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Use of Electronic Information Resources by Postgraduate Students of Universities in North Central Nigeria

[1]Yahaya A. Isah
[2]Adamu A. Abu
[3]Shehu A. Bala
[4]Murjanat Abdulhamid

[1, 2 & 4] Federal University of Technology Minna, Nigeria
[3]Baze University Abuja, Nigeria

Introduction

Information sources such as journals, books; newspapers and encyclopaedia are sources that contain information that are used for research, assignment and for leisure reading. With the coming of Information Technology, these sources are now in electronic formats. The emergence of electronic sources has greatly improved the status of libraries and information centres globally within the last ten years and there has been a strong need from the user community to get more information on the net (Okello-Obura, 2010). This has made academic libraries today to focus more on digital or virtual collections. There has been a transition from traditional libraries to digital libraries and from printed to digital documents (Singh & Kaur, 2009). As the roles of libraries continue to change, librarians are making more and more e-resources available for users to be able to access and make use of these resources.

Electronic resources are sources of information in digital formats that are accessed using computers or hand-held devices like phone and tablet either offline or online with a connection to the internet. Electronic resources include e-books, e-journals, and online databases among others that are accessed with an internet connection (Tsakonus & Papathedoru, 2006). Access to e-resources is made possible by Information and Communication Technology (ICT) application tools like computer, internet, electronic networks and CD-ROMs. Before now, computer has been the major tool which aids access and usage of e-resources, but with the advent of smart phones and tablets, access to electronic sources can be communicated across multiple devices.

Utilisation of electronic resources in the context of this study is the extent to which postgraduate students use these resources. Electronic resources are used for researches, seminar presentations and for other academic activities. This corroborates the findings of Okella-Obura and Magara; Agaba, Kigongo and Nyumba (2008) who stated that electronic resources are used for researches, teaching purposes, preparation for presentation in conferences. E-resources have enhanced the learning process to students by providing relevant information for their academic activities.

Academic performance in the context of this research is the extent to which postgraduate students improve or otherwise after having access to and utilise electronic information resources. Academic performance of postgraduate students therefore, depends on the effective access and utilisation of electronic resources. Performance is the process of improvement in a given task. Academic performance according to Sivathaasan and Velnampy (2013) is the outcome of student's achievement in their educational goals. Furthermore, electronic resources have the capacity of improving and impacting on the academic performance of students as argued by Adeniran (2013). It is important to hear that libraries play an important role by providing relevant, timely and up-to-date electronic information resources to assist in the research activities of postgraduate students. In order to achieve this, the state of Information Technology environments is important to effectively access and utilise electronic resources since it is now complementing the printed sources. It could however, be observed that, the state of Information Technology environment in some universities in Nigeria is poor which may affect the accessibility and use of these sources of information.

Statement of the problem

University libraries in the 21st century are spending huge sums of money to subscribe and purchase electronic information resources in order to meet the information needs of the university community. These sources are assisting and impacting on students' academic performance in various universities in Nigeria.

From existing literature it has been found that access and use of these electronic sources by postgraduate students in most Nigerian universities in North Central is low. As a librarian in one of the university libraries, the researcher's observation confirms the outcome of the user surveys of electronic resources in Nigerian university libraries. This development could however affect the academic performance of the postgraduate students in the North-Central Nigeria. Based on this, investigation therefore became necessary for one to conduct a research in order to find out the effect of access and utilisation of electronic information resources on academic performance of postgraduate students in universities of North-Central, Nigeria.

Research questions

1. What is the frequency of access to electronic information resources by postgraduate students in Universities under study?
2. What is the frequency of utilisation of electronic information resources by the postgraduate students in the Universities?
3. What is the effect of access and utilisation of electronic information resources on the academic performance of the postgraduate students in the area under study?

4. Identify the factors that inhibit access and utilisation of electronic resources by postgraduate students in the Universities.

