Information Retrieval Skills as Determinant of the Use of Open Access Resources by Postgraduate Students in Faculty of Education, University of Ibadan, Nigeria

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Abstract
The study examined information retrieval skills as determinant of use of open access resources by postgraduate students in Faculty of Education, University of Ibadan, Nigeria. Descriptive survey research design was adopted in the study and the population of the study comprised all postgraduate students (Ph.D) in the seven departments in Faculty of Education. Purposive sampling technique was employed using a sample percentage of 60% to give a sample size of 210. Questionnaire was the instrument used in the collection of data and data were analysed using simple percentage and correlation. Results revealed that the information retrieval skill of the postgraduate students was moderate ($\bar{x} = 2.9$). Library catalogue (OPAC) (38.6%), e-journal (16.2%), e-book (36.2%), online databases (33.8%) theses and dissertations (29.0%) were used on a daily basis by the postgraduate students. Erratic power supply, poor internet connection, ignorant of OARs online facilities and inadequate browsing skill were the major challenges encountered in the use of OARs.Results further revealed that there was a significant positive relationship between information retrieval skills and use of open access resources (r = 0.316**;p <0.05). The study among others recommends that internet bandwidth should also be upgraded to enhance accessibility and eliminate the frustration being experienced when surfing the Internet for academic materials in open access resources.

Keywords: Information retrieval skill, Open access resources, Postgraduate students, University

Introduction

The word university can be traced to the Latin word 'universitas' which means "community of teacher and scholars. University is an institution of higher or tertiary education and research which awards academic degrees in several academic disciplines. The main purpose and relevance of university education, particularly in Nigeria is the provision of much needed manpower to accelerate the socio-economic development of the nation (Ibukun, 2008). University education is generally understood as a higher learning institution and academic environment, where a community of scholars engages in study (teaching and learning), research, and community services.

Postgraduate student are persons who have completed their first degrees. The focus of this study is postgraduate students who make use of opportunities provided by universities to get master's or PhD degrees in their various courses of study. Postgraduate students are known for focusing on their course assignments and reading while at the same time, attending lectures and fulfilling all other academic requirements. Postgraduate students by the nature of their academic assignments and research projects require lots of quality, current, accurate and up-to-date information to carry out their mandates of learning, research and knowledge update. This information could be obtained from information bearing resources in different formats, which could be print resources to include textbooks, scholarly journals, theses, dissertations, daily newspapers, magazines, encyclopedias, dictionaries and the likes, electronic resources to include e-books, e-journals, e-magazines, and the likes, as well as audio-visual resources (Obasuyi and Usifoh, 2012).

Postgraduate students in their various levels of studies and research have information needs. This is understandable because academic activities of postgraduate students is channel to become enduring and effective means of boosting sustainable economic development and re-enforcing competitiveness in the face of rapid growth taking place between industries, countries and people in the world. Research and assignments engage in by postgraduate students require the use of open access resources (OAR). The growing supply of literature in electronic format facilitates effective searching for the materials needed by postgraduate students for their learning and research activities. This development has rapidly increased the postgraduate students' exposure to a wider range of literature available on open access.

Open Access is about making scientific and scholarly publications freely available on the Web or in electronic for anybody with Internet access to view, download and print out. In other words, open access means making scholarly content available online to any interested party without copyright or price restrictions. Open access is a broad term used for all knowledge resources which are made available to the public for access and open consumption at a wide scale, without any hindrances or subscription fee or access charges (Swan, 2012). Many types of information materials such as journals, books, patents, newspapers, standards, photographs, pictures, motion pictures or music are now available in open access electronic or digital form. Most university libraries are now interested to provide information services using latest information

technology or access tools like search engines, WEB-OPAC, OPAC, CD-ROM, DVDs and other computerized online databases through electronic networks, Internet etc.

The use of open access resources by postgraduate students is that the entire content is available to users everywhere regardless of affiliation with a subscribing library. The main motivation for most authors to publish open access resources is increased visibility and ultimately a citation advantage (Suber, 2006). Open access journals articles and information found in open access resources are cited more frequently by postgraduate students than non-open access articles (Ivwighreghweta and Onoriode, 2012). Ivwighreghweta and Onoriode (2012) submit that the benefits derived from using open access resources by the postgraduate students is provision of free online access to the literature necessary for research. Similarly, use of open access resources fosters the possibility of self-archiving and easy accessibility of research works.

