

# Role of E-Resources for Research Management in Kenya: A Case of Mount Kenya University

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## Abstract

E-resources are utilized by the use of information communication technologies to engender knowledge base and promote performance of researchers and scholars. E-resources are embedded with a wealth of information whose exploitation can positively transform research world. Currently, there exists little evidence concerning how various characteristics of research methods are associated with e-resources. This paper seeks to examine the extent to which e-resources have shaped the world of research in academic. It aims to focus on the innovations that Mount Kenya University has undertaken to ensure that researchers are trained on how to access a variety of available e-resources, evaluate the information and apply it to meet their needs. It will also cover on practical steps Mount Kenya University has undertaken in adopting e-resources and recent national studies and effort to standardize the gathering and interpretation of e-resource usage. Snowballing sampling will be used to identify the e-resource users, simple random sampling techniques to select the respondents and questionnaires placed to collect the data. The study targets a sample population of three hundred (300) out of a population of three thousand (3000) e-resource users. The study will reveal that there is hope of increased adoption and usage of e-resources by researchers and research institutions.

**Keywords:** e-resources, information communication technology, research management, researchers.

## Introduction

E-resources are resources in which information is stored electronically and which are accessible through electronic systems and networks (Haridasan and Khan, 2009). E-resources is a very broad term that includes a variety of different publishing models, including OPACs, CD-ROMs, online database, e-journals, e-books, internet resource, print-on-demand (POD), e-mail publishing, wireless publishing, electronic link and web publishing. In this context the term refers to any electronic product that delivers collection of data either in text, numerical, graphical, or time based, as a commercially available resource.

According to IFLA ISBD (ER) 1:

*An electronic resource consists of materials that are computer-controlled, including materials that required the use of a peripheral (e.g. a CD-ROM player) attached to a computer; the items may or not be used in the interactive mode. There are two types of E-resources: data (information in the form of numbers, letters, graphics, images, and sound, or a combination thereof) and programs (instructions or routines for performing certain tasks including the processing of data and programs (e.g. online services, interactive multimedia) (Bavakenthy et al., 2003)*

Researchers all over the world are adopting the use of e-resources in order to remain in tandem with the ever changing technology and to be kept abreast on information emerging trends. Libraries are the biggest source of information to researchers and as such librarians are spending sleepless nights to try and embrace Information Communication Technologies (ICT) which support the collection and use of e-resources. Information providers are attending workshops, seminars and trainings to garner and accumulate skills, abilities and experience in order to be better placed to meet various user needs using the available technologies.

E-resources are made available in libraries by either aggregators or publishers themselves. Aggregators are business people who have entered into contract with the publishers and given rights by the latter to sell specific copies to the end users according to the terms particularized in their contractual agreement. Apart from purchasing directly from the publishers, the resources can be hired for use at given period of time- paid for at a specified period of time. Publishers may also donate e-materials to universities and colleges as a marketing strategy.

Adoption and use of ICT in different institutions has resulted to a digital divide. Digital Divide is the gap in opportunities experienced by those with limited accessibility to technology especially, the Internet (Chakravarty and Singh, 2005). This digital divide can be reduced by making e-resources available to upcoming researchers and encourage all libraries and other information centers to subscribe. As such, accessibility to e-resources will provide a level ground for all researchers to compete and produce quality information resources which will transform the African continent to the better.

The objectives of the study were: to examine the extent to which Mount Kenya University has embraced the use of e-learning resources, to evaluate the level of usage of available e-resources and their input to research, to determine the attained improvements emanating from e-resource usage in mount Kenya university

and to examine the relationship between the factors influencing the adoption and usage of e-resources in research management. The research sought to answer the following questions (i) to what extent has Mount Kenya University embraced the use of e-learning resources? (ii) What is the level of usage of available e-resources and their input to research? (iii) What improvements in research management that have emanated from e-resource usage in Mount Kenya University? (iv) What is the relationship between the factors influencing the adoption and usage of e-resources in research management in Mount Kenya University?

### **E-resources and Research Management**

With the advent of information communication technologies, information has been made available by a click of a button however; the authenticity of this information cannot be verified. Researchers in conjunction with publishers have embarked on a very serious journey which has given birth to electronic resources. E-resources are genuine, credible, comprehensive, well researched and verifiable.

