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THE USE OF ELECTRONIC RESOURCES BY POSTGRADUATE STUDENTS OF THE UNIVERSITY OF CAPE COAST

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Abstract

Developments in Information and Communication Technologies (ICT) have radically taken over every sphere of activity in university libraries. Academic libraries owe it a key duty to keep pace with technological advancement in order to cope with users' continual sophisticated information requirements. The main purpose of this study was to examine the use of electronic resources by postgraduate students of the University of Cape Coast, and with a view of giving recommendations based on findings. The major objectives of the study are: (1) To determine postgraduate students' awareness of electronic resources in the library. (2) To find out the frequency of usage of e-resources by students. (3) To determine the computer literacy level of postgraduate students. And (4) To identify the likely problems in the utilization of electronic resources by postgraduate students. The findings revealed that most of the postgraduate students were aware of the e-resources in the library. The findings of this study also revealed that most postgraduate students rather preferred to access information from Google scholar, and other web based databases more frequently than the databases in the library. The respondents identified poor internet connection as the most significant constrained for ineffective access e-resources.

Key words: Electronic Resources, University of Cape Coast, Postgraduates, Students

1. Introduction

Developments in Information and Communication Technologies (ICT) have radically taken over every sphere of activity in university libraries. Academic libraries owe it a key duty to keep pace with technological advancement in order to cope with users' continual sophisticated information requirements. Academic libraries in the 21st century may not function properly without the existence of electronic resources. Tyckoson (2011) affirms that libraries and information centres which fail to adopt appropriate information technology in their services may cease to function and perhaps, close down. Essentially, ICTs are the standpoints that provide access to electronic resources (e-resource). Modern teaching, learning and research purposes are promoted by academic libraries in universities through the use of ICT. Academic libraries are central in higher educational systems, assisting in the improvement of learning and dissemination of knowledge to meet the information needs of the universities and their communities through the provision of timely information.

Information resources that can be accessed, retrieved, stored and used through electronic means can be seen as e-resources. Information in electronic format can be accessed via the internet, storage devices such as CD-ROMs, pen drives, and other peripheral devices through the use of computer systems. These resources include information on CD-ROMs, online databases, electronic journals (e-journals), electronic books, (e-books), internet resources, etc. According to Haridasan and Khan (2009), electronic information resources are resources in which information is stored electronically and accessed through electronic systems and networks.

The Anglo American Catalogue Rule Two (AACR2) defines e-resources as materials consisting of data and/or computer programme(s) encoded for reading and manipulation by a computer by the use of a peripheral device directly or remotely connected to the computer or via a network such as the internet (Reitz, 2005). In addition, Deng (2010) listed examples of e-resources as; e-databases, electronic books (e-books), electronic journals (e-journals), electronic magazines (e-magazine), electronic newspapers and archives, the rest include e-theses, conference papers, government papers, monographs and research reports in electronic form. E-resources can be used to supplement printed information in university libraries in order to give information seekers the

choice to have access to more convenient and reliable information sources to meet their information needs.

In Africa, there has been a considerable growth of information in electronic format in university libraries through the initiative of organizations. Since in the 1990s, the International Network for the Availability of Scientific Publications (INASP) negotiate with international publishers on behave of African countries for discount prices on e-resources for subscription by academic institutional libraries. These initiatives have been enhanced through programmes like Access Global Online Research in Agriculture (AGORA), HINARI Access to Research Initiatives, the Essential Electronic Agriculture Library (TEEAL) and Programme for the Enhancement of Research Information (PERI), as well as Online Access to Research on Environment (OARE) (Rosenberg, 2006). These organizations have contributed immensely to the availability of e-resources in African universities.

Besides, most academic libraries in Africa continue to populate their web sites/home pages with intellectual works such as postgraduate students' theses/dissertation, journal articles of faculties, inaugural lectures, annual reports, and past questions. These are to promote accessibility of intellectual knowledge in African universities to varied users. Therefore, most universities have made it obligatory that postgraduate students submit their academic work in both print and electronic formats on CD-ROMs. These libraries have also taken advantage of the digitization processes to digitize hard copies of old theses and make other information resources more accessible to users.

In Ghana, there has been remarkable improvement in the provision and access to electronic information resources in academic and research libraries, through the benevolent initiatives of information organisations such as INASP and PERI. These organisations are responsible for price negotiations on electronic information resources with international publishers on behalf of most academic libraries since 1990s and early 2000s (Kwadzo, 2015). Most academic libraries in Ghana have acquired e-resources such as e-journals and e-databases through the initiatives of these information organizations. Now, scholars, researchers and other information seekers have access to wide range of e-resources from higher educational institutions for their academic work.

Also, both public and private university libraries, and other research institutions continue to increase capacity of electronic resource collections of full-text journals and various online databases. Through Consortium of Academic and Research Libraries of Ghana (CARLIGH), many of these academic institutions are able to subscribe to various e-resources like online databases and journals at lower cost as compared to individual library subscription. Hence, these have created access to wide range of electronic information resources for academic libraries in Ghana to meet the information needs of their local and remote users. Recently, a workshop on e-books was organized by Baobab, a publishing company, on 8th November, 2015. CARLIGH decided to subscribe to e-books by creating a platform for interested academic and research libraries to access e-books at lower cost.

Since the production of paper, print materials have been the main available source of information for research and learning processes in Ghanaian universities. Due to the development of ICT, most academic libraries in Ghana have adopted the digitization of information resources and electronic publishing processes. Information that was available only in print or hard copies such as books, journals, abstracts, indexes, and theses/dissertations have duplicates in electronic form as well. Due to this, most forms of academic libraries are hybrid. But Sharma (2009) affirms that print-based information resources are progressively making way for information in electronic form. Also, Ani (2008) as cited in Tsakonas and Papatheodorou (2006) posits that apart from the growth of electronic information, the transition from print to electronic media has provided new tools and applications for users in information seeking and retrieval. It can be said that e-resources are important tools for research that alternate print-based resources in libraries. Dalgeish and Hall (2000) observe that the rate of production of electronic materials has surpassed that of print-based resources. Printed materials in academic libraries have their own merits; they cannot be replaced completely by e-resources. Hence, in order to meet the varied needs of their users, it would be appropriate that academic library operates in hybrid.

