Influence of Computer Literacy on Postgraduates' Use of E-Resources in Nigerian University Libraries

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INFLUENCE OF COMPUTER LITERACY ON POSTGRADUATES' USE OF E-RESOURCES IN NIGERIAN UNIVERSITY LIBRARIES

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Abstract

This study investigated how computer literacy predisposes postgraduate students to use e-resources. The survey research design and multi-stage sampling technique were used to select 2726 postgraduate students from 16 Nigerian universities. A questionnaire and computer test was used to collect data and data was analysed using percentages and Pearson's product moment correlation. The postgraduates' computer literacy level was average (56.3%). They used only few of the e-resources in their libraries and the frequency of usage was low (weighted average $\overline{X}$ = 2.45). Computer literacy had positive relationship with postgraduates' usage of e-resources that was positive, very strong and significant (r= .740; df=2284; p< .05). This shows that the more the postgraduates' are exposed to computer literacy skills, the better the use of e-resources for their researches. Computer literacy is necessary to influence use of e-resources by the postgraduates' and therefore, computer literacy programme should be introduced for new entrant postgraduates.

KEYWORDS: Computer literacy, Postgraduates', Use of e-resources, University libraries, Nigeria.

INTRODUCTION

Postgraduates as averred by Thanuskodi (2012) are major users of university library resources and services. This might be so because of their need for writing seminar papers, term papers, information for their assignments and other research activities. Research is the most important component of postgraduate studies (Ismail, Abiddin & Hassan, 2011). Research enables postgraduates' to systematically investigate society's problems, proffer

solutions to them and contribute to knowledge. Research has been defined by Oxford Online Dictionary (2012) as the systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions. It involves a systematic process for recognising a need for information, acquiring and validating that information and deriving conclusions from it. This implies that postgraduates' focus inwards into the society and discover areas with problems, collect data on subject areas, interpret and subsequently make recommendations on how to solve the problems.

The presentation of a standard research work (theses/dissertations) by postgraduates to their departments is the major component that will lead to the award of their final degrees. To present standard research work, postgraduates will need information resources. The information resources could be print or electronic. The types and forms of e-resources in university libraries include e-journals, e-data archives, e-manuscript, e-maps, e-books, e-magazines, e-thesis, WWW, e-newspapers, e-research reports, and e-bibliographic databases (Sharma, 2009).

The libraries, according to Nwalo (2003), are primarily set up to acquire, organise and make accessible to users their needed information within the quickest possible time. University libraries have the responsibility for providing a wide range of resources to meet postgraduates' research needs, collect information for their assignments and term papers, prepare for examinations and broaden their general knowledge. In addition, postgraduates may need these information resources to write articles and to collaborate with other researchers elsewhere in the world. Postgraduates' can locate and access their needed e-resources in the university libraries, even in Nigerian university libraries which are shifting their preferences to e-resources.

E-resources, as defined by Ekwelem, Okafor & Ukwoma (2009), are information sources that are available and can be accessed electronically through such computer-networked facilities as online library catalogues, the internet and the World Wide Web (WWW), CD-ROM databases, etcetera. The electronic resources could either be subscribed to or be digitised in-house. Conyers (2006) in describing the importance of e-resources submitted that apart from the fact that e-resources are easily retrievable in university libraries, they also meet users' information needs. This could be one of the reasons why many university libraries in the United Kingdom are shifting preferences towards e-resources,

which are found to be less expensive and more useful for easy access (Dadzie, 2005). The shift in collection development in university libraries from print materials to e-resources has indicated the importance of e-resources in information retrieval and instructional delivery which support teaching and research activities acknowledged worldwide (Egberongbe, 2011).