In order to access and use e-resources, researchers, librarians, students, lecturers, teacher and other research institution are required to subscribe for a specified period of time or purchase the e-resource and use the perennially. This can be done by contracting aggregators or directly from the publishers. Inger (2001) attempts to elaborate on three types of aggregators that are making e-resources accessible to readers. Firstly, there are those companies whose primary focus is to provide a hosting service for publishers - the content host. Secondly there are those who index or categorize disparate content on other content host services - the gateways. And lastly the 'traditional' aggregators of licensed full text content - the full text aggregators.

Library collections are shifting from print to non-print and in paperless libraries, electronic resource dominates. Collection emphases shift from print materials (books, journals, government documents) to electronic or digital materials, including databases of various kinds bibliographic, numeric, spatial, full-text, and datasets, among other resources (Watstein, Calarco and Ghaphery, 1999).

Research management has been achieved with ease due to the information which is readily available. Scholars and researchers are capable of sharing information and ideas resulting to reduced research periods and improved research paper contents. Electronic Resources are becoming very important these days as they are more up-to-date, and can be accessed anywhere, crossing all geographical boundaries. Such resources add value while conducting Research and Development activities, (Khan and Haridasan, 2014).

Mount Kenya University has invested generously towards promoting Research and Development whose foundation is vehemently grounded on technology. The main library has a uniquely distinct section called E-learning which is embodied with ICT gadget and computer software to promote research. The section is enhanced by internet-enabled computer systems to facilitate online research, kindles embedded with information from various academic disciplines, DVD sets and CDs, and headphones to enable students, lecturers and researchers to access audio-visual information.

In order to ensure uniform access to these facilities by scholars, necessary control measures have been put in place. Monitoring and time management software, *Hand Caf *, has been installed and it's used to regulate usage of the facilities in the e-learning section. The e-resources that are available in MKU include e-journals, e-books, e-past papers, research papers and thesis.

### **Extent to which Mount Kenya University has Embraced the use of E- Resources**

In 2013, Mount Kenya University dominated a survey on ICT compliance in East Africa that was conducted by CPS International, a social and Market Research Company. The institution emerged top 10 in the region and dominated the list of the top 100 higher institutions of learning in East Africa (Mount Kenya University, 2013).

In the same year, Mount Kenya University edged out its counterparts to emerge overall winner of the best institution that has embraced use of ICT in learning in a survey done by Information Communication Technology Association of Kenya. The University bagged awards in different categories specifically in;

- ✓ Best Use of ICT in Education excellence cementing the institute's grip in technology innovations.
- ✓ Best institution in the use of Information and Communication Technology (ICT) in Education
- ✓ ICT manager of the year (Mworia Joseph) and
- ✓ Best innovation award (Elijah Kupata).

In the last quarter of the year 2014, Mount Kenya University purchased a multi-million building, Union Towers, situated at the heart of Nairobi CBD and dedicated it to virtual learning campus. Virtual learning is an e-learning mode of instruction or teaching which is web based and models conventional in-person learning (Biashara Leo, 2014). It involves a set of teaching tools- like computers and internet- which is designed to enhance student's learning experience.

The silent and exponential growths of e-learning and impressive performance in ICT compliance by MKU are clear indicators of high level of ICT adoption and usage. Both virtual learning student and regular students are making use of e-resource in their research and class work.

### **Level of usage of available E-resources and their input to Research**

Technological innovations have rapidly changed the traditional information service to digital systems (Makori, 2009). Singh and Chakravarty (2005), state that the contemporary academic institutions which are many and widely dispersed require technology in to enter the third millennium with a leading edge. This underscores the fact that all learning institutions have to adopt ICT technologies if they want to remain competitive and relevant. For learners, e-resources have embraces time zones, and location and distance into one thing. In asynchronous e-learning, students can access the online materials at any time, while synchronous e-learning allows for real-time interaction between students and the instructor. E-learners can use the internet to access up-to-date and relevant learning materials if they are equipped with relevant research skills, and can communicate with experts in the field in which they are doing research. Situated learning is facilitated, since learners can complete online courses while working on the job or in their own space, and can contextualize the learning.

For the instructor, teaching can be done at anytime and from anywhere. Online materials can be updated, and learners are able to see the changes almost immediately. When learners are able to access materials on the internet, it is easier for instructors to lead them to appropriate information in order to quench their needs. If designed properly, online learning systems can be used to determine learners' needs and current level of expertise, and to assign appropriate materials for learners to select from to achieve the desired learning outcomes.