E-resources have become important sources of information in academic libraries. E-resources have broadened the information base of academic libraries and ensuring ready availability of electronic information to users. E-resources are the main ingredients that have become a

necessity in most academic library resources today. Shuling (2007) reveals that electronic information has steadily become a key resource in every university library. The development of e-resources has rapidly transformed information access and management procedures in the academic environment and particularly in university libraries. Through the use of e-resources, students, researchers and other information seekers are now exposed to various accesses to electronic information resources globally.

Moreover, in today's electronic environment, the role of library has evolved to meet the demands of technology evolution. According to Dadzie (2007), the benefits of electronic resources are invaluable because they serve as research tools that complement the print based resources in a traditional library setting. She outlined the benefits of e-resources as, access to information that might be limited to the user because of distance or finances, and access to more current information. Therefore, advancement in technology makes it possible for libraries to adopt modern trends of technology to organize their collections and improve service delivery.

Certainly, current and up to date information can be found in e-resources which can be beneficial to information seekers. Ani (2013) agrees that the application of information and communication technology in library and information services helps in the provision of timely information in higher learning institutions to promote academic work and increase research productivity.

In addition, academic libraries are storehouses of information and knowledge for both local and remote users. Ellis and Oldman (2005) opined that electronic resources are tools that assist in conducting research. E-resources are therefore important tools in the academic process of higher education learning. This provides university libraries the ability to influence teaching, learning and research in higher educational institutions (Bature, 2009). The major benefits of electronic resources in the university library ease access to the needed information, since users can access information without their presence in the library. E-resources therefore promote efficacy in information dissemination for research purposes in universities (Thanuskodi, 2012).

Notwithstanding the significance of e-resources to university education, their accessibility and usage in Africa are hampered by varying factors. Studies have revealed that these factors include

poor funding of universities, high cost of IT equipment, and high rate of foreign exchange, power outages, poor telecommunication infrastructures, inadequate skills and limited training on the effective use of e-resources (Fatoki, 2004).

Every academic library, irrespective of its purpose, is duty bound to integrate electronic resources into their system of information. The various types and forms of e-resources in academic libraries are; e-databases, 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).

Effective exploitation of electronic information resources go hand in hand with computer competency skills. Moreover, basic computer skills are important assets to postgraduate students to exploit desired information in their learning and research processes. Computer literacy involves the ability to use and manipulate computer system to acquire desired information. Otokunefor (2005) explained computer literacy as the level of computer knowledge of an individual and the degree to which such knowledge can be used in problem solving. Therefore, computer literacy can also be seen as the ability to achieve desired results through a computer. For information users, the explanation of computer literacy has three components: understanding of basic computing principles, knowing how to use, at least, one computer operating system, and proficiency with specific software programmes. (Saadi, 2002).

The ability to use the computer to search for information largely depends on user knowledge of the search system. Also, the ability to locate, identify, and retrieve and manage information effectively can be transferable skill useful for lifelong learning for human endeavours. It is therefore necessary for students to acquire computer skills which are aspect of information literacy skills to enable them access and make effective use of electronic information from various sources for educational purposes. Moahi (2009) asserted that ICTs have allowed information to be effectively managed and made accessible in universities.

Therefore, the rate at which ICTs are utilized by African universities can positively be determined by the extent of accessibility and utilization of electronic information resources by academics, students and researchers (Moahi, 2009). It can be established that in order for African universities to enhance the accessibility and utilization of e-resources in this information age, the present state of ICT infrastructure in African universities must be redressed and overhauled. It can therefore be said that e-resources contribute immensely to the realization of institutional goals through the provision of adequate and effective information to library users.

The University of Cape Coast (UCC) was established in 1962 originally to train graduate professional teachers for Ghana's second cycle institutions as well as the Ministry of Education. Currently, UCC offers many academic programmes which are grouped under five (5) colleges headed by Provosts, namely: College of Agricultural and Natural Sciences, College of Education Studies, College of Health and Allied Sciences, College of Humanities and Legal Studies and College of Distance Education. The vision of UCC is to become a Centre of Excellence in Africa and the world for human resource and entrepreneurship development in education and other related sectors. (UCC, 2015). The Sam Jonah library has adapted to technological developments to facilitate the process of teaching, learning and research in the university. The library provides electronic resources that offer diverse and innovative information and services to cater for user needs. The library also subscribes to e- resources such as online databases and academic journals of full text and abstract text through the Consortium of Academic and Research Libraries of Ghana (CARLIGH). Besides, the library has access to open access e-journals with full text and abstracts content for users. In addition, the library acquires e-resources through the initiative of INASP.