Research methodology

The research design of this study was a descriptive survey and the population was made up of 4711 postgraduate students from five government owned universities of North-Central Nigeria (Federal University of Technology Minna, University of Agriculture Makurdi, University of Ilorin, Ilorin, Kwara State University Malete and Ibrahim Badamasi Babangida University Lapai). Multi-stage sampling technique was used to arrive at the desired sample size for each faculty proportional to the population of postgraduate students in the selected faculties. Krejcie and Morgan estimation table for determining the sample size from a given population of (5,000) to determine the sample size for the study. From Krejcie and Morgan estimation Table, for a population of (5000), a sample size of 357 is adequate at 95% confidence level (Total population of postgraduate students from the sampled university is 4,711).

A structured questionnaire was used as the instrument for data collection from respondents. Frequency counts and percentages were used to analyse the results. The study used a four point Likert scale type of questionnaire: Strongly Agree (S.A = 4), Agree (A = 3), Disagree (D = 2) and Strongly Disagree (S.D = 1). The rating scale in terms of the mean score of 2.50 and above was considered adequate while below 2.50 was regarded as inadequate.

Findings and discussions

A total of three hundred (357) copies of the questionnaire were administered to postgraduate students in the selected universities. Out of this, two hundred and seventy four (274) copies of questionnaire were properly filled and returned for analysis representing 77%. The distribution of respondents by faculties is indicated in Table 1.

Table 1: Distribution of respondents by faculties

Faculties	N	%
Law	10	3.6
Health Science	9	3.3
Life science	36	13.1
Management science	123	44.9
Physical science	13	4.7
Environment technology	17	6.2
Engineering technology	20	7.3

Veterinary medicine	3	1.1
Agronomy	12	4.4
Food technology	11	4.0
Natural science	2	0.7
Language and communication	1	0.4
NIMASA	3	1.1
Humanities, management and social science	8	2.9
Pure and applied science	2	0.7
Information and Communication Technology	1	0.4
Education	3	1.1
TOTAL	**274**	**100%**

Table 1 indicated that 123 (44.9%) being the majority of respondents were from faculty of Management Science, followed by 36 (13.1%) of the respondents from faculties of Life Science and 20 (7.3%) of respondents from Engineering Technology. Data further revealed that 17 (6.2%) of respondents were from faculty of Environmental Technology, 13 (4.7%) of respondents from faculty of Physical sciences. Furthermore, 12 (4.4%) respondents from faculty of Agronomy, 11 (4%) from Food technology, 10 (3.6%) from faculty of Law, 9 (3.3%) from faculty of Health Sciences, 8 (2.9%) were from faculties of Humanities, Management and Health Sciences, 3 (1.1%) of respondents are from faculties of Education, Veterinary Medicine and NIMASA, 2 (0.7%) were from Pure and Applied Sciences and the remaining respondent 1 (0.4%) being from both Language and Communication and Information and Communication Technology.

Table 2: Frequency of access

S/No	Statements	4	3	2	1	$\bar{X}$	S.D	Decision
1	I access electronic resources daily	51 (19%)	100 (36%)	91 (33%)	32 (12%)	2.62	0.91	HA
2	I access electronic resources once in a week	46 (17%)	55 (20%)	108 (39%)	65 (24%)	2.30	1.00	LA

3	I access electronic resources twice a week	18 (7%)	46 (17%)	135 (49%)	75 (27%)	2.03	0.84	LA
4	I access electronic resource monthly	44 (16%)	54 (20%)	106 (39%)	70 (26%)	2.26	1.00	LA
5	I don't access electronic resources	14 (5%)	15 (5%)	92 (34%)	153 (56%)	1.60	0.82	LA

Key: HA- High Access, LA- Low Access, S.D- Standard Deviation, 4- Very High Access, 3- High Access, 2- Low Access, 1- Very Low Access