The purpose of use of e-resources by postgraduates in university libraries could be encouraged by several reasons. One such important reason is saving their time. Lending credence to this view, Pandurangaswamy & Kishore (2013) argued that users do not have enough time to browse through the page of printed materials and this fact induces users such as postgraduates to increase their use of e-resources for research, course work and teaching. This goes to help them maximise their time. In addition, Brown, Found & McConnell (2007) submitted that time saved on using e-resources has a very positive impact on postgraduates' ability to be creative. Furthermore, Melo & Pires (2011) measured the value of time saved using e-resources among postgraduates in academic libraries in Portugal and revealed that the average time saved for doctoral students was quite high; amounting to 7.88 hour; but that for master's students, the average time saved was 3.55 hours per month. Other reasons for the use of e-resources by postgraduates as identified by Sinha, Singha & Sinha (2011) are giving easy access, accurate and comprehensive information. Also, Khan, Khan & Bhatti (2011) submitted that the purpose of e-resources use among postgraduate students is for studying. In addition, Mathew & Sornam (2007) at Kerala Agricultural University, India, posit that they can be accessed from different locations; easy to access; full text can be accessed remotely.

E- resources have the potential for enhancing postgraduates' learning, as the resources provide postgraduates' with vast quantities of information in an easily accessible non-sequential format. Therefore, the function of e-resources in research and learning is rapidly becoming one of the most important and widely discussed issues in the present education policy. Ani and Ahiauzu (2008), citing Tsakonas and Papatheodorou (2006), states that " the transition from print to electronic medium apart from resulting in a growth of electronic information has provided users with new tools and applications for information seeking and retrieval".

The significant question is if university libraries obtain value for the money invested on e-resources. This enquiry has provoked researchers to place much concern on the use of e-resources in university libraries. Literature from Nigeria has revealed that many university libraries are subscribing for e-resources spending millions of Naira; yet, many of them are

underused and many more are unknown to the users (Egberongbe, 2011 ; Ozoemelem ,2009). It therefore, appears that postgraduates find it difficult to locate and use the e-resources for their scholarly work. Therefore, to justify the investment on e-resources, it is the library's responsibility to ensure that the use of its e-resources is maximised to benefit its users in their daily academic pursuit.

The most likely cause of low use of e-resources by postgraduates' in university libraries for their research work, according to Singh et al. (2011), include language proficiency and information literacy. To Alison et al. (2012), the factors include human and institutions, low bandwidth, limited resources and computer literacy. Computer literacy refers to the comfort levels one has with using computer programmes and other applications that are associated with computers. For this study, it is viewed as the ability of the postgraduates' to have the knowledge on how to use computer facilities in information searching, retrieval and use in the library. Computer literacy could be seen as an influence to the use of e-resources for postgraduate student's research work.

Owing to information explosion, university libraries are increasingly becoming automated. The implication is that more information is digitised. It is, therefore, expedient for postgraduates to be computer-literate to facilitate their search of e-resources. It is more likely that only postgraduates' with adequate computer literacy can access, retrieve and use the digitised information. This view is supported by Tella & Mutula (2008) who argued that students with higher computer literacy are inclined to access and make use of e-resources readily.

STATEMENT OF THE PROBLEM

With the current development in ICT, university libraries in Nigeria are now providing resources in electronic formats. Many of the university libraries have made significant investment providing services through e-information resources and other computer-based technologies so that postgraduates' can gain access to information that will enhance their scholarly research work. Nevertheless, available literature has indicated low use of e-resources by postgraduates' in most university libraries in Nigeria. This has diminished the potentials and payback, considering the enormous investment on e-resources. This may probably be due to lack of the basic computer literacy skills that can enable them to access needed e-information resources. This situation spur the need for this study, with the view to

determine the extent to which computer literacy influence the use of e-resources by postgraduates' in university libraries in Nigeria.

OBJECTIVES OF THE STUDY

The primary objective of this study was to investigate the influence of computer literacy on use of electronic resources by postgraduates in university libraries in Nigeria.

The specific objectives were to:

(i)   determine the computer literacy level of the postgraduate students;

(ii)   find the types of e-resources the postgraduates' use in university libraries;

(iii)   determine the frequency of use of e-resources by the postgraduates in university libraries in Nigeria;

(iv)   determine the relationship between computer literacy level of the postgraduates and their use of e-resources in the libraries.

