



E-RESOURCES COMPLEXITIES AND THEIR USAGE AMONG THE INFORMATION SCIENCE STUDENTS IN MOUNT KENYA UNIVERSITY, KIGALI CAMPUS

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Abstract

This study intended to ascertain the usage of e-library resources among the undergraduate students at Mount Kenya University (MKU)-Kigali Campus by determining the awareness level, e-library resources accessibility complexities and the challenges faced by information Science students. The study employed the use of a descriptive statistical research design in which the questionnaire instrument was administered the 178 undergraduate respondents of Mount Kenya University, Kigali Campus. The analysis of the study indicated that a large number of the students were aware of the availability of electronic library resources through library notice board. However, students showed low awareness via other modes of communication such as colleagues (39.7%) for the undergraduate and 34.5% postgraduate, also only 6.4% of the undergraduate and 6.9% of were aware of the e-library resources through e-mail from the library. Many students indicated that they face challenges in accessing and using e-library resources and the main reasons put forward were lack of advanced information searching skills, information overload due to too much information available online. This implies therefore that there is a high need to improve on the awareness campaign via other modes of communication such as e-mails and seminars. Trainings and workshops on how to use e-library resources should be organized by the library staff and management so that the subscribed e-resources databases are used effectively and efficiently to maximize research in higher learning institutions. In conclusion, the study suggested that it would be important to establish information literacy programs so that students and the entire university community are acquainted with the use of electronic resources.

Introduction to the study

The use of electronic library resources for academic purpose would improve academic efficiency and increase technological skills and reduce anxiety when conducting research and learning. The last few decades of the twentieth century have been characterized by rapid changes in information access and acquisition through electronic resources as a result of advancement in Information communication technologies (ICTs) and hence considered as the century's most remarkable development affecting scholarly communication (Egberongbe, 2011). Libraries have transformed into digital and virtual libraries where books, journals and Magazines have changed into e-books, e-journals and e-magazines. In his assertion that "over the last numerous years, a remarkable transformation has been noticed in collection development policies and practices" and Print medium is increasingly being replaced by the electronic medium (Sharma, 2009).

In its effort to improve and support learning, teaching, and research activities of the university, Mount Kenya University (MKU) has subscribed to the number of online library information resources such as open access databases, e-journals, e-books and electronic databases all over the world such as Health Internetwork Access to Research Initiative (HINARI), Access to Global Online Research in Agriculture (AGORA), EBSCOhost database, Emerald, SAGE Journals, Biomedical and Life Sciences. Although all these resources are available, it is not certain whether students are aware of them and if they are aware, what are the complexities the students are facing while using the e-resources. Therefore, the main purpose for this study is to find out the level of awareness of the e-resources, perceived e-resources accessibility complexities by the users, which further result in affecting the usage of electronic library resources among the information science students in Mount Kenya University Kigali Campus.

Specific objectives

The specific objectives of this study are:

- i. To establish the awareness level of availability of e-library resources by information science students.
- ii. To establish the complexities experienced in accessing e-library resources by the information science students.



Literature

Academic scholars especially in Higher Learning Institutions have conducted a number of research studies in the past years on the awareness, accessibility and use of electronic library resources in enhancing academic productivity. The provision of e-resources as one of the library functions plays a very important role in students' academic output in this era of online publishing. Their role includes identification and selection of information, retrieval, storage and dissemination to the exact users at the right time at actual place at an affordable price and in right format (Sundareswari, 2013). In this paper, Electronic resources and services refer to the variety of electronic and digital sources of information available to the lecturers and students within an academic context (Swain, 2009). Essentially, electronic library resources in their scope includes primarily the electronic books, e-journals, e-databases, e-papers, e-reference sources, e-content pages, e-prints, electronic learning tools, e-mailing list, e-reports, electronic advertising, Open Public Access Catalogue (OPAC), e-news, e-image, e-music and other numerous materials in electronic form (Saye, 2001).

Students' awareness about the available electronic library resources

A large number of research studies have been conducted on the use of electronic resources. Shuling (2007) analyzed the use of electronic resources in Shaanxi University of Science and Technology. The sample consisted of 909 respondents of all types of library users. The study found out that nearly 80% of respondents knew little about electronic resources. Nearly half the respondents used both printed and electronic resources, followed by print periodicals.