Through open access, the visibility of and accessibility to research articles published in open access journals or open access repositories from both developing and developed countries can be made easy and without restrictions. Removal of information access restrictions through open access resources implies that developing countries scholars' problems of access to scholarly work may greatly be eased. Similarly, much of the research output documented as grey literature in developing countries will stand a better chance of visibility and accessibility through open access. In the current system of scholarly communication, developing countries may be considered to have low research impact due to limited visibility of research output from such countries, and the frequency of open access resources use by postgraduate students seems to be on the increasing side.

Postgraduate students whenever there is a need for them to make use of open access resources, exhibit some factors which greatly influence use of these resources for their academic activities. Thus, use of open access resources by postgraduate students in developing countries like Nigeria could be affected by lack of knowledge of the existence of open access journals and e-resources on the internet, lack of internet search skills, retrieval of too much irrelevant information, improper archiving of some open access journals, poor download delay, limited access to computers terminates, unavailability of internet facilities, among others. Because of these limiting factors, postgraduate students should keep themselves abreast of existing/available information resources and not to leave them to cruel fate of being matured people. However, there are several

other factors that affect the use of open access resources during research. Some of them connect strongly to the information search skills and information technology (IT) expertise in the use of electronic information resources will be investigated.

Some researchers may not make maximum use of electronic information resources because of poor retrieval skills. Mardis, Hoffman and Marshall (2008) refer to these skills as the competencies needed to access resources. These competencies include the information literacy skills, such as skills to formulate a search, identify appropriate information sources, select the 'right search tools, and employ suitable search strategies and to evaluate results. Nov and Ye (2008) investigated computer anxiety, computer self-efficacy and resistance to change as personal characteristics predicting ease of use of digital libraries, Bakkabulindi (2011) linked ICT use with six Individual characteristics – interaction with ICT agent, ICT training, cosmopolitanism, age, gender, and income level.

Furthermore, prior information communications technology (ICT) experience may affect the use of electronic information resources by researchers in research institutes. A postgraduate student who has no experience whatsoever in the use of information technology may not use electronic information resources in open access like his/her colleagues that may have prior experience.

Information access tools provide opportunity for postgraduate students to access and use information for research and learning purposes. Developments in information and communication technologies (ICTs) have been cited as among the key factors that have catalyzed the emergence of open access (Adogbeji and Akporhonor, 2012). Open access resources aim at liberating scholarly communication by using the full potential of ICTs in dissemination of scholarly content. Essentially, scholarly communication involves creating new knowledge, filtering quality knowledge through the peer review process and disseminating that knowledge to intended audiences (Mann, Walter, Hess and Wigand, 2008). Open access (OA) is an alternative form of scholarly communication that has emerged from the traditional business mode of scholarly publishing especially in the electronic information world (Swan, 2007).

There are some indications that postgraduate students' ways of accessing literature for their learning and research activities have changed in the electronic environment (Tella, Tella, Ayeni, Owolabi, 2007). There are larger volumes of information than ever before, new ways of collecting

information, new information containers and new tools for working for information. Postgraduate students' ability to find and retrieve information effectively is a transferable skill useful for their future life as well as enabling the positive and successful use at the available electronic resources whilst at school (Tella, Tella, Ayeni, Owolabi, 2007). In this digital era, postgraduate student who intends to carry out successful research and other academic obligations should have the ability to retrieve information.

Advances in information and communication technologies (ICT) and the concept of global village have made information retrieval and use of electronic information resources easy for postgraduate students. This is due to the fact that most of the documents to be consulted for education outcomes are available in electronic resources like the Internet, CD-ROM, WebOPAC, OPACs, electronic journals and electronic books. These technologies have brought an alternative to facilitate access to scholarly information from around the world which enhances learning and research. In this era of competitive research and knowledge acquisition, postgraduate students now patronise their university libraries to retrieve accurate and current information from electronic resources available in all subjects.

Optimal use of electronic resources in open access by postgraduate students may depend on their information retrieval skills. Information retrieval skills are crucial for retrieving information in this era of technology that most of the information needed for research can be retrieved from electronic sources. However, postgraduate students' efforts to complement their work with electronic resources may be limited due to lack of skills to retrieve information. Therefore, knowledge of skills is necessary to selectively retrieve accurate, relevant and up-to-date information stored in documents instead of all the information that may not be relevant for their academic work. Information retrieval skills are very crucial to the use of electronic resources because information in electronic forms can only be used if postgraduate students possess the skill to retrieve the exact information needed for learning and research.