HYPOTHESIS

There is no significant relationship between postgraduates' computer literacy and their use of e-resources.

LITERATURE REVIEW

Computer literacy refers to effectiveness in searching for needed information by using electronic sources. It is the extent to which postgraduates are capable of conducting e-information searching or use computer facilities to locate relevant sources of information for their scholarly work. Computer literacy can be defined as comprising a variety of complex skills (which include: booting a computer, how to use a keyboard, edit work, retrieve information from computers, send and receive e-mails, etc.) which users need in order to function effectively in digital environments (Eshet-Alkalai, 2004).

The need for computer literacy has become widely accepted as technological necessity of modern life (Stephens & Shotic, 2007). The importance of computer literacy in higher education is overwhelmingly necessary for using e-resources and word processing (Tella & Mutula, 2008). In the increasingly automated library environments, students cannot find books by looking in a card catalogue but they must use computerised database (Hall, 2005). It is therefore in the interest of students, particularly postgraduates that embark on

serious research, to be computer-literate which will enable them to retrieve and use e-resources with ease.

To enable students use e-resources in university library, the University of Botswana, in the year 2002/2003, introduced general education courses (GECs) with high ICT component to address competence in computer and ICT skills (University of Botswana, 2005). Similarly, Pierce, Llody & Solak (2001) designed an exemption test on computer literacy for placement of incoming postgraduates into Indiana University of Pennsylvania USA. The exemption test is conducted considering the importance of computer literacy in information searching in electronic environment. The implication is that fresh postgraduates without computer literacy will have to acquire it to facilitate their information retrieval processes.

Previous studies have shown that computer literacy is an important component of inquiry for information in university libraries (Chan-Lin, 2008). The use of computers for information searching is a direct function on the user's knowledge of the search strategies, as well as the ability to identify the information problem of the starting point of the search (Kim, & Sin, 2011). Information searching as defined by Bashorun et al. (2011) is a specific and complex way of solving problems. Xie & Bugg (2009) argued that lack of computer literacy among adult's library users is one of the reasons that discourage them from taking advantage of library e-resources and services.

As argued by Tsakonas & Papatheodorou (2006), digital libraries and e-resources provide services supporting students to perform intense tasks that require complex interaction activities. This implies that postgraduates may not access and use e-resources without adequate computer literacy skills. How can postgraduates access e-resources when they are not comfortable with computer usage? Also, how can they access e-resources when they cannot navigate through the internet? These are some of the pertinent questions confronting postgraduates requesting to use e-resources in university libraries (Okello-Obura and Ikoja-Odongo, 2010). Students sometimes lack both computer literacy and research skills and so do not find the best appropriate information; therefore, they are left to use whatever information they can find first and fast (Thachill, 2008).

Dange (2010) studied postgraduates' computer literacy viz-a-viz their e-resources use in Ku Vampu University, India and reported that the students entering the university at the postgraduate level had a mediocre knowledge of computer. Even though, the students had little knowledge of the computer at their respective high schools, there are still more to learn

in terms of information retrieval, storage and editing of their research works. Dange (2010) asserts that universities still need to provide introductory computing literacy subjects to ease postgraduates' use of e-resources that will facilitate their research work. Eves and Dalzeil (2007) posits that computer literacy training is useful for effective use of e-resources in university libraries among postgraduates because most recent and up-to-date information are electronically stored and their submission reflects that of Dange (2010). To explore and improve the use of e-resources, the University of Iowa has incorporated introductory masters' level students to computer technology (Yolanda, Edwards & James, 2005).

Oduwole, Oyesiku & Labulo (2002) citing Ajala (2001) pointed out that studies in Nigeria have reported the use of computers/information and communication technology in university libraries. Similarly, (Oketunji, 2001; & Akintunde, 2006) reported the use and application of computer by different levels of students (undergraduates and postgraduates) in universities and found that their use of computers was below average. The study by Ozoemelem (2009) on use of e-resources by postgraduates of the Department of Library and Information Science of Delta State University, Abraka, Nigeria observed that there was low level of computer literacy among the respondents. This low level of computer literacy has also been reported by (Issa, Amusa & Daura, 2009) among students (undergraduates and postgraduates) of the University of Ilorin, Kwara State, Nigeria where they reported that only 25% of their respondents use computers for searching education-related database.

