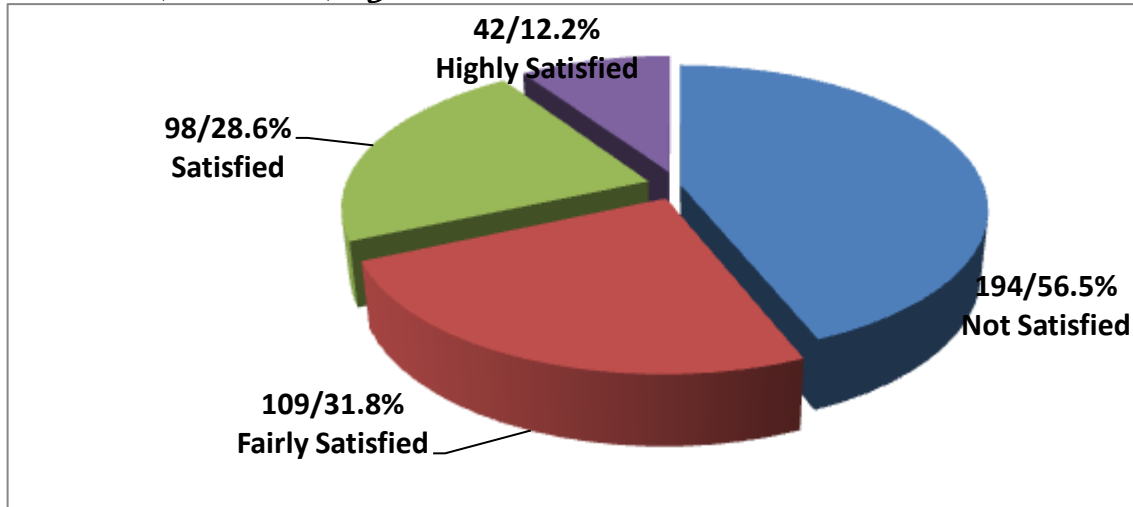
Bar 3: Purpose for the Use of Internet Resources by Undergraduate Engineering Students in North East Nigerian Universities



Base on the bar above, it can be seen that the bulk of the students use internet resources for communication with 129 (37.6%) followed by assignment with 105(30.6%). The use internet resources for research/project attracted 78(22.7%) with 20(5.8%) for recreation, 11(3.2%) went for the use internet facilities for journal publications and others had 12(3.5%) respectively. This concludes that, undergraduate engineering students in North East Nigerian Universities use internet resources mostly for communication, assignment and project purposes.

Research Question 4: What is the level of satisfaction of undergraduate engineering students in North East Nigerian universities use the Internet?

Bar 4: Level of satisfaction with Internet Resources by undergraduate engineering students in North East Nigerian universities



Base on the bar above, it can be seen that the bulk of the students were Not satisfied with the information accessed through ICT as indicated by 194(56.5%) where 109(31.8%) went for fairly satisfied. It equally revealed that only 98(28.6%) were satisfied with only 42(12.2%) who indicated that were highly satisfied. This concludes that, undergraduate engineering students in North East Nigerian Universities were not satisfied with the information accessed on internet.

Ho₁: There is no significant effect of internet search skill on the use of internet resources by undergraduate engineering students in North East Nigerian universities.

Table 4a: Cross Tabulation of Effectiveness of Internet search Skill of Observed and Expected Frequencies

Elements of effective Internet Search Skills	S A (%)		A (%)		UN (%)		D (%)		S D (%)		Total
	Fe	Fo	Fe	Fo	Fe	Fo	Fe	Fo	Fe	Fo	
It saves time.	112	68.6	81	68.6	48	68.6	53	68.6	49	68.6	343
It is more liable to use.	132	68.6	68	68.6	51	68.6	5	68.6	42	68.6	343
I use Boolean operators.	108	68.6	93	68.6	61	68.6	4	68.6	32	68.6	343
It is cost effectiveness.	120	68.6	90	68.6	42	68.6	60	68.6	31	68.6	343
It is user friendly.	93	68.6	103	68.6	33	68.6	68	68.6	46	68.6	343
TOTAL	565		435		4235		280		200		1715

Table3b: 2x4 Chi-Square Contingency Table for the Test of the Effect of Effectiveness of Internet Search Skill on the Use of Internet Resources by Undergraduate Engineering Students in North East Nigerian Universities.

Options	SA	A	UN	D	SD	Total	X ²	df	P-value	Decision P < 0.05
Observed	113	87	47	56	40	343(100)	54.711	4	0.000	S
Expected	68.6	68.6	68.6	68.6	68.6	343(100)				

Table 3 b above shows that; the calculated χ^2 is 54.711 while the p-value at 0.05 level of significance at 4 degree of freedom is 0.000. Since the calculated χ^2 of 54.711 is greater than the p-value of 0.000 at 0.05 level of significance at 4 degree of freedom, the null hypothesis which stated that, there is no significant effect of effectiveness of internet search skill on the use of internet resources by undergraduate engineering students in North East Nigerian universities is hereby rejected. This explains that, the effectiveness of internet search skill is one of the determining factors for the use of internet resources by undergraduate engineering students in North East Nigerian universities.