Table 2 shows the extent to which postgraduate students' access electronic information resources. Only one had a fairly high mean score which was above 2.50 marks on a 4-point Likert Scale. This has to do with item 1; I access electronic information resources daily ($\bar{X}$=2.62; S.D=0.91). All the other four items yielded a low mean score values below the 2.5, indicating the level of access to electronic information resources by postgraduate students in Universities of North-Central Nigeria. These items include item 2; I access electronic resources once in a week ($\bar{X}$=2.30; S.D=1.00); item 3; I access electronic resources twice a week ($\bar{X}$=2.03; S.D=0.84); item 4; I access electronic resources monthly ($\bar{X}$=2.26; S.D=1.00) and item 5; I do not access electronic information resources at all ($\bar{X}$=1.60; S.D=0.82).

Table 3: Frequency of utilisation

S/No	Statements	4	3	2	1	$\bar{X}$	S.D	Decision
1	I use electronic resources daily	50(18%)	74(27%)	88(32%)	62(23%)	2.41	1.00	Low use
2	I use electronic resources once in a week	31(11%)	54(20%)	123(45%)	66(24%)	2.33	0.92	Low use
3	I use electronic resources twice a week	52(19%)	82(30%)	110(40%)	30(11%)	2.57	0.93	High use
4	I use electronic resource monthly	21(8%)	70(26%)	90(33%)	93(34%)	2.07	0.95	Low use
5	I don't use electronic resources	16(6%)	21(8%)	82(30%)	155(57%)	1.63	0.86	Low use

Key: S.D- Standard Deviation, 4- Very High Access, 3- High Access, 2- Low Access, 1- Very Low Access

Table 3 depicts the extent of utilisation of electronic information resources by postgraduate students in Universities of North central Nigeria. Only one had a fairly high mean score which was above the 2.5 mark on a four point Likert scale. It has to do with: I utilise electronic resources twice in a week ($\bar{X}$=2.57; S.D=0.93) as shown from Table 3. The remaining items had a low mean value below 2.5, these are; I use electronic resource daily ($\bar{X}$=2.41; S.D=1.00), I use electronic resources once in a week ($\bar{X}$=2.33; S.D=0.92), I use electronic resources monthly ($\bar{X}$=2.07; S.D=0.95) and I do not use electronic resources at all ($\bar{X}$=1.63; S.D=0.86).

Table 4: Effect of Access and Utilisation of Electronic Resources on Academic Resources

S/N	Statements	4	3	2	1	$\bar{X}$	S.D	Decision
1	Access and use of electronic resources increase my research productivity	151 (55%)	105 (33%)	8 (3%)	10 (4%)	3.45	0.73	Agree
2	Access and use of electronic resources assist me with current literature	86 (31%)	158 (58%)	17 (6%)	13 (5%)	3.16	0.74	Agree
3	Access and use has increased the level of my academic assignment grades	90 (33%)	155 (57%)	19 (7%)	10 (4%)	3.19	0.72	Agree
4	Access and use of electronic resource has improved my level of literature search	103 (38%)	137 (50%)	22 (8%)	12 (4%)	3.21	0.76	Agree
5	Access and use of electronic resources has not improved by research productivity	12 (4%)	7 (3%)	139 (51%)	116 (42%)	1.69	0.73	Disagree
6	Access and use of electronic resources has not	10 (4%)	24 (9%)	141 (51%)	99 (36%)	1.80	0.75	Disagree

	assisted me with current literature							
7	Access and use of electronic resources has not increased my academic assignment grades	11 (4%)	22 (8%)	151 (55%)	90 (33%)	1.83	0.74	Disagree
8	Access and use of electronic resources has not improved my level of literature search	20 (7%)	16 (6%)	124 (45%)	114 (42%)	1.79	0.85	Disagree

Key: S.D- Standard Dev., 4- Strongly Agree, 3- Agree, 2- Disagree, 1- Strongly Disagree