In spite of the value of e-resources in the provision of effective and efficient information for learning and research purposes, available literature shows that usage of e-resources is not up to the level expected. This problem is more peculiar to developing countries. Studies by Bankole (2012) and Fiankor & Akussah (2012) revealed low awareness of e-resources by library users; this has contributed to limited access to relevant and reliable information by users in making decision on their research. The main purpose of this study was to examine the use of electronic

resources by postgraduate students of the University of Cape Coast, and with a view of giving recommendations based on findings. The major objectives of the study are

1. To determine postgraduate students' awareness of electronic resources in the library.

2. To find out the frequency of usage of e-resources by students.

3. To determine the computer literacy level of postgraduate students.

4. To identify the likely problems in the utilization of electronic resources by postgraduate students.

2. Literature Review

2.1 Concept of Electronic Resources

The role of academic libraries is evolving with the adoption of new technologies in information management and service delivery, to make information readily available and accessible to users. The historical trail of e-resources began in the mid-1960s, with the introduction of machine readable catalogue which served as a directive tool to information resources, this followed the use of OPAC and bibliographic databases, these were later improved to the use of information on CD ROM databases in 1980s (Hawthorne, 2008). The recent electronic information innovations are the online databases, and web-based databases, these information resources provide a broader and more information with limitless access in this 21st century. Electronic serials and e-books were also introduced during the same period. Similarly, more information on electronic format such as e-journals, e-books and full-text databases were introduced in the 1990s (Nisonger, 2003). Nisonger added that e-resources allowed users who had internet access to search and retrieve information from any geographical location. Users are now exposed to quantities of e-resources which are more cost effective and provide effective access to information which was previously not accessible or even known.

2.2 User Knowledge of Electronic Resources in Academic Libraries

Access to knowledge is an important asset for development to every human being. Awareness of e-resources is when users of the library have acquired information and knowledge about the existence of e-resources in the library. When users of a library are exposed to information

resources available in a particular library, they stand a chance of accessing them and are also encouraged to utilize them judiciously to satisfy their information needs.

Awareness of information resources in libraries by users is an issue of much concern, though availability may not be a guarantee to complete usage. Therefore, optimum utilization of information resources by users depends on the awareness of the resources. A research conducted by Chirra and Madhusudhan (2009) showed that 100% of doctoral research scholars are aware of the e-journals of the Consortium and access them. Perchance, these scholars were early adopters of e-journals and other electronic library resources and were more comfortable in accessing these information resources for their academic endeavours.

Rehman and Ramzy (2004) observed that although libraries have provided the state of the arts technologies and infrastructure, these may not be optimally used by users due to lack of awareness of e-resources. On the contrary, Renwick (2005) argued that most students in various faculties are aware of the availability of e-resources but low usage of specific resources. Ahmad and Panda (2013) also added that majority of the faculty members are aware of and use e-resources but some lack knowledge and only use the library's specific resources such as e-theses, patents and CD-ROM databases. Therefore, provision of information resources in libraries by information professionals are not enough until these resources are well marketed and promoted to achieve full utilization by end-users.

In catching up with technological trends, the most focused are the academic libraries, with relentless efforts, they provide electronic information to promote modern teaching, learning and research purposes to the university community and beyond.

However, there are various means by which user attention can be drawn to the use of information resources of libraries. A study by Soyizwapi (2005) revealed that postgraduate students become aware of electronic databases from a variety of sources such as friends, library orientation programmes and academic staff. Other means of awareness creation are through posters, flyers, brochure, library guide, library website, exhibitions, radio programmes and through word of mouth by lectures or teachers to direct students to information sites. Notwithstanding the

growth of technology, libraries need to re-strategize their promotional activities by adopting to technological trends to promote their services to cover both local and remote users.

At one time, libraries tended to be passive where they were custodian of information and only waited to answer user queries. In this information era, libraries are more proactive with the aim to provide users with effective and efficient resources and services. Therefore, libraries that do not adopt to appropriate mechanisms to get their resources and services to prospective users are likely to deprive them of benefiting from electronic information resources. (Okello-Obura, 2010; Ercegovac, 2009; Manda, 2005; and Dadzie, 2005). It can be observed that the patronage of a library's information resources improves after they have been well show cased to potential users. Unfortunately, academic libraries may partly achieve this mandate due to limited budgets, inflation and the increasing cost of electronic information resources.

Similarly, Egberongbe (2011) affirmed that e-resources such as bibliographic databases, e-newspapers and e-magazines are not used very much. Undoubtedly, lack of awareness of information resource, prevents users from realizing it potentials of meeting their information needs. More steps need to be taken by information professionals or librarians to ensure maximum use of e-resources by library users. Besides the traditional means of awareness creation, libraries need to adopt to more technological interactive means like web 2.0 or library 2.0 technologies to promote their services. For example, the use of facebook, twitter, whazups and blogs to interact with users about the library's resources and to answer user queries provides the library with the opportunity to extend their services to cover wider users and also places the library in the world's spectrum.

A number of relevant studies have been carried out on user awareness of e-resources in Ghana. Badu and Markwei (2005) found that in Ghana, both the academic staff and postgraduate students are aware of e-resources and their services but academic staff use e-resources more than postgraduate students. This implies that adoption to electronic resources do not happen simultaneously in the social system. Some users may adopt or use the innovation (e-resources) before others. Also, the Diffusion of Innovations Theory indicates that early adopters are very crucial in the success of any new innovation.

Dadzie (2005) also adds that the high usage in computer and information access, depend on the university's state-of-the-art infrastructure, and high internet resources. She goes on to say that the students have low patronage of databases. In most cases, when users don't have adequate knowledge about the existence of information resources in libraries, they are disadvantaged to their importance. Libraries after acquiring information resources need to do more to get information to users. In other words, efficacy of the university library to a large extent depends on the accessibility and utilization of its information resources and services by users.

Kwafoa et al., (2014) discussed that faculty and administrators also have low patronage of the library's online databases. In the light of this, relentless promotional and marketing efforts are critical by libraries to ensure maximum and efficient use of electronic information resources by users. The expectations of libraries are achieved when information resources are fully utilized by users.

From the literature, inadequate education on e-resources to users could be a contributory factor to low patronage of these information resources. Also, most academic libraries in developing countries are faced with budgetary constraints hence their inability to put necessary measures in place to ensure full utilization of these resources. In the light of these challenges, a relentless promotion and marketing aspect are crucial.

2.3 Attitude towards the use of Electronic Resources

The premium users place on information resources to meet their information needs clearly defines the rate of patronage or use of those resources at a particular point in time. The growth in ICT is changing people attitude towards the adoption of more current information resources to meet their information need.