These reports corroborated with that of Rosenberg (2006) who investigated the current status of university libraries in Africa and reported that the majority of libraries undertake computer literacy training at the undergraduate level only. However, she maintained that only 16% support integrated computer literacy programmes of their university. In her final report to the International Network for Accessibility to Scientific Publications (INASP), Rosenberg (2006) concedes that end-user training for postgraduates and academic staff is more of a challenge. The norm she states "is for libraries to offer one-off workshops in computer literacy related subjects" and she noted that attendance is always poor; therefore, low level of computer literacy, e-resources knowledge and use remains a problem in university libraries for postgraduates.

Computer literacy can be a tremendous asset that will assist in retrieving relevant information needed by postgraduates in university libraries. With ICT facilities available in most university libraries in Nigeria, postgraduates who are computer-literate could find it easy to search for their information needs in the libraries. The internet and various forms of

web-enabled technologies are growing exponentially, and 'more and more' pieces information are becoming digitised in computers. Therefore, for effective information searching to be achieved by postgraduates, computer literacy is critical.

METHODOLOGY

The study adopted the descriptive survey research design of the *expost facto* type. The Multi-stage sampling technique was adopted to select 10 out of the 16 conventional universities. Purposive selection of four faculties (Arts, Education, Sciences and Social Sciences) and purposive selection of two departments in each faculty with the highest number of postgraduates was carried out (Table 1). Lastly, proportionate random sampling technique was used to select the levels the postgraduates. The sampling fraction used for selecting the sample was 5%. Thus, a total of 2726 postgraduate students out of 54,578 were selected. A test and questionnaire were used to collect data. Data collected were analysed using descriptive statistics, viz: frequency count, percentage, mean and standard deviation. Also, Pearson Product Moment Correlation was used to test for relationship for the hypothesis

Table 1: Study Population and Sample Size

S/N	University	Population of PG Students (P)	Sample Size per University (5%) (S)=(5% of P)	Target Sample per Faculty in Each University K=S/4
1	Ahmadu Bello University Zaria	8800	440	110
2	Bayero University Kano	2481	124	31
3	University of Abuja	3157	157	39
4	University of Benin	2002	100	25
5	University of Calabar	9946	497	124
6	University of Ibadan	10986	549	137
7	University of Jos	2641	132	33
8	University of Lagos	10450	522	130
9	University of Maiduguri	1692	84	21
10	Usman Danfodio University Sokoto	2423	121	30
	Total	54578	2726	

RESULTS AND DISCUSSION

Computer Literacy Level of the Postgraduates

The analysis of the computer test conducted on the postgraduates showed that lowest score obtained was 20% while the highest was 95%. The mean score for all the students was 48.15% out of the maximum score obtainable of 100%. This falls below the 50% mark which could be represented as pass mark. The 50% cut off point was used to determine the levels of the student's computer literacy (Table 2). Table 2 revealed that more than half of the respondents had average computer literacy levels (56.3%).

Table 2: Level of Computer Literacy of the Postgraduate Students

Level of Computer Literacy	Frequency	Percent
Low	544	23.8
Average	1286	56.3
High	455	19.9
Total	**2285**	**100.0**

The average level of the student's computer literacy could be assumed from the increased access to computers and the internet confidence of today's postgraduates. As Hoffman & Vance, 2005; & Thanuskodi, 2012 opined that there is a general and common perception of new entrant postgraduates into universities, having more computer literacy than was the case seven or eight years ago. More so, students are being exposed to a digital environment at younger ages than in the past. Some may own computers at home and in school. This indicates that they are used to rapid change in technology because of early exposure to computers at both school and homes.