SUMMARY OF MAJOR FINDINGS

Based on the analysis of the study, the following are the summaries of the findings:

- Social programs and e-mail are the most identified Internet resources by undergraduate engineering students in North East Nigerian universities;
- Google, Yahoo and, MSN are the most used internet search engines by Undergraduate Engineering Students in North East Nigerian Universities;
- Undergraduate engineering students in North East Nigerian Universities use internet resources mostly for communication, assignment and project purposes.
- Undergraduate engineering students in North East Nigerian Universities are not satisfied with the information they accessed through internet resources.
- There is significant effect of internet search skill on the use of internet resources by undergraduate engineering students in North East Nigerian universities

CONCLUSION

Records have shown that universities in Nigeria have incorporated the use of information and communication technology base study in their school curricula with a view to encouraging students take advantage of the technology. There is no doubt that, one will hardly find a university that does not have one form of ICT or the other and the Internet has been used as the bed rock of attaining academic standard globally. However, there is lack of confidence in some students' ability to use the Internet particularly when it comes to accessing information on the Internet. On the other hand, those who have high confidence in the operation skills are becoming more encouraged and advancing toward acquiring more skills. The ability to identify only "social programs and e-mail" as the most used Internet resources and the use of "Google, Yahoo and, MSN" as the most used search engines by the students is a clear pointer that, they have much to learn for them to judiciously exploit the resources.

RECOMMENDATIONS

Based on the evidence unveiled, the following recommendations are worthy to be considered as remedies to the problems uncovered:

- Undergraduate engineering students of Nigerian universities in the North Eastern part should be exposed to the various resources on the internet for them to make the best use of the new technology for their academic and personal purposes ;
- Undergraduate Engineering Students of Nigerian universities in the North Eastern part should be encouraged and educated on how to exploit the numerous internet search engines other than the few identified ones used by the students;
- The management of the universities in the North East Zone of Nigerian should find a way of encouraging the students in order to make use of the internet resources exhaustively other than communication, assignment and projects only;
- The management of the universities in the North East Zone of Nigerian should find a way of organizing special training on how best to interact with computers so as to access information on the internet that will meet their information needs and,
- Since the use of internet resources generally depends on the search skill, the management of the universities in the North East zone of Nigerian should incorporate computer training as prerequisite for engineering undergraduate engineering students for adequate search skills.

REFERENCES

- Asdaque, M.M; Khan, M.N and Rizvi, S.A. (2010). Effect of Internet on the Academic Performance and Social Life of University Students in Pakistan. *Journal of Education and Sociology*. [www.lit.az/ijar/pdf/jes/4/JES2010\(4-3\).pdf](http://www.lit.az/ijar/pdf/jes/4/JES2010(4-3).pdf). 12/08/10

Cuban, L. (2001). "High Access and Low Use of Technology in High School Classrooms: Explaining an Apparent Paradox", *American Educational Research Journal*, Vol. (38)4. pp.813-834,

Dhanavandan, S., Saravanan, G. Esmail, M. S. and Nagarajan, M.(2011). Internet-Based Resources and Services among Librarians in Tamil Nadu, India. In *Library Philosophy and Practice*

Gilflore, J. (2009). Computer use and Students Academic Achievement. Research, Reflection and Innovations in integrating Information Communication in Education.

www.formax.org/micte2009/book/291-1295.pdf. Viewed on 06/11/11.

Goodluck, M. E. and George, B. (2014). Barriers of using Internet Resources in Higher Learning Institutions: A Case of Mzumbe University in Morogoro Region in Tanzania. In Information and Knowledge Management. www.iiste.org. (4)8.

Kendra, C (2012). What is Self-Efficacy. Psychology viewed on 02/05/2012. at .about .com/od/theoriesofpersonality/a/self_efficacy.html. Need to Know. *Libraries and the Academy*, 2 (1), 97-121.

Mohammed Z. (2008). Attracting Student into Library and Information Science Program in Developing Countries. *Journal of Library of Information Science*.

Momani, H.A. (2007). Evaluation of the nature, extent and level of satisfaction with the use of internet by faculty of applied science and technology faculty members in Jordan" *PhD Dissertation university of Pittsburg, PA*.

Oche, E. S. (2006). *Fundamentals of Educational Research Method and Statistics*. Kaduna, Nigeria: Delray press.

- Osunade, O; Ojo, O.M and Ahisu, E.V. (2009). The Role of Internet on the Academic Performance of Students in Tertiary Institutions. Accessed on 06/12/2012 at: www.rocare.org/jera/VI-11/pdf/OluwaseyiTANFUMI-OSUNADE-bis-JERA-RARE-1.pdf.
- Osuala, E. C. (2005). Introduction to Research Methodology. 3rd ed. Onitsha; Africa First Publisher (AFP) Ltd.
- Oyedum, G.U (2007). Information management in Librarianship. Minna: Mairo press and computer Center.
- Sahin, Y. G., Balta, S. And Ercan, T. (2010). The Use of Internet Resources by University Students During their Course Projects Elicitation: A Case Study. The Turkish Online Journal of Educational Technology. (9)2.
- Tella, A. (2007). University of Botswana Undergraduates use of the Internet: Implication and Academic performance. *Journal of Education Media and Library Science*. Vol.2 No2.
- Troll, D.A. (2012). How and Why Libraries are Changing: What We Know and What we Need to Know. *Libraries and the Academy*, 2 (1), 97-121
- Ur-Rheman, K et-al. (2010) Students Attitude Towards the use of Internet. *International Journal of Business and Management*. 5)12.