Important trends are characterized by the new requirements imposed on the knowledge industry in partnership with educators and librarians to provide adequate changes in education methods and information infrastructures to support research as a lifetime activity, learning any time and anywhere.

In this technological era the role of the traditional library as the primary provider of information to its community is changing significantly. Local collections and staff are no longer the only source of information services to students including e-learners and support for lecturers in their research and teaching. Users are beginning to perceive the library as something used at the end, or at best the middle, of their information search (Sharifabadi, 2006).

### **Literature Review**

Haridasan and Khan (2008) observed that a large numbers of research scholars and faculty members are using e-resources for their research work and strongly agreed with the necessity for computer and internet literacy to access information. In the view of many researchers, e- resources has made different discourses of knowledge to collapse into one. Ghaphery, Calarco and Watstein (1999) asserted that the advent of digital libraries as a socially meaningful fact has generated an enormous outpouring of words. Across journalistic, educational, and sociological discourses, a number of terms recur with such regularity that we might be tempted to conclude that digital libraries have brought the worlds of the humanist and the technologist together.

E-resources just like other information sources need to be marketed intensively for library clientele to get a glimpse of them. Necessary information and basic study skills are required in order for researcher to locate and use e- resources. In the report "*Growing Knowledge: Access to research in east and Southern African Universities*" the study discovered under utilization of e-resources due to incompetent and passive tools applied in marketing of the resources. This discovery sifts the ball to librarians to make marketing a priority in order to boost the adoption of e-resources in research management.

Erich (2013) comments that role played by the university library in an increased efficiency of the access to this type of resources is a very important one and need to have in view the influence of certain factors that lead to the efficient use of the electronic resources: technology, costs, management, training, content, and information support. It calls for a concerted effort from management, library staff and the parent organization for dissemination of information through e-resources to succeed. However, for organizations and institutions to make this often expensive move, there must be a perception that using e-learning provides major benefits (Sharifabadi, 2006). Some of the benefits include but not limited to:

- ✓ improve student performance;
- ✓ increase the quantity, quality and comprehensiveness of internet-based educational resources;
- ✓ make these resources easy to discover and retrieve for students, parents, and educators; and
- ✓ Ensure that these resources are available over time (Lee, 2001).

It is towards attaining improved research papers and academic journals by embracing ICT coupled with e-resources that this research paper was master-minded. Iwehabura (2009) asserts that importance of e-resources include the ability to provide faster and easier access to current information by users in various places such as homes, offices and other workplaces, hostels and dormitories; easy storage and the possibility of sharing the same information resources among many users at a time, saving space with relatively easy maintenance and easy linkage to indexing and abstracting databases. The internet for example, provides the opportunity to access a wide range of topics on different subjects. It also allows students, staff and other researchers to retrieve information from diverse sources such as e-journals, e-books, databases, newspapers and other sources. Furthermore, it offers the students the opportunity to control their learning and helps them to have interactions

with information pertaining to their needs (Jones et al., 2002; Healey, 2003).

Following the immense benefits accruing the use of e-resources, they need to be collected, repackaged, stored, accessed and disseminated using appropriate techniques and procedures. Kanyengo (2006) noted that for effective management of digital resources in Africa, efforts should be focused on funding creating enabling policy framework and training of staff.

In conclusion, adoption and use of e- resources cannot replace the consumption of print materials. Crawford contends that the future will include both print and electronic communication; both linear text and hypertext; both mediation by librarians and direct access; both collections and access. He also contends that the future means a library that is both edifice and interface. Therefore, as the eye shifts from paper to paperless materials, a lot of care should be taken to maintain the traditional paper material. However, it is crucial to point out that e- resources have facilitated research to be done from any vantage point regardless of distance or space. Researchers have a task of acquiring skills to information search in e resources and authenticate the products brought forth by contemporary researchers.

### **Methodology**

The study employed a snowballing research design whereby the researcher studied perceptions and responses as held by the respondents. A snowballing research design is a present oriented methodology used to investigate populations by selecting one sample and the identified sample leads into getting other samples in the population to analyze and discover occurrences at a particular point in time. It provided quantitative descriptions of some part of the population (Trochim, 2006).

The study was carried out in Mount Kenya University main campus and the study population consisted of 3000 e-resources users within the university. The users were from varied academic disciplines since the university has a number of schools offering different courses based on student qualification, preference and course relevance to current market trends.

The study took into account two subjects; the library users (students and schools) and also the library support staff. Students and members of staff