University libraries need to have strong collection development of information resources in print and non-print format to meet knowledge requirements of both local and remote users of libraries (Olofinsawe and Oyeniyi, 2010). This suggests that since the university library's aim is to assist the parent university to achieve its objectives; its collection development policy should be able to support the teaching, learning and research programme of the university. The academic library

has a duty to ensure that adequate information resources are provided to help postgraduate students to conduct and facilitate their research work. Therefore, this would also encourage users to have positive attitude towards the use of libraries resources.

Shukla and Mishra (2011) observed that research scholars prefer to use e-resources to print resources and that e-resource are used frequently on daily or weekly basis. This finding is affirmed by Okiki and Asiru (2011) who observed that postgraduate students use e-resources 'monthly' and 'occasionally.' Therefore; the adoption rate of e-resources is seemingly improving due to the level of awareness by users. Libraries need to provide more promotional activities to enhance the access and usage of e-resources.

The information era has given users the chance to choose information from many sources to satisfy their information needs. The research findings of Majid and Tan (2002) reported that students consider print resources in the library more useful for their study needs than electronic resources. This contradicts a research study by Kumbar and Lohar (2005) who revealed that majority of students use digital resources frequently. It could be deduced that when users have the ability and enough knowledge on particular information resource, their access to such information resource increases. Therefore, the library needs to create more awareness and provide training of its resources so that the students will improve their use of the library resources and services. However, the above studies did not clearly provide concrete reasons for the imbalance patronage of e-resources by users, this would have served as basis for improvement in general information provisions by libraries.

The issue of information proliferations is generating difficulties for students, researchers and information users since they need to sift through quantities of information to determine quality information from the World Wide Web. Information seekers from higher educational institutions need to have information from credible, reliable and peered reviewed sources to enable them to conduct quality research and improve academic standards. For these reasons, academic libraries subscribe to electronic databases and journals to provide users with authenticated and up-to date access to unlimited archival information (Spalding & Wang, 2006).

2.4 Training in the use of Electronic Resources

Training involves the process of imparting and empowering people with requisite skills and knowledge to perform tasks. In the context of libraries, users need to be equipped with requisite skills to enable them access and use information resources effectively. Therefore, adequate skills in the use of computers are very necessary since computers are major means by which electronic resources can be accessed. The rate at which e-resources are accessed and utilized by postgraduate students could mainly depend on some factors relating to users, particularly computer literacy skills.

According to American Library Association, information literacy is defined as "a set of abilities requiring individuals to recognize when information is needed and the ability to locate, evaluate, and use effectively the needed information." Computer literacy could be the main support for effective use of electronic information resources. Observations are that effective uses of e-resources most often go hand-in-hand with strong information literacy skills. Users of e-resources are required to gain requisite skills for computer literacy in order to make effective use of electronic systems and information sources.

It is crucial for academics and students to have competencies in computer skills in order to effectively access information from different sources such as World Wide Web, online databases, e-journals and CD-ROMs to successfully locate, retrieve, organize, evaluate, and apply information in their academic work. With proliferation of databases, the issue is no longer, not having enough or limited information; it is just the contrary the avalanche of information which appears in various formats and of which not all can be trust worthy. Therefore, computer literacy can be seen as the alternative means by which users can efficiently and effectively locate access, evaluate and use electronic information to achieve desired purposes.

Training boosts searching skills of users, increase their confidence and morale to make them have efficient and effective access of library's electronic resources. Computer literacy comprises a variety of complex skills such as: booting a computer, how to use a keyboard, edit work, retrieve information from computers, send and receive e-mails, which users need in order to function effectively in digital environments (Eshet-Alkalai, 2004). Computer literacy is an aspect

of information literacy. The ability of postgraduate students to have knowledge in computer facilities enable them to search, retrieve and use e-resources to enhance learning and research.

Training is a fundamental element for helping information users to gain desirable skills, and to appreciate technology as an agent of modification rather than destruction. Tella and Mutula (2008) affirmed from a research that students with higher computer literacy are inclined to access and make use of e-resources readily. Therefore, inadequate training in computer literacy skills is a limitation on the use of e-resources by users. In another research finding, Bowden (1994) maintained that users who are trained in information gathering and who have greater computer skills are more likely to utilize e-resource services. However, not much assistance is provided to train postgraduate students to acquire computer literacy skills as required by academic libraries.

Training forms part of the learning process, it empowers information users to have control of conducting independent research for needed information in accessing e-resources. Information literacy promotes lifelong learning among users. This view was supported by Chu and Law (2005) as they observed that knowledge, search expertise and usage of databases grow as the students' progress in their studies. Thus, familiarity with and usage of different databases develop as students' progress in their studies and familiarity are gained through instruction and promotion of databases. Harun (2006) shared the view that the OPAC is the most regularly used one among e- resources provided by the IIUM library. This shows that the promotional aspects of library e-resources need much to be desired.

Achonna (2008) observed that usage of electronic journals is low and users cited lack skills to use the resources and inadequate computers as common obstacles towards usage of electronic resources. Meanwhile, a study by Gakibayo et al., (2013) found that utilization of e- resources does not only affect lack of computer skills and information literacy skills but also lack of enough computers and slow internet connectivity. However, to alleviate these impediments, academic libraries need to put in place mechanisms to enhance accessibility of e-resources.

Postgraduate students may encounter difficulties in accessing e-resources if they lack the requisite skills in using the computer. Dange (2010) argued that although students have little knowledge about the computer at the high school level, more needs to be learnt in the process of accessing, retrieving, storing and using information for research purposes. He further opined that universities still need to provide introductory computing literacy subjects to ease postgraduates' use of e-resources that will facilitate their research work. Also, Eves and Dalzeil (2007) postulate that computer literacy training is useful for effective use of e-resources in university libraries among postgraduates, this is because most recent and up-to-date information are electronically stored and are accessible. Thus, inability to use electronic resources may result in performance shortfalls in research output and productivity. Moreover, users with limited skills in the computer could encounter difficulties to use e-resources (Okello-Obura and Magara, 2008). Therefore, adequate skills in the use of computers are very necessary since computers are major means by which electronic resources can be accessed.