The average level of the students' computer literacy also implies that their ability to retrieve e-resources from the computers and put to effective use is reduced. The question of being computer-literate will remain a challenge in developing countries because most university libraries do not have enough computers, or access to computers is inadequate(Bashorun, Isah & Adisa ,2011; Okello-Obura & Magana,2008). It is only when the students are computer-literate that they can learn how to access and use e-resources. Thachill (2008)

justified this by submitting that e-resources and the new method of education (e-learning) have generated an even greater need for computer instruction. In addition, Kinengyere (2007) asserts that for effective use of e-resources, computer literacy is essential.

Computer literacy was not taught in any of the university libraries as a course, as it was gathered from the e-resources/ICT librarians. It may be that some of the postgraduates have learnt the skills through other personal trainings. When asked of their students' computer literacy to retrieve e-resources, eighty percent of the e-resources librarians responded that the students' computer literacy was average. McGuigan (2001) observed that the level of computing and internet experience with which students enter higher education might influence their use or non-use of library's e-resources. The average computer literacy will not enable the students to fully explore the utilisation of the available e-resources. To this end, therefore, Emwanta & Nwalo (2013) posit that students must acquire adequate computer literacy to use the growing range of e-resources in their libraries.

Types of e-resources used by Postgraduate in University Libraries

The types of e-resources mostly used by the postgraduates in their libraries were: e-journals ($\overline{x}$ = 2.77), e-mail ($\overline{x}$ = 2.71), WWW ($\overline{x}$ =2.70), e-newspaper ($\overline{x}$ =2.64), e-magazine ($\overline{x}$ = 2.53) and e-research reports ($\overline{x}$ = 2.52). The weighted average of the use of e-resources by the postgraduates was $\overline{X}$ =2.45 indicating that their use was low (Table3). This finding could be discouraging to the university libraries that spent fortunes to subscribe to e-resources for use to their researchers. This finding is in agreement with those of Badu and Markwei (2005) who reported from University of Ghana, that apart from e-journals; postgraduates had low use of other e-resources provided in their libraries.

Frequency of Use of e-resources by Postgraduate in University Libraries in Nigeria

The frequency of the use of e-resources mostly ranged from 'once a week' and 'occasionally'. In the present study, the students do not use the other 11 e-resources to any considerable extent (Table 3). Among the most used e-resources, majority of respondents used them once a week and occasionally, this suggest intermittent usage of the e-resources. This frequency of use is in agreement with that of Okiki and Asiru (2011) who reported that postgraduates from Universities of Lagos, Ibadan and Ife, Nigeria used e-resources 'monthly' and 'occasionally' and their use was low. Badu and Markwei (2005) studied the use of e-

resources by academic staff and postgraduates of the University of Ghana and found that they were fully aware of the e-resources and most of its services. It was also found that academic staff used e-resources more than postgraduates. The staff and students indicated that they needed training for an effective use of the e -resources (Badu & Markwei, 2005).

Table 3: Postgraduate Students' Use of E-resources

S/N	In the University Library, I use:	Daily (4) N	Daily (4) %	Once a week (3) N	Once a week (3) %	Occasionally (2) N	Occasionally (2) %	Never (1) N	Never (1) %	$\overline{X}$	Std. Dev.
1	E-journals	827	36.2	606	26.5	358	15.7	494	21.6	2.77	1.15
2.	E-data archives	458	20.0	594	26.0	477	20.9	756	33.1	2.33	1.13
3	E-manuscripts	457	20.0	611	26.7	491	21.5	726	31.8	2.35	1.12
4	E-books	538	23.5	589	25.8	473	20.7	685	30.0	2.43	1.15
5	E- magazines	526	23.0	773	33.8	370	16.2	616	27.0	2.53	1.12
6	E-theses	431	18.9	655	28.7	444	19.4	755	33.0	2.33	1.12
7	World Wide Web (WWW)	683	29.9	759	33.2	310	13.6	533	23.3	2.70	1.13
8	E-newspaper	732	3.2	601	26.3	359	15.7	593	26.0	2.64	1.18
9	E-mail	744	32.6	667	29.2	338	14.8	536	23.5	2.71	1.15
10	E- research reports	577	25.3	671	29.4	389	17.0	648	28.4	2.52	1.15
11	E-bibliographic databases	317	13.9	727	31.8	464	20.3	777	34.0	2.26	1.07
12	E-maps	279	12.2$	684	29.9	540	23.0	782	34.2	2.20	1.04
13	CDROM	386	16.9	751	32.9	376	16.5	772	33.8	2.33	1.11
14	E-reference sources (dictionary etc.)	365	16.0	708	31.0	519	22.7	693	30.3	2.33	1.07
15	E-tutorials	454	19.9	732	32.0	363	15.9	736	32.2	2.40	1.13
16	Online databases	386	16.9	741	32.4	451	19.7	707	30.9	2.35	1.09
17	Other electronic databases	339	14.8	711	31.1	581	25.4	647	28.3	2.32	1.04