Information retrieval skills are skills needed to navigate, select, evaluate and re-use the appropriate information (Gui, 2007). Retrieval skills entail being able to handle the changing contents of computer and information sources and knowing where and how to look for the resources (Ekenna & Mabawonku, 2013). Hence, Brophy (2008) opined that libraries should reach a position where acquisition of information skills is considered as one of the key learning

objectives for all students entering the university. He further explained that this would enable the students to be fully equipped to cope with the information intensive world.

Postgraduate students with information retrieval skills should be able to recognise information needed for learning and research, distinguish ways of addressing gap and locating information stored in electronic resources. They should be able to perform literature searches, organise and communicate the information retrieved satisfactorily in their research work. However, postgraduate students need to be guided to acquire these skills so as to cope with the 'Information-rich environment'. Ahmed and Cooke (2008) indicated that utilization of electronic resources and the improvement of information skills are important for end users.

Herring (2010) revealed that to effectively retrieve information, postgraduate students need to value and implement information retrieval skills effectively as this would have an effect on how they find and use information, concepts and ideas for their assignments. In addition to information retrieval skill, postgraduate students may also require a combination of operational retrieval and strategic retrieval skills to make the process of retrieving information a simple task. Operational retrieval skill, on one hand, is the ability to exhibit some level of competence in the use of computers and the network connections (Ekenna & Mabawonku, 2013). This is very crucial for information retrieval. Thus, postgraduate students are expected to have frequent interactions with the systems' hardware and software to enhance competences required for information retrieval (Ekenna & Mabawonku, 2013).

Despite the promising potential of open access resources to improve scholarly communication in developing countries, the new form of scholarly communication is little exploited in such countries when compared to developed countries (Moller, 2006). This is because the usage of open access resources is highly dependent on postgraduate students being aware of this mode of scholarly communication. However, in certain situations postgraduate students benefit from open access initiatives without their knowledge of this form of scholarly communication (Fullard, 2007). This is especially true when postgraduate students gain access to both free and subscribed content while searching for information on the Internet.

It should be noted however that, for a postgraduate student to successfully retrieve information from open access outlets, prior knowledge of process is important. This has raised interest of many scholars of open access usage studies to address the awareness aspect before

further investigating the acceptance and usage of this mode of scholarly communication by the scholarly community. Therefore, this paper is set to investigate information retrieval skills as determinants to the use of open access resources by postgraduate students in faculty of education university of Ibadan, Nigeria.

Statement of the problem

Open access resources are based on Internet technologies. In the information age, open access resources seem to be more cited frequently by postgraduate students during the course of writing assignments or research projects rather than non-open access information sources. Personal observation revealed that some postgraduate students are not making use of this opportunity optimally. Information and communications technology has brought changes in the way information is acquired, organised, stored, retrieved and utilised. Students now have unlimited access to volumes of electronic versions of information materials in open access to carry out learning and research activities. In spite of these new developments, a lot of postgraduate's students do not seem to have created notable landmarks in their academic and research work especially on expanding frontiers of new scientific discoveries. In addition, some students experience setbacks in the use of information resources especially those in electronic formats which consequently, has hampered effective and qualitative academic work. These setbacks again may have been caused by factors relating to researchers' information search skills and information technology (IT) competence. Therefore, the need for information retrieval skills cannot be overemphasis.

From preliminary investigation, there appears that there is no specific and detailed study addressing the adoption of information retrieval skills needed for the use of open access resources in Nigerian universities. There is also paucity of studies on the correlates of information retrieval skills and open access resources by users. Therefore, this paper seeks to investigate information retrieval skills as determinants to the use of open access resources by postgraduate students in faculty of education university of Ibadan, Nigeria.

Objectives of the study

The main objective of this study is to investigate information retrieval skills as determinants to the use of open access resources by postgraduate students in faculty of education university of Ibadan, Nigeria. The specific objectives are to:

i.   find out the information retrieval skills of postgraduate students in faculty of education, university of Ibadan, Nigeria,

ii. ascertain the open access resources used by postgraduate students in faculty of education, university of Ibadan Nigeria,

iii. identify the challenges of using open access resources by Postgraduates in faculty of education, university of Ibadan Nigeria,

iv. examine the relationship between information retrieval skills and open access resources by Postgraduates in faculty of education, university of Ibadan Nigeria

Research questions

The following are the research questions for the study;

i.   What are the information retrieval skills of the postgraduate students in faculty of education university of Ibadan?

ii. What are the types of open access resources used by the postgraduate students in faculty of education university of Ibadan?

iii. What are the challenges of using open access resources by Postgraduates in faculty of education university of Ibadan?