In order to ensure maximum exploitation and use of e-resources, the University of Iowa has incorporated introductory masters' level students to computer technology (Yolanda, Edwards & James, 2005). Postgraduate students need to have the capacity to conduct independent research with fewer difficulties. However, the responsibility of ensuring continuous training rests not only on academic libraries, but also with the parent institutions. Hence, sufficient funds should be made available for libraries to achieve their purpose.

It can be observed that most academic libraries in Africa rather prefer to introduce information literacy skills to undergraduates than to postgraduate students. A research conducted by Rosenberg (2006) observed that on the status of academic libraries in Africa, most libraries undertake computer literacy training at the undergraduate students' level only. In her final report to the INASP, Rosenberg (2006) admitted that end-user training for postgraduate students and academic staff is more of a problem. The norm, she state "is for libraries to offer one-off workshops in computer literacy related subjects". She further stated that there is poor patronage; and consequently, low level of computer literacy. Notwithstanding, university libraries should make effort to provide periodic intensive computer literacy training for postgraduate students to equip them with necessary skills to access e-resources.

Although, training tends to increase the workload of information professionals, they must be at the forefront to impart skills to users through hands-on training using available technology in order to enhance access of e-resources.

2.5 Challenges in the use of Electronic Resources

The value of e-resources in university libraries and safeguarding its usage seems not encouraging. Postgraduate students' quest to use e-resources for their academic work encounters some difficulties in terms of access and usage. Therefore, in order for academic libraries and information centres to improve their e-resource services, it is imperative to better understand the impediments users encounter in accessing these resources. Madhusudhan (2008) and Mulla (2011) reported that the major barrier to the use of electronic journals is the lack of subscriptions in relevant fields of studies and the lack of user orientation or training. This means some users are likely to be deprived of the required information for their academic work. Academic libraries need to invest more in the training and provision of more e-resources to meet the information of all users.

Bhatt and Rana (2011) also identified that the most common problems with e-resources are low speed connectivity, lack of awareness about statutory provision for accessing e-resources by the institutions, technical problems, unavailability of sufficient e-resources, doubts in permanency, high purchase price and lack of legal provision. A similar study by Shukla and Mishra (2011) revealed that majority of research scholars have problem of low internet connectivity.

Madhusudhan (2010) averred slow access speed of the internet as the most commonest problem. He also added that it takes too long to view or download pages and find it difficult to get relevant information. He further indicated that too much information is retrieved and the students cannot make use of e-resources effectively due to the lack of proper IT knowledge. Mulla (2011) revealed that the majority of academics similarly face a problem of lack of training in relation to the use of e-resources.

It is clear that the major problems in the use e-resources as identified are; lack of subscriptions in particular fields of study, lack of user orientation or training, low bandwidth, lack of printing facilities, terminals and training. Undoubtedly, electronic information resources in libraries are unique and so their use may be affected by either the user, institutional or product centred factors.

Singh et al., (2011) found that information specialists have long sought to understand the factors that are pertinent in encouraging a person to search for information. Many studies have been cited to show how factors like language proficiency, computer literacy and information literacy can affect the use of electronic information resources of the library (McGuigan, 2001; Badke, 2002; Patton, 2002; Howze & Dorathy, 2003; Huang & Liaw, 2005; Teo, 2006).

Other factors that may affect the utilization of e-resources include inadequate competence use of e-resources on the part of users, such as lack of knowledge, negative attitudes, poor practices and inadequate and limited infrastructure (Manda, 2005; Smith et al., 2007). In another study, Alison et al., (2012) affirmed that utilization of e-resources is influenced by human and institutional factors including information literacy, low bandwidth and limited number of resources available to users. The literature review for this study also found that availability of e-resources, discipline and institutional factors affect the use of the resources by students and researchers (Eason et al., 2000; Tenopir & King, 2007).

One other obstacle to the use of a library's resources and in particular, its electronic resources, is that they are not seen as being easily accessible. This is in contrast to an internet search engine where a single keyword se arch could result in thousands of hits, no matter the topic. In the library, students have to choose a particular database and be more selective in the search words they use (Waldman, 2003).

Similar problems seem to exist among users of e-resources in general but the magnitude of these challenges varies significantly between developed countries and developing countries. A study conducted by Bashorun, Tunji and Adisa (2011) also showed that low usage is reported for e-

books, bibliographic databases and e-journals. These attitudes may be the result of lack of awareness about the e-resources provided by the library.

Ozoemelem (2009) examined that there are issues like a large mass of irrelevant information. Other problems are download delay, failure to find information, lack of search skills, high cost of access, power outages, unavailability of some websites, inaccessibility of some websites and difficulties in navigating through e-resources.

Oduwole and Akpati (2003) also indicated lack of ICT and power outages as constraints to the use of electronic resources. In the same vein, Watts and Ibegbulam (2006) discovered the inadequate ICT infrastructure and affordable online access as well as absence of in-depth ICT skills as key problems. In addition, lack of information searching skills, and cost of using the cybercafé are identified as barriers to the use of electronic resources. Also, studies have revealed that developing countries are not at par with the developed countries in terms of research productivity. This is due to the fact that much is not invested in the provision of electronic resources which are pivots in research processes. A research finding by Foster et al., (2008) revealed that inadequate access and use of electronic information resources by academic staff for research purposes result to low publication output by African universities. A similar study by Frankor and Akussah (2012) confirmed that academic staff in African universities "had little access to relevant and reliable information when making decisions" on their research activities.