Ali (2005) highlighted the use of electronic information services (EIS) among the users of Indian Institute of Technology (IIT) library in Delhi, India. Data was collected from three hundred IIT library users. Results reveal that 95% of users have awareness about EIS provided by the library. Dadzie (2005) investigated the use of electronic resources by students and faculty of Asheshi University, Ghana, to determine the level of use, the type of information accessed and the effectiveness of the library's communication tools for information research and problems faced in using electronic resources. Results indicated that 85% of respondents used the Internet to access information, and that respondents mainly accessed information in the library by browsing the shelves.

Rehman and Ramzy (2004) investigated the awareness and use of electronic information resources among health academics. Results showed that libraries are extensively used for research needs, preparation of lectures, and for obtaining current knowledge. Lack of time was the main reason given for not using electronic resources (37%). Unfamiliarity with computerized searching comes next (22.6%). Palmer and Sandler (2003) found economics faculty to be the most enthusiastic users of electronic journals. On the other hand, faculty members in history, education and the arts have been slower to adopt electronic journals. Majid and Abazova (1999) explored the use of electronic information sources relevant to computer literacy among academic staff of the International Islamic University, Malaysia. Nearly all respondents considered themselves to have good or very good computer skill.

Based on the study conducted at Guru Gobind Singh (GGS) Indraprastha university campus, observations were made that e-library resources are almost enough for all existing disciplines but the inadequate infrastructure to use the available e-resources was identified as a hindrance to meet the requirements of users (Sharma and Panda, 2009). Another study highlighted that the awareness and the quality of the available information are vital factors affecting the use of electronic resources (Deng, 2010). The results of the study conducted on the Indian academics showed that respondents were aware of e-resources and the internet. Despite the aforementioned e-resources awareness, it was found that majority of the academic community prefer print to electronic information resources for their work related to academics hence leading to low usage of e-resources (Kumar and Kumar, 2008).

Doraswamy (2005) studied the use and familiarity of electronic information resources. The findings showed that 61.25% of the students were familiar with electronic information resources, 27.50% students used computer daily and 5.63% have never used it. A small percentage of students, that is, 2.5% used CD-ROM, 33.13% internet, 38.13% e-mail, 36.87% search engines, and 21.25 use Moodle website "daily" respectively. Online databases were being used by 25% and online public access catalogue (OPAC) "once a month", 18.75% of students used online journals rarely whereas 42.50% of the students use electronic information resources for communication purposes. The main problems faced while using electronic information resources were lack of training and time.

Asefeh and Nosrat (2007) carried a survey to investigate the relationships between awareness and use of digital resources among students in Isfahan University of Medical Sciences. Questionnaire based on a descriptive method was randomly used for survey. A number of 250 users of the Medical libraries and information centers affiliated to Isfahan university of Medical Sciences were taken for survey. The results are found in the paper titled "Awareness and use of digital resources in the libraries of Isfahan University of Medical Sciences, Iran", showing that 70% of students were aware of digital resources, but 69% have used them; 62% were aware of offline databases and 19% were only using them through Central library Local Area Network (LAN) network. About 70% were aware of online databases, accessible via Central library web site, and 53% have used them. In total, 87% of students felt that the available data met their information needs. Infrequent periodic orientation and lack of education on use of offline databases and fewer terminals connected to the server in the Central library, due to these factors, students had less use of offline databases. Users faced problems like low speed connectivity and shortage of hardware facilities.

The literature of e-resources reported the following user-centered barriers to electronic resources use: lack of skills on how



to use information sources, lack of appropriate reward for electronic scholarly communication, lack of consistent technical support and provision and lack of time to be spent on searching for information (Macias-Chapula, 1995; Borgman, Hirsh & Hiller, 1996; Tompsett and Alsop, 1997; Ray and Day, 1998) concluded that the use of online electronic resources and retrieval systems requires basic knowledge of computing and searching skills. In a study related to the types and frequencies of references to online sources, Harter and Kim (1996) established that, the rate of e-resources use was extremely low, only 1.9% and 0.2% respectively, for the e-journals out of the total articles examined. In a similar study, Tanta (1995) observed that out of a total of 97 articles, only two contained direct references to networked information sources.