Hypothesis

$H_0 1$: There is no significant relationship between information retrieval skills and open access resources by Postgraduates in faculty of education, university of Ibadan Nigeria

Methodology

Descriptive survey research design of the correlational type was adopted in the study to access the use of open access by the postgraduate students in the faculty of education, university of Ibadan, Nigeria. The target population in the study comprised of 210 postgraduate students (Ph.D.) in the Faculty of Education, University of Ibadan, respondents from seven departments were involved in the study. These include participants from Teacher Education, Guidance and Counselling, Adult Education, Educational Management, Special Education, Physical and Health Education and Library Archival and Information Studies Departments. The multi stage sampling technique was used for the study. In the first stage seven departments were purposively selected on the basis of similarity in order to get a sample representative of the population. Thereafter, equal

allocation of four similar departments would be made. Finally, probabilities proportionate to size of 60% were made. A validated questionnaire tagged Information Retrieval Skills as determinant to the Use of Open Access Resources by Postgraduate Students Questionnaire (IRSDUOAR) was adapted from Ebiefung, Adetimirin and Oyewole (2020). The questionnaire was validated by two experts in the Departments of Library, Archival and Information Studies (Measurement and Evaluation Unit) University of Ibadan. The validated questionnaire reported a coefficient reliability of 0.83. The researchers employed a trained research assistant who helped in the administration of the questionnaires to the respondents in their various departments. Data collected were analysed using frequency count and simple percentage and Pearson product moment correlation (PPMC) at 0.05 significant level.

Results and Discussion

Table 1: Demographic Characteristics of the Respondents

Variables		Frequency	Percentage
Gender	Male	112	53.3
	Female	98	46.7
Department	Teacher Education	24	11.4
	Guidance and Counselling	48	22.9
	Adult Education	32	15.2
	Educational Management	34	16.1
	Special Education	20	9.5
	Physical and Health Education	25	11.9
	Library Archival and Information Studies	27	12.9
Age	25-30 years	18	8.6
	31-35 years	58	27.6
	36-40 years	62	29.5
	41-45 years	32	15.2
	46- 50 years	24	11.4
	51years and above	16	7.6

Table 1 showed that 53.3% were male and the rest 46.7% were female. This means that males participated more in the study than the female. 11.4% were in Teacher Education, 22.9% Guidance and Counselling, 15.2% were in Adult Education, 16.1% were in Educational Management, 9.5% were in Special Education, 11.9% were in Physical and Health Education and the remaining 12.9% were in Library Archival and Information Studies. This means that

respondents who were in Guidance and Counselling participate more in the study. Also, 24.8% were between the ages 22-25 years, 32.4% were between 26-30 years, 20.5% were between 31-35 years while 15.2% were between 36-40 years and the rest 7.1% were between 41 years and above. This means that respondents whose age fell between 26-30 years participated more in the study.

Research question 1: What are the information retrieval skills of the postgraduate students in faculty of education university of Ibadan?