On the Ghanaian scene, the accessibility and utilization of e-resources among users have not been without some challenges. A study conducted Markwei (2001) identified low data transmission and information overload as the main limitations users encountered in accessing the internet. Eventually, these challenges may frustrate users and limit them to the needed information. Martey (2004) discovered that from 1996-2004, libraries adoption to ICT was slow. The results of the study attributed slow pace in the adoption of ICT to high cost of ICT infrastructure and lack of technical expertise. This confirms research survey by Adika (2003) that, internet use in Ghana is still very low among university faculties. Most academic libraries in developing countries are battling with challenges to improve on internet access.

The inability of academic libraries to provide timely information to enhance access and use of e-resources are due to inadequate provision of modern ICT infrastructure. Dadzie (2005) also revealed that access to e-resources is challenged by inadequate computers on campus. In support of this view, libraries are therefore charged to put in place adequate mechanisms to enable effective and efficient access and use of e-resources.

2.6 Theoretical framework

The use of e-resources is a necessity by academic libraries. However, despite the perceived necessity of new and sophisticated technology, the end users of such technology may not readily embrace such tools (Gibson, Harris & Colaric, 2008). The study adopted the diffusion of innovation theory (DOI). In the context of this study, the DOI theory was adopted; postgraduate students of UCC constituted the social system which was represented by various categories of adopters and an innovation as access to e-resources. It was safe to assume that postgraduates belong to different adopter categories so long as the use of e-resources was concern. Essentially, e-resources can be seen as part of technological innovation within the social context. Therefore, the DOI theory was adopted to examine the awareness of electronic resources by postgraduate students of UCC, frequency of access, purpose of accessing and using e-resources among postgraduate students, also to find out user perceptions on the use of e-resources, as well as computer literacy skills of postgraduates and problems encountered in the utilization of e-resources by postgraduates.

3. Methodology

Research design is a systematic plan or blueprint adopted to answer research questions validly, objectively, accurately and economically. The cross-sectional survey design was used for the current study. The objectives of the study as depicted by the research questions guided the choice of questionnaire as the sole data collection instrument for the study. According to Neuman (2006) population is the unit being sampled, the geographical location, and the temporary boundaries. It can be a person, organization, a written document or a social action. For the purpose of the study, postgraduate students from 4 colleges of UCC constituted the target population for the study. This study excluded the College of Distance Education and postgraduate students on sandwich programme. Therefore, total population of postgraduate

students of UCC was 915 from 4 colleges, namely; College of Humanities and Legal Studies, College of Health and Allied Sciences, College of Agriculture and Natural Sciences, and College of Education Studies. A sample size is basically the subset of actual number of individuals of the population. In determining the sample size for this study, the sample ratio proposed by Neuman (2007) indicates that for small population less than 1000, a researcher needs sampling ratio of 30%. In line with the principle, a sample size of 275 which is 30% of 915 postgraduate students of UCC was attained.

Thus, Sample size $=\frac{30}{100}\times 915 = 275$

Neuman's sample size formula was used to determine the proportionate sample size for each college. To get the proportionate sample size, the proportionate sample formula is;

$$PS = \frac{\text{Total student population for each college}}{\text{Total student population}} \times 275$$

Where PS = Proportionate sample size.

Sampling technique is the method used in drawing out participants in a study from a population. Simple random sampling was used to sample the respondents. A list of total number of postgraduate students from the four selected colleges of UCC formed the sampling frame. The lottery method was used in the selection procedure. Data from the completed questionnaire were edited for consistency. In analyzing quantitative data, a coding manual was first developed to enter the responses from the questionnaire into the computer. The SPSS software serves as a powerful tool for transforming responses from a population of study into figures through coding. Quantitative analysis including frequencies and percentages, and tables and charts were used. This research took into accounts the issues of informed consent, anonymity and confidentiality of respondents.

4. Discussions on Major Findings

User knowledge of Electronic Resources

Access to knowledge is an important aspect of development to every human being. Awareness of e-resources is when users of the library have acquired information and knowledge about the existence of e-resources in the library. According to Madhusudhan (2010), user awareness is pre-requisites to efficient and effective use e-resources. therefore, when users of a library are exposed to information resources available in a particular library, they stand a better chance and are also more motivated to utilize them judiciously to satisfy their information needs. In line with this, the views of respondents were solicited to ascertain if they were aware of the availability of e-resources of the UCC Library. Figure 1 illustrates responses received.

Figure 1: Awareness of Electronic Resources
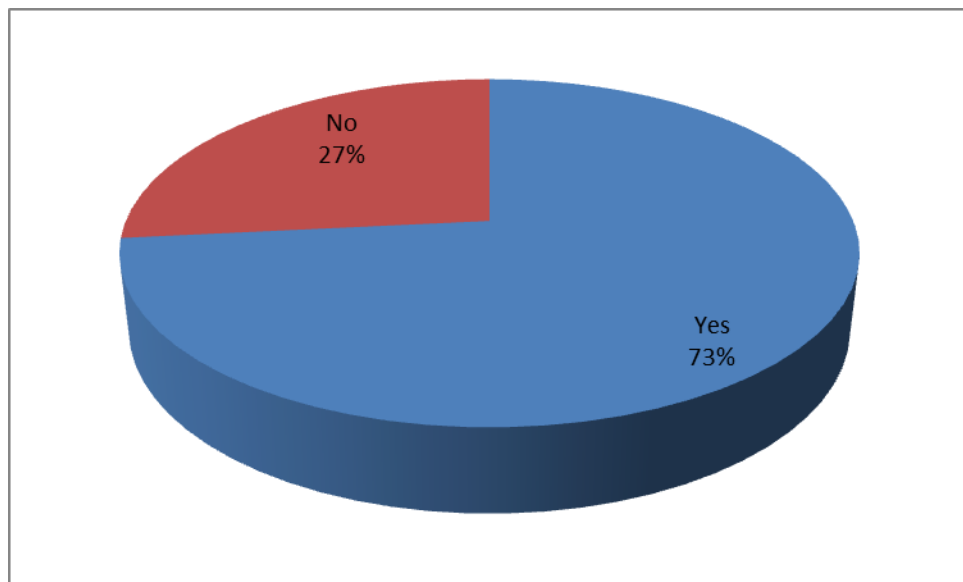
Source: Field data, 2016

From Figure 1, it can be seen that 185(73.0 %) respondents indicated that they had knowledge about the available e-resources in the University of Cape Coast Library while 67(27.0%) of them responded otherwise. Thus, one can assert that most postgraduate students had knowledge about the existence of e-resources in the University Library.