Weighted Average =2.45

The low frequency of use of e-resources by the postgraduates is surprising because most of them had average computer literacy levels. The six e-resources frequently used are expected because worldwide, postgraduates' embarked on using them for their scholarly works (Alison & Ruth, 2012). However, the other e-resources are supposed to be put to use by the students based on their average computer literacy level. Perhaps, awareness to such e-

resources was not made known to the students and even if they were aware of them, the students were not skilled in the use of the eleven e-resources. Use of e-resources was not in consonance with investment by university libraries. This will amount to colossal loss of fund made for the subscription of e-resources in the university libraries because the provision of the e-resources was not justified for lack of use. Secondly, the postgraduates' research output will not be qualitative enough for lack of use of current and standardised information resources.

Relationship between Computer Literacy Level and Use of E-Resources by Postgraduates

The relationship between postgraduates' computer literacy and their use of e-resources was positive, very strong and significant (r = .740; df =2284; p < .05). Hence, the alternate hypothesis was rejected (Table 4). This result implies that as postgraduates' computer literacy increases, their use of e-resources also increases. The more computer-literate the students are, the more leverage for them to meander in digital environment to retrieve and use e-resources.

Table 4: Relationship between postgraduates' Computer Literacy and Use of E-resources

Variables	Mean	Std. Deviation	N	R	Df	Sig.p	Remarks
COMPUTER LITERACY	48.1335	18.8762	2285				
				.740*	2284	.000	Significant
USE OF E-RESOURCES	41.4871	13.3645	2285				

*significant at p <. 05

As postgraduates' computer literacy increased, it influences their use of e-resources. The implication of this result is that in the increasingly automated library environment, postgraduates' may retrieve and use e-resources effectively if their computer literacy is high. This finding is similar to those of Tella & Mutula (2008), who reported from the University of Botswana, Botswana, about the students' importance of computer literacy. They concluded that in higher education, computer literacy is overwhelmingly necessary for using e-resources and word processing. The result is not in agreement with that of Ozoemelem (2009) on the use of e-resources by postgraduates of the Department of Library and Information Science of Delta State University, Abraka, Nigeria. He observed that there is low level of computer

literacy among the respondents due to lack of computer training programme. This low level of computer literacy has also been reported by (Issa, Amusa & Daura, 2009) among students of the University of Ilorin, Kwara State, Nigeria where they reported that only 25% of their respondents use computers for searching education related database.

CONCLUSION AND RECOMMENDATIONS

Use of these e-resources by postgraduates in Federal University libraries in Nigeria is critical for their research. This would facilitate their knowledge in their specialized disciplines as students and after graduation. E-resources are provided in the University libraries for retrieval of information for users including postgraduates. However, due to inadequate computer literacy of the students, the e-resources were not fully retrieved and used for their research and other academic work. The computer literacy of Nigerian postgraduates should be improved by incorporating into their curriculum with emphasis on e–resources retrieval and use. Computer literacy test for new entrants should be given as this would indicate those that are not computer- literate and such should be made to pass the test. This will subsequently lead to increase in their use of e-resources for their academic tasks.

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