Table 2: Information retrieval skills of the postgraduate students

S/N	Skills	VG(5)	G (4)	A(3)	P (2)	VP (1)	X̄
A	**Informational skills**						
1	Ability to define my personal needs for research	46 (21.9%)	84 (40.0%)	67 (31.9%)	13 (6.2%)	-	2.5
2	Ability to locate vital information in digital resources easily	41 (19.5%)	91 (43.3%)	60 (28.6%)	15 (7.1%)	3 (1.4%)	2.8
3	Ease of selecting journal articles	53 (25.2%)	83 (39.5%)	67 (31.9%)	7 (3.3%)	-	2.6
4	Paraphrasing of articles in my own words	34 (16.2%)	91 (43.3%)	51 (24.2%)	20 (9.5%)	7 (3.3%)	2.9
B	**Operational Skills**						
5	Ability to save information and retrieve it when it is needed	44 (20.9%)	85 (40.4%)	59 (28.1%)	21 (10.0%)	1 (0.5%)	2.4
6	Use of flash drive to copy information into my personal computer	51 (24.3%)	81 (38.6%)	66 (31.4%)	12 (5.7%)	-	2.8
7	Easy access to on-line Databases	54 (25.7%)	102 (48.6%)	49 (23.3%)	5 (2.3%)	-	3.2
8	Quick download of information from online Database	63 (30.0%)	87 (41.4%)	34 (16.2%)	20 (9.5%)	6 (2.9%)	2.7
C	**Strategic Skills**		V				
9	Use of Boolean operators (OR, AND, NOT)	59 (28.1%)	114 (54.3%)	26 (12.3%)	10 (4.8%)	1 (0.5%)	3.4
10	I can use truncation search techniques such as ($, i*, i+) to retrieve information easily	61 (29.0%)	97 (46.%)	22 (10.5%)	27 (12.9%)	3 (1.4%)	3.0
11	Title search is often used for digital catalogue (OPAC) search	46 (21.9%)	108 (51.4%)	46 (21.9%)	8 (3.8%)	2 (0.9%)	3.2
12	Use of author search for electronic catalogue such as (OPAC) search	54 (25.7%)	93 (44.3%)	45 (21.4%)	10 (4.8%)	8 (3.8%)	2.7
	Average imean: i2.9						

Key: Very good =VG, Good =G, Average =A, Poor=P, Very poor=VP
Decision Rule*: High=3.00-4.00, Moderate=2.00-2.99, Low=1.99-0.01*

Table 2 shows the information retrieval skills of the postgraduate students. It reveals that Use of Boolean operators (OR, AND, NOT) $(\bar{X} = 3.4)$ was ranked highest by the mean score rating and was followed in succession by easy access to on-line databases and use of title search is often used for digital catalogue (OPAC) search $(\bar{X} = 3.2)$, I can use truncation search techniques such as ($, i*, i+) to retrieve information easily $(\bar{X} = 3.0)$, Paraphrasing of articles in my own words 2.9), ability to locate vital information in digital resources easily and use of flash drive to copy information into my personal computer $(\bar{X} = 2.8)$, Use of author search for electronic catalogue such as (OPAC) search and quick download of information from online database $(\bar{X} = 2.7)$, ease of selecting journal articles $(\bar{X} = 2.6)$, ability to define my personal needs for research $(\bar{X} = 2.5)$ and lastly Ability to save information and retrieve it when it is needed 2.4). With an average mean is 2.9, it could be inferred that the information retrieval skills of the postgraduate students is moderate. The finding supports that Herring (2010) who did a study on information retrieval skills and revealed that to effectively retrieve information, postgraduate students need to value and implement information retrieval skills effectively as this would have an effect on how they find and use information, concepts and ideas for their assignments. In addition to information retrieval skill, postgraduate students may also require a combination of operational retrieval and strategic retrieval skills to make the process of retrieving information a simple task.

Research question 2: What are the types of open access resources used by the postgraduate students in faculty of education university of Ibadan?

Table 3: Types of open access resources used by the postgraduate students

		Daily	Once a week	Occasionally	Once a month	Never used
1	E-books	76 (36.2%)	54 (25.7%)	18 (8.6%)	62 (29.5%)	-
2	E-journals	79 (37.6%)	34 (16.2%)	74 (35.2%)	23 (10.9%)	-
3	E-magazines	4 (1.9%)	21 (10.0%)	49 (9.0%)	92 (43.8%)	44 (20.9%)
4	Repositories	12 (5.7%)	93 (44.3%)	37 (17.6%)	63 (30.0%)	5 (2.4%)
5	Library catalogue (OPAC)	81 (38.6%)	44 (20.9%)	19 (9.0%)	52 (24.8%)	14 (6.7%)

| 6 | Online databases | 71 (33.8%) | 57 (27.1%) | 25 (11.9%) | 36 (17.1%) | 21 (10%) |
| 7 | Theses and dissertations | 61 (29.0%) | 66 (31.4%) | 31 (14.8%) | 48 (22.9%) | 4 (1.9%) |

Table 3 shows the types of open access resources used by the postgraduate students. It revealed that most of the respondents used library catalogue (OPAC) (38.6%), followed by e-journal (16.2%), e-book (36.2%), online databases (33.8%) theses and dissertations (29.0%) were used on a daily basis. This implies that majority of the postgraduates use most of the OARs on a daily basis. The finding corroborates that of Swan (2012) who affirmed that many types of information materials such as journals, books, patents, newspapers, standards, photographs, pictures, motion pictures or music are now available in open access electronic or digital form. Most university libraries are now interested to provide information services using latest information technology or access tools like search engines, WEB-OPAC, OPAC, CD-ROM, DVDs and other Computerized Online databases through Electronic networks, Internet.