Madhusudhan (2008) carried out a study which clearly highlights that research relies heavily on the use of e-resources. He visualizes that students and scholars from the streams like Engineering and Science make good use of electronic resources as compared to other disciplines. A study carried out by Egbal and Khan (2007) also reveals that scholars from Sciences and Engineering use e-journals for updating knowledge. The commonly used electronic resources by students, scholars and faculty mostly constituting of CD-ROM's, online databases, web based sources, audio and video tapes are also opined by Kaur and Verma (2007).

Accessibility of the electronic library resources

Accessibility of the Library's electronic resources plays a big role in the usage of the resources. This is the reason why some of the universities conducted studies to determine the level of how students access e-resources. A case in point is the investigation on the accessibility and retrieval of electronic information at the University of Agriculture Library, Abeokuta, Nigeria. The findings of the study involved 425 respondents out of a survey population of 1,000, and hence giving a response rate of 53.87%. It showed that electronic information resources were accessible to many members of the university population and easy to use and users were satisfied with their search outputs. The limitations identified included insufficient number of terminals available for accessibility and use of e-resources despite high demand and insufficient electricity supply (Oduwole and Akpati, 2003). The availability and the ease of accessibility of information encourage the users to use electronic resources more frequently (Naidu, Rajput and Motiyani, 2007).

Considering the region in which Rwanda belongs, the study that aimed at investigating the availability, access and use of electronic resources in East and Southern African universities was conducted. It was comprised of: National University of Rwanda (NUR), University of Nairobi, University of Dar-es-salaam and the University of Malawi. The findings revealed that all these universities have impressive online journal collections but this is rarely the perception of researchers and students, who report that poor access hinders their work. In order to explain this mismatch, and to find measures that could address it, the research study explored the three challenging factors namely: availability, access and use of online journals, and considered the interrelated issues of technology, awareness, skills, and campus relationships to understand how access and use can be strengthened. On average, 79% of the top-ranked international journals were available online, free at the point of use at the four case study universities but researchers reported that the accessibility of the journals they needed was a high struggle (Wella, 2011).

The purpose of using electronic library resources

The purpose of using electronic library resources is shown in a number of related studies that have been carried out in various academic institutions all over the world. It is evident that electronic library resources have given students the power to acquire information timely and has also helped to suspend barriers and offer fairness of access to knowledge and information everywhere regardless of geographical location (Madhusudhan, 2010). He further asserted that the use of internet and electronic databases help students to overcome time delay associated with the print media whereby production, publication and delivery of print media has been reduced noticeably. It is seen everywhere that the electronic form of materials are superseding the print medium because of their indispensable advantages (Kaur, 2006).

In the study by Bar Ilan, Peritz, and Wolman (2003), most respondents (69.2%) stated that they used databases and electronic journals for both teaching and research, compared with 23.9% who used them exclusively for research and only 0.6% who used them exclusively for teaching. This statement is also supported by Ray and Day (1998) who further indicated that 83% of students surveyed in their research felt that using electronic library resources saved them time and found it relatively easy to use. Obaje and Camble (2008) report that CD ROMs are mostly used for literature searches during project/dissertation and thesis writing as well as personal research by students, and Two thirds of those surveyed by Ray and Day (1998) mentioned that if the Compact Disk Read Only Memory (CD-ROM) was busy, they would wait for it to become free rather than use the print tool.

Academics at Obafemi Awolowo University, Ile - Ife, use electronic resources mostly for literature search in research and professional growth (Omotayo, 2010), while Kumar and Kumar (2008), however, highlighted six reasons for using electronic information sources. Users in the study use electronic sources in support of their study (70%) and teaching (59%). One third of respondents used the sources for project work. Medical science users accessed electronic information sources for study (88%), followed by engineering (67%) and management studies (55%). This is supported by the findings out of the study conducted in Punjab University which revealed that the availability of electronic reference databases, electronic journals, electronic magazines, electronic newspapers, electronic dictionary, electronic books, internet, and electronic mails are of high significance on usage



behavior as regards to information retrieval and ease of work (Doraswamy, 2005).

A study on the use of electronic resources in Institutions of higher learning revealed that 78% of the respondents had a feeling that the use of the University Grants Commission Information network (UGC-Info net) e-journals has created high dependency value on the research work (Madhusudan, 2008).