Table 4 is a reflection of the effect of access and utilisation of electronic information resources on academic performance of postgraduate students. The table had eight listed items with four of the items having a high mean value of above 2.5 marks on a 4-point Likert scale. The items with the high mean score are: Access and use of electronic resources increase my research productivity ($\bar{X}$=3.45; S.D=0.73), access and use of electronic resources has improved my level of literature search ($\bar{X}$=3.21; S.D=0.76), access and use has increased the level of my assignment grades ($\bar{X}$=3.19; S.D=0.72) and access and use of electronic resources assist me with current literature ($\bar{X}$=3.16; S.D=0.74). The remaining four items with low mean value below the 2.5 mark as shown from Table 4.8 reveals that; access and use of electronic resources has not increased my academic assignment grades ($\bar{X}$=1.83; S.D=0.74), access and use of electronic resources has not assisted me with current literature ($\bar{X}$=1.80; S.D=0.75), access and use of electronic resources has not improved my level of literature search ($\bar{X}$=1.79; S.D=0.85) and finally, access and use of electronic resources has not improved my research productivity ($\bar{X}$=1.69; S.D=0.73).

Table 5: Factors that Inhibit Access and Utilisation of Electronic Resources

S/No	Statements	4	3	2	1	$\bar{X}$	S.D	Decision
1	Inadequate internet facilities	90(33%)	115(42%)	55(20%)	14(5%)	3.03	0.86	Agree
2	Students not having username and password to electronic resources	65(24%)	134(49%)	54(20%)	21(8%)	2.89	0.85	Agree
3	Inadequate awareness	53(19%)	134(49%)	65(24%)	22(8%)	2.80	0.84	Agree
4	Poor computer systems with virus	29(11%)	128(47%)	91(33%)	26(9%)	2.58	0.80	Agree
5	Inadequate training on the use of electronic resources	47(17%)	149(54%)	58(21%)	20(7%)	2.81	0.80	Agree
6	Inadequate power supply	66(24%)	107(39%)	84(31%)	17(6%)	2.81	0.87	Agree
7	Non availability of relevant e-resources in field of study	42(15%)	111(41%)	98(36%)	23(8%)	2.63	0.84	Agree
8	No regular subscription to e-resources	45(16%)	138(50%)	70(26%)	21(8%)	2.76	0.82	Agree

Key: HA- High Access, LA- Low Access, S.D- Standard Deviation, 4- Strongly agree, 3- Agree, 2- Disagree, 1- Strongly disagree

Table 5 revealed that out of the eight statements listed on the factors that affect access and use of electronic resources in government owned universities of North-Central Nigeria; all the eight statements have a mean score above the 2.5 mark on a 4-point Likert scale. The statements include inadequate internet facilities ($\bar{X}$=3.03; S.D=0.86); students not having username and password to electronic resources ($\bar{X}$=2.89; S.D=0.85); inadequate power supply ($\bar{X}$=2.81; S.D=0.87); inadequate training on the use of electronic resources ($\bar{X}$= 2.81; S.D=0.80); inadequate awareness ($\bar{X}$=2.80; S.D=0.84); no regular subscription to e-resources ($\bar{X}$=2.76;

S.D=0.82); non availability of relevant e-resources in the field of study ($\bar{X}$=2.63; S.D=0.84); poor computers with virus ($\bar{X}$=2.58; S.D=0.80).

Discussion

From the findings of this study it shows that postgraduate students access electronic resource once a week, twice a week and on a monthly basis. This could be attributed to the state of the advances in information technology over the years as a result of the low cost of hand held devices like smartphones and tablets and also affordable data or Internet subscription charges to students. This finding was supported by assertion of Aba, Beetseh, Ogban and Umogbai (2015) that postgraduate students access the internet daily, once a week, two to three times monthly and once in a month. However, the use of mobile telecommunication has improved the level of access to electronic resources as such postgraduate students need not come into the library before they can have access to these sources of information as supported by Ajegbomogun and Fagbola, 2013.