Awareness Creation Channels

Academic libraries in this information era are proactive in achieving their purpose of meeting the information needs of users through the provision of efficient and effective information resources. Libraries are expected to operate in tune with the continuous advancement in technology in terms of adapting to modern promotional channels to get information resources and services to potential users. It is for this reason that this study sought to find out the channels by which e-resources were promoted to the respondents. Respondents were allowed to provide multiple responses. The results are represented in Table 1.

Table 1: Creating Awareness of Electronic Resources

Statements	Frequency	Percent
Orientation	123	48.8
Seminars/workshop	115	45.6
Library guide	26	10.3
Library website	24	9.5
Library staff	41	16.3
Lecturers	39	15.5
Colleagues/friends	18	7.1

Source: Field data, 2016

University of Cape Coast Library uses various means to get students informed about the Library's information resources and services. As shown in Table 1, 123(48.8%) respondents indicated they got to know about e-resources from the library's orientation programmes. In addition, 115(45.6%) respondents confirmed that they learnt about e-resources of the library at seminar/workshops, 41(16.3%) respondents said they became aware of the available e-resources from library staff. Another 39(15.5%) respondents indicated that they acquired knowledge about e-resources of the library from lectures, 26(10.3%) of them said they learnt about e-resources of the library from the library guide. In addition, 24(9.5%) respondents acquired knowledge about e-resources from the library's website, while 18(7.1%) respondents got to know about e-resources in the library from colleagues/friends. It is apparent that postgraduate students had

knowledge about the available e-resources in the library through orientations and seminar/workshops.

The findings revealed that most of the postgraduate students were aware of the e-resources in the library. This awareness was as a result of the library's orientation, seminar and workshop programmes. This finding is in line with Soyizwapi (2005) who asserted that postgraduate students became aware of e-resources from a variety of sources such as friends, library orientation programmes and academic staff. It also corresponds with the findings of Chirra and Madhusudhan, (2009), Badu and Markwei (2005) which point to the fact that users were fully aware of the e-resources and most of their services. Nonetheless, these findings contradict that of Kwafoa et al., (2014) who indicated that faculty and administrators had low patronage of the library's online databases due to lack of awareness. This means that relentless promotional and marketing efforts are critical by the library to ensure maximum and efficient use of electronic information resources by users. The expectations of libraries are achieved when information resources are fully utilized by users.

4.4. Attitude towards the use of electronic resources

The rate of accessibility and use of e-resources of a library is an indicative tool to measure and determine how these resources are patronized by users. Information users have preferences in their bid to search for information from different databases to satisfy various needs. These preferences could be due to differences in programmes of study, user interest or the less restrictive nature of electronic information resources. In view of this, respondents were to indicate how frequent they accessed e-databases. It came to light that a significant number 147(57.9%) of respondents indicated that they preferred to access information from other sources such as Google search, Google scholar, Yahoo, Wikipedia and amazon more than once a week while 72(28.6%) respondents accessed them on daily basis. In addition, 67(26.7%) respondents accessed Emerald databases more than once in a week and 47(18.7%) respondents accessed it on daily basis. In addition, 45(17.9%) of them accessed information from EBSCO host more than once in a month while 36(14.3%) respondents rarely accessed them. Meanwhile, HINARI, Francis & Taylor and Sage databases had low patronage because 64(24.2%), 54(21.4%) and 53(21.3%) respondents respectively indicated that they rarely accessed them. The emerging

trend from the analysis is that awareness of e-resources by postgraduate students did not influence their access of them. These may be due to some challenges that are subjective to them.

The objective was to find out the frequency of access to e-resources by the postgraduate students of UCC. The findings of this study revealed that most postgraduate students rather preferred to access information from Google scholar, and other web based databases more frequently than the databases in the library. Similar to the findings is that study of He et al., (2012) which postulate that students regard online academic search engines such as Google and CiteSeers as more important resources than the university subscribed databases such as EBSCO, Emerald, and JSTOR. It could be deduced that most students perceive that Google search, Google scholar, Bing and yahoo search engines are free access and less restrictive than the library's databases. Cothran (2011) justifies that users accessed Google Scholar regularly because they were easy to learn, access and navigate as compared to other electronic information resources. Also, postgraduate students perceive that Google search and other search engines contain all their information needs and research answers, without considering the fact that those information sources do not at all times provide relevant, reliable and authenticated information resources. For these reasons, academic libraries subscribe to electronic databases and journals to provide users with authenticated and up-to date access to unlimited current and archival information (Spalding & Wang, 2006). This calls for the adoption of more effective measures by the library to enhance usage of the subscribed e-resources.

4.5.1 Training needs of Students
The use of ICT and other related resources involve the use of special skills that cannot be ignored, and these skills can only be acquired through proper training and guidance. In an attempt to make effective use of the increasing rate of e-resources, postgraduate students need to acquire and practice the skills necessary to exploit them. It is against this backdrop that the respondents were asked whether they were given training on the types of e-resources in the library. Table 2 presents the data that was received.