Establishing the purpose of e-resources usage, a high percentage of students of faculty of science (67.64%) and engineering (69.23%) were found to be using e-journals for academic and research work whereas 35.29% of sciences use e-journals to update knowledge and 23.70% of engineering use these for study (Eqbal and Khan, 2007). The usage of e-library resources and its purpose at Milia Islamia University library revealed that forty nine percent (49%) of the respondents were slightly satisfied with online services provided by the library and indicates that the use of the available e-resources is not satisfactory and needs constant guidance to enhance their usage (Naqvi, 2007).

Electronic resources such as e-journals are becoming a basic need for the students for the academic purposes at any time. Quick publication and availability on the desktop are the key advantages that attract research scholars (Navjyoti, 2007). Kaur reports that electronic resources can be good substitutes for conventional resources if the access speed is fast, access to all the important e-journals is provided and more computer terminals are installed to provide access to e-resources (Kaur, 2007).

Electronic resources are said to be capable of meeting the instant desire of users to the access of information, as indicated by Solis and Hampton who expressed that “students appreciate course-specific web pages that provide access to library resources that relate directly to class assignments” (Solis & Hampton, 2009).

Electronic resources are said to be convenient to use, as users are able to access information from different places such as the library, internet cafes, and offices or at times from their homes without having to move any distance at any time of the day” (Dadzie, 2005). Compounding on the benefits of electronic library resources, Ellis and Oldman (2005) found out that “electronic resources would ease access to holdings, save time and financial resources and would solve problems connected with a lack of space in research libraries”.

Highlighting the advantages of e-resources, Wilson (2003) stated that “e-resources offer a greater variety of learning experiences than those offered by text on paper; it enables instant feedback on their progress and facilitate students' ability to understand concepts more easily and clearly”.

Challenges faced by students in using e-library resources

The study of online searching of scientific information in science and technology libraries of Delhi revealed a sizeable number of users whereby almost 60% are found to be facing numerous problems while browsing electronic information, such problems include: lack of knowledge about the resources, lack of trained staff and inadequate terminals (Ali, 2005).

Lack of training has been identified as a major challenging factor in the usage of electronic library resources such as scholarly journals, e-books and bibliographic databases and due to this; there is a high need to improve on training provision to the users. Web pages should also be included to the library catalogue as a solution to browse and increase access to the e-resources web site links (Kennedy, 2004). In African universities, the findings of the study identified major obstacles to the successful provision of electronic resources in their libraries and these include: lack of strategic proper planning, lack of adequate and reliable funding, lack of use of internet to equip users with information services and lack of dependable training for users in new Information Communication Technology (ICT) skills such as information literacy and searching skills services (Renwick, 2005).

Although the accessibility and retrieval of electronic information resources at the University of Agriculture Abeokuta, Nigeria was found to be very satisfactory and easy to use, researchers have however identified problems including inadequate number of terminals for use (Oduwole and Akpati, 2003).

A survey that involved 350 respondents with the aim of examining students' access, usage and awareness of electronic information resources at the University College Hospital (UCH) Ibadan, Nigeria. The findings revealed that the level of usage of the electronic information resources was not high and the major problem identified was lack of awareness and information retrieval skills among the students for the effective exploitation of electronic resources, thus this restricted access and made the level of usage of the available resources by medical students very low (Ojo and Akande, 2005).

Research methodology

Research design

The study employed the use of a descriptive statistical analysis research design. The population composed of 321 students who enrolled in the department of information science, School of pure and applied sciences. Using Slovene's formula the sample size was 178 students.

Research instruments

This study used the questionnaire to collect data on the respondent's demographic data, level of awareness of the available the availability of e-resources, and the perceived complexities of e-library resources.



Reliability and validity of the instruments

The researcher used a random sample of 30 students from the department of information science for the pilot study so as to test the reliability of the instrument. The information that was obtained from the pilot study helped in improving the research instruments. The validity of the instrument was measured by Computing Validity Coefficient (CVI). In this research the instrument was valid because $(CVI) = R/IR = 170/178 = 0.955$ where: R stands for the retrieved questionnaires and IR for the total questionnaires. The instrument considered to be valid when its maximum content index is at least 0.772 (Amin, 2005).