Also, postgraduate students utilise electronic resources on daily, once a week, twice a week and on a monthly basis. The general low utilisation of electronic resources could be as a result of students not been aware of the library subscription to electronic resources and also students not having the requisite skills to get the relevant electronic information sources. The finding of this study is in agreement with Singh and Meera (2013) who stated that postgraduate students prefer to use these sources of information twice and thrice a week. Similarly, the findings of the study disagree with the results of Kaur and Verma (2009) who revealed that postgraduate students occasionally utilise electronic resources. Findings show that access and use of electronic sources of information has improved the level of literature search of postgraduate students, improved their academic grades and provided students with current literature. This improvement in academic performance could be as a result of postgraduate students making use of these resources for their academic work and since electronic resources tend to be more current than their printed counterpart it has led to students making more use of them. The finding of this study is in agreement with the findings of Sivathaasan and Velnampy (2013) who found that use of electronic resources has improved the academic performance of teachers at the University of Jaffna, Sri Lanka.

The problem of inadequate internet facilities as revealed in this study could be attributed to the fact the university management are not spending much funds on the acquisition of new networking devices like fibre optics cable, routers as well as getting a good and reliable Internet Service Provider. The finding of this research is in agreement with the discovery of Sonkar, Singh and Kumar (2014) which states that inadequate infrastructure affects the effective usage of electronic library resources by postgraduate students at Banaras Hindu University, India.

Conclusion

The study found that the level of access and use of electronic resources are important variables to effective academic performance of postgraduate in universities of North-Central Nigeria. Therefore, it is important for Universities in North-Central Nigeria to provide the necessary media that will enable effective access and use of these sources of information. Furthermore, it was found that electronic resources have improved the academic productivity of postgraduate students in some universities in North-Central Nigeria.

Recommendations

1. The University library management should provide steady and alternative power supply to the library through the provision of standby generator set or through the provision of inverters or solar panels to supplement existing electricity supply.
2. Postgraduate students should be trained on how to use electronic resources that are available in the University Library.
3. The University library management should be provided with more bandwidth to enable the students have more and easy access to use online electronic resources. The more bandwidth allocated to the library, the easier and faster it becomes for students to access electronic resources
4. The University library management should create awareness on the use of electronic resources to postgraduate students by conducting workshop, seminars and through the use social media platforms like facebook, twitter and blogs.
5. Information/electronic resources literacy course should be made compulsory to postgraduate students even if it is not computed into their Cumulative Grade Point Average (CGPA). This will enable students have the requisite skills to surf the internet and understand the necessary search strategies.
6. The University library should be provided with the latest computer and peripheral devices, with good and reliable antivirus software that will always secure the library resources. With the advances of Information Technology the desktop computers should be supplemented with laptops in order to have more library spaces to cater for more users.
7. The University Librarian should lobby the Vice Chancellor and University Library Board in order to have funds released on time in order to meet the needs of the library

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About the authors

Isah, Abdullahi Yahaya (BLIT, MLIT): Librarian II with the University Library Services Federal University of Technoloy Minna. His research interest includes electronic resources in libraries and social media. **E-mail:** yahaya.isah@futminna.edu.ng

Abu, Ahmed Adamu (BLIT, MLIT): Librarian II with University Library Services, Federal University of Technology Minna. His research interest includes information organization and retrieval and academic libraries. **E-mail:** ahmed.abu@futminna.edu.ng

Shehu, Abdullahi Bala (BLIT, MBIS, MLIS): Librarian/lecturer with Baze University Abuja. His research interest includes ICT adoption in library services. **E-mail:** sheav.abdullahi@bazeuniversity.edu.ng

Abdulhamid, Murjanat (BLIS, MLIS): Librarian II with the University Library Services, Federal University of Technology Minna. Her area of research includes school library and information literacy. **E-mail:** janah@futminna.edu.ng