Table 2 Responses on Training

Response	Yes		No		Non Response	
	Freq.	Percent	Freq.	Percent	Freq.	Percent
Internet	110	43.6	117	46.4	25	10.0
E-journals	150	59.5	87	34.5	15	6.0
Online databases	158	62.7	90	35.7	4	1.6
CD ROM	0	0.0	211	83.7	41	16.3
OPAC	41	16.3	195	77.4	16	6.3
Institutional repository	48	23.0	194	77.0	10	4.0

Source: Field data, 2016

As shown in table 2, 158(62.7%) respondents indicated that they were trained on online database, 90(35.7%) respondents disagreed that they had training on online databases but 4(1.6%) respondents were indifferent as to whether they were trained on online databases or not. Another, 150(59.5%) respondents agreed that they received training on e-journals while 87(34.5%) respondents indicated they did not. Respondent did not receive formal training on all the e-resources in the library because 211(83.7%) respondents indicated they were not trained on CD ROM databases while 41(16.3%) respondents did not respond. In addition, 195(77.4%) respondents disagreed to receiving training on the OPAC though 41(16.3%) respondents claimed they were trained on OPAC. One hundred and ninety-four (77.0%) respondents did not receive any training on institutional repository but 10(4.0%) respondents did not respond. Apparently, some of the students had assistance from individual library staff to acquire skills on e-resources they were not trained on.

The third objective of the study sought to examine the computer competencies of postgraduate students of UCC. Diffusion of technology requires skills to enable users to have confidence in the innovation and adopt it to their advantage. The different adopter categories in the social

system require information professionals to provide training in the computer, since it is the means to access e-resources. Tella and Mutula (2008) revealed that students with higher computer literacy are inclined to access and make use of e-resources readily. It could be deduced that postgraduate students with limited computer skills may have difficulties in conducting effective and efficient research of information for their academic purposes. Similar research findings by Achonna (2008) revealed that usage of electronic journals was low and users cited lack of skills to use the e-resources. In line with the findings, although most postgraduate students had knowledge in the computer, majority of them had inadequate skills in the use of the computer to search for e-resources. This made them depended on library staff for assistance in order to access e-resources. To curb the situation, Dange (2010) suggested that universities needed to provide introductory computing literacy subjects to ease postgraduate students' usage of e-resources to facilitate their research work. Eves and Dalzeil (2007) added that computer literacy training was useful for effective use of e-resources in university libraries among postgraduates since most recent and up-to-date information are electronically stored.

Problems encountered in the use of Electronic Resources

The review of literature for this study has brought to the fore, the fact that information users encountered several challenges in their bid to access e-resources in academic libraries. These challenges, unfortunately, may serve as detractive forces to deny information seekers the chance to effectively access and use e-resources. This study sought to establish the difficulties postgraduate students faced in their quest to access e-resources of the UCC Library. Respondents were allowed to select more than one response. Table 3 shows the responses received from the respondents.

Table 3: Challenges in Accessing Electronic Resources

Responses	Frequency	Percent
Inadequate computer in the library	143	56.7
Lack of information on how to use e-resources	46	18.3
Insufficient search skills	165	65.5

Poor internet connectivity	183	72.6
Power outages	173	68.7
Limited subscribed titles	157	62.3
Information overload	32	12.7
Other	8	3.2

Source: Field Data, 2016

From the table, 183(72.6%) respondents were of the view that poor internet connectivity was the major challenge they faced in accessing e-resources. Another 173(68.7%) confirmed that power outages in the library was a limitation they encountered in accessing electronic resources. In addition, 165(65.5%) claimed insufficient skills hindered their ability to access resources while 157(62.3%) respondents indicated that they could not access e-resources effectively due to limited subscribed titles. A total of 143(56.7%) respondents said they did not have effective access to e-resources in the library because of inadequate computers. Also, 32(12.7%) of them perceived that overload of e-resources was a challenge. Further, other postgraduate students stated other limitations such as passwords and user names on the e-databases of the library and the absence of research centre for postgraduate students as hindrance for effective access of e-resources.

Postgraduate students' quest to use e-resources for their academic work encounters some difficulties in terms of access and usage. The final objective of the study was to identify some major challenges that students encountered in accessing e-resources. The respondents identified poor internet connection as the most significant constrained for ineffective access e-resources. This finding agrees with Madhusudhan (2010) who observed that low access speed of the internet was common problem students' faced when accessing e-resources. This may serve as obstruction to learning and research work, especially to postgraduate students. Computers are the major means to access e-resources. Generally, it has become the norm that most students in higher educational institutions are owners of computer devices like lap tops, palm tops and mobile phones. These enable them to access electronic information. The availability of computer systems in the library is necessary since it would enhance the usage of e-resources and make electronic information accessible to students who might not be able to afford computers.

However, inadequate computers in Sam Jonah library was a major limitation for postgraduate students conducting their research work. This finding confirms the finding of Dadzie (2005) who revealed that access to e-resources was challenged by inadequate computers on campus.

5. Conclusion

The provision of electronic information resources in academic libraries has provided unprecedented support to modern teaching, learning and research purposes in universities. Electronic resources have become a 'house hold name' for postgraduate students in terms of access to current and convenient information for their academic endeavours. For this reason, it is prudent for academic libraries to prioritize e-resources as the major information resources and ensure its potential usage. Unfortunately, e-resources were not utilized to their fullest by postgraduate students because of low publicity, inadequate training, restrictions of access such as passwords and usernames, and other limitations such as poor internet connection, inadequate computers, as well as power outage and inadequate searching skills which constrained students to depend more on library professionals for their information searches. These problems have affected the accessibility and utilization of e-resources in the library. In order to alleviate these challenges to ensure maximum use of e-resources, library management should put in place mechanisms to ensure that e-resources are fully accessed and utilized by users.

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