Data analysis, presentation and interpretation

Awareness level of e-library resources

It was observed that 83.7% of the students were aware of the availability of e-resources in the Mount Kenya University, Kigali Campus library.

Mode of communication

The table 1 below describes the mode of communication used to make the students aware of the available e-resources in Mount Kenya University –Kigali campus Library.

Table 1. Communication medium used to make students aware of the e-library

Awareness Level of e-library resources	Percentage
E-resources awareness through Library Notice Board	61.0
E-resources awareness through Colleagues	39.7
Email from the Library	6.4
Work shop and Seminar organized by the Library staff	3.5

Source: Primary Data, 2013

It can be observed that 61% of the students were made aware of the e-resources through the notice boards. 39.7% of the students were aware of e-resources through colleagues, 6.4% got to know the information through emails and 3.5% of the students were made aware of the e-resources through Work shop and Seminar organized by the Library staff.

E-Library resources awareness in the university

The table below shows the awareness level of E-Library resources among the respondents in Mount Kenya University Kigali Campus Library.

Table 2. E-Library resources awareness in the university

E-Library resource respondents are aware of	Frequency	Percentage
Electronic Journals	72	42.4
Electronic Books	108	63.5
Electronic Magazines	50	29.4
Electronic Newspapers	48	28.2
Bibliographic databases	88	51.8



e-mails	95	55.9
Search Engines	39	22.9
Electronic Research report	31	18.2
Electronic Indexes awareness	40	23.5
Electronic library catalogs	69	40.6
Electronic Reference sources	33	19.4
Electronic Statistical sources	22	12.9
Image Databases (Art, Maps and Medical)	49	28.8

Source: Primary Data, 2013

it is clear that 42.4% of the total respondents were aware that the library had electronic journals; it is clear that 63.5% of the total respondents were aware that the library had electronic books; it is clear that 29.4% of the total respondents were aware that the library had electronic magazines; it is clear that 28.2% of the total respondents were aware that the library had electronic newspapers; it is clear that 51.8% of the total respondents were aware that the library had bibliographic databases; it is clear that 55.9% of the total respondents were aware that through the library you could access your emails; it is clear that 22.9% of the total respondents were aware that through the library you could access the search engines; it is clear that 18.2% of the total respondents were aware that through the library you could access the electronic research reports; it is clear that 23.5% of the total respondents were aware that the library has the electronic indexes; it is clear that 40.6% of the total respondents were aware that the library has the electronic catalogs; it is clear that 19.4% of the total respondents were aware that the library has the electronic reference sources; it is clear that 12.9% of the total respondents were aware that the library has the electronic reference sources; it is clear that 28.8% of the total respondents were aware that the library had the electronic reference sources.

Location for access of electronic resources

The following section illustrates the place where the respondents accessed the electronic resources from.

Table 3. Location for access of electronic resources

Location for access of electronic resources	Frequency	Percent
E-resources access from library	120	70.6
Access of e-library from Office	41	24.1
E-library resources access from home	40	23.5

Source: Primary Data, 2013

it is clear that 70.6% of the total respondents located the electronic library resources from the library; it is clear that 24.1% of the total respondents accessed the electronic library resources from the office while 72.4% of the respondents did not access the e-resources from the office; it is clear that 23.5% of the total respondents accessed the electronic library resources from home while 76.5% of the respondents did not access the e-resources from home.

Electronic resources complexities

The following section analyzes the respondents responses on the complexities experienced when accessing the electronic resources.



- **Accessibility complexities of electronic resources**

Table 4.37 illustrates the accessibility complexities experienced by the respondents when access the e-library resources.

Table 4. Accessibility complexities of electronic resources

Elements	Mean
I easily access the e-library resources	2.7943
I can easily access the e-library resources at all times	2.4207
I easily access the e-library resources from any places	2.2074

Source: Primary Data, 2013

In all the questions addressed to the respondents in table 4.37, the means for the responses ranged between 2.20 and 2.8, which reveals that they tend to disagree on the said elements. The respondents tend to disagree that they easily access the electronic library resources, that they easily access the e-library resources at all times and that they access the e-library resources from any place. The overall mean of 2.4740, interpreted as tend to disagree indicates that the respondents have accessibility problems when accessing the electronic resources.