Research question 3: What are the challenges of using OARs among Postgraduates?

Table 4: Challenges of using OARs among Postgraduates

		SA	A	D	SD	$\bar{x}$
1	I am not familiar with OAR websites	82 (39.0%)	104 (49.5%)	14 (6.7%)	10 (4.8%)	2.4
2	Internet browsing is not encouraging due to erratic power supply	88 (41.9%)	118 (56.2%)	4 (1.9%)	-	2.5
3	Poor Internet connection in the university	63 (30.0%)	116 (55.2%)	25 (11.9%)	5 (2.4%)	2.5
4	I am ignorant of OAR online facilities	54 (2.6%)	97 (4.6%)	49 (2.3%)	10 (0.5%)	2.4
5	Lack of personal computer hinders my free access to online course materials	24 (11.4%)	88 (41.9%)	79 (37.6%)	21 (10.0%)	2.5
6	I cannot access internet on my own due to inadequate browsing knowledge	16 (7.6%)	55 (26.2%)	89 (42.4%)	50 (23.8%)	2.4

Key: Strongly agree =SA, Agree =A, Disagree =D, Strongly disagree=SD

Table 4 shows the challenges encountered in using OARs by Postgraduates. It reveals that Internet browsing is not encouraging due to erratic power supply, Poor Internet connection in the university and lack of personal computer hinders my free access to online course materials $(\bar{x} =$ 2.5) respectively were ranked highest by the mean score rating and was followed in succession by

I am not familiar with OAR websites, I am ignorant of OARs online facilities and I cannot access internet on my own due to inadequate browsing knowledge $(\bar{x} = 2.4)$. It could be inferred that the major challenges encountered by postgraduates in the use of OARs include; erratic power supply, poor internet connection, ignorant of OAR online facilities, inadequate browsing skill. The finding goes in line with that of Samzugi and Mwinyimbegu (2016) who did a study on open access resources and identify low level of internet connectivity, power interruptions, lack of/poor internet search skills, lack of cooperation from library staff, inadequate number of computers and irrelevant information as problems users encounter when accessing open educational resources.

H₀1: There is no significant relationship between information retrieval skills and open access resources by Postgraduates in faculty of education, university of Ibadan Nigeria.

Table 4.15: Relationship between information literacy skills and open access resources

Variable	Mean	SD	N	Df	R	Sig	Remark
Information literacy skills	14.30	3.28	210	208	.316**	0.000	Sig.
Open access resources	16.48	5.13					

*significant at 0.05

Pearson's correlation coefficient was used and the results indicated that there is significant positive correlation between information literacy and open access resources (r = 0.316**;p<0.05). This means that having high literacy skills would enhance more use of open educational resources by postgraduates. Therefore, Ho1 is rejected. The finding validates that of Ajibili & Ajibowo (2018) who did a study on the influence of information retrieval skill on open access resources among postgraduate students in Nigeria using the descriptive survey and purposive sampling and found out that there was significant relationship between information retrieval skill and open access resources. The author concluded that high information retrieval skill could enhance effective use of open access resources.

Conclusion and Recommendations

It could be concluded that information retrieval skills are very germane for postgraduates as they are known as academic researchers. Having these skills could also enhance their ability to use

open access resources to augment their academic works. Hence, information retrieval skills influence open access resources by postgraduates. The authors recommended that:

1. Information retrieval skills using information technology should be included in the curriculum for the postgraduates to be able to make use of these open access resources effectively. Hands-on training on the use of these resources should be actively promoted.

2. The university management in collaboration with the library management should provide alternative power supply to be used whenever there is power outage. This will encourage greater use of open access resources by postgraduates.

3. The Internet bandwidth should also be upgraded to enhance accessibility and eliminate the frustration being experienced by postgraduates when surfing the Internet for academic materials in open access resources.

4. The cost of accessing and downloading the digital information resources by postgraduate students should be highly subsidized if they are to bear the list of off-prints and buy access time, in order to encourage the use of open access resources.

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