- **Ease of use of electronic resources**

Table 4.38 illustrates the complexities experienced by the respondents with the ease of use of the e-library resources.

Table 5. Ease of use of electronic resources

Elements	Mean
It is quite easy to use the e-library resources	2.9078
I do not need any help in accessing the e-library resources	2.7287
The e-library resources are designed in a way that anybody can use them without any assistance.	2.1304

Source: Primary Data, 2013

In all the questions addressed to the respondents in table 4.38, the means for the responses ranged between 2.51 and 3.00, which reveals that they tend to disagree on the said elements. The respondents indicated that it is not easy for them to use the e-library resources; they indicated that they need help when accessing the e-library resources, and they further indicated that the e-library resources are not designed in a way that anybody can use them without assistance. The overall mean of 2.5889, indicate that the respondents have a problem in the ease of using the electronic library resources.

- **Authentication procedure in accessing the e-library resources**

Table 4.39 illustrates the complexities experienced by the respondents with the authentication procedure, privacy and risk in the ease of use of the e-library resources.

Table 6. Authentication procedure/privacy/risk in accessing e-library resources

Elements	Mean
I easily log in to the e-library resources to access the required information	2.4043



The e-library resources offer security to the information required from me during registration	2.9274
I don't fear using e-library resources because I know it cannot reveal my information	2.6791
There is a high degree of security preventing others from accessing my personal information	2.6148

Source: Primary Data, 2013

In all the questions addressed to the respondents in table 4.39, the calculated Mean for the responses ranged between 2.51 and 3.00, which reveals that they tend to disagree on the said elements. The respondents tend to disagree that they easily log into the e-library resources, that the e-library resources offer security to the information required, that they do not fear using e-library resources because their information is not revealed and that there is a high degree of security preventing others from accessing their personal information.

Summary of findings, conclusions and recommendations

To establish the awareness level of availability of e-library resources by information science students

The first objective of the study was to investigate whether information science students in Mount Kenya University were aware of the available electronic resources. The analysis of the data indicated that both the undergraduate and postgraduate students had a high level of the awareness, with the postgraduate having 83.7% and the undergraduate having 96.6% of the total respondents.

The most mode of communication that enabled them to be aware of the e-library resources was Library notice board as revealed by 86 (61%) undergraduate and 20 (69%) postgraduate students. The worst mode of communication in which they indicated that they have not been aware of the e-library resources is the workshops and seminars organized by library staff. This is supported by statistical data whereby 136 (96.5%) undergraduate and 28 (96.6%) postgraduate students said that they were not able to get information through this mode of communication. This is a clear indication that the library staff does not organize seminars or communicate the available resources in the library through the seminars.

Regarding the awareness level of the availability of e-resources, 88 students (51.8%) indicated to have been aware of bibliographic databases, 108 (63.5%) out of 170 students new about the e-books, 72 (42.4%) had knowledge of the e-journals whereas very few students indicated the awareness of electronic magazines (29.4%), and e-newspapers (28.2%), search engines (22.9%), e-research reports (18.2%), e-indexes (23.5%), e-library catalogs (40.6%), e-reference sources (19.4%), e-statistical sources (12.9%), e-sound recording (0%), image databases (28.8%).

To establish the complexities experienced in accessing e-library resources by information science students

The high number of respondents equal to 120 (70.6%) indicated to have accessed the e-resources from the library. Only 41 (24.1%) and 40 (23.5%) accessed e-resources from office and home respectively. Based on this fact, students should be trained on how to access e-resources from everywhere unlike the university library. They should be given access credentials to login to the e-resources databases at home and at the work place.

Conclusion

The use of electronic resources by the university students is very crucial due to the role they play in the academic output. The library staff should create the awareness campaign so as to enable students get acquainted with the e-library resources. This can be done by organizing workshops and seminars. Students should also be provided with access credentials (username and password) to simply login while accessing e-library resources. There is a need for the university management to integrate adequate information literacy content into the curriculum for the students in all departments. This will solve deal with the issue of accessing, locating, retrieving as well as using the information.

Electronic resources users should be taught about the advanced search strategies and the use of controlled vocabulary to make electronic search process much easier. User training is crucial for the better use of electronic resources in the library since a good number of users are using them in searching literature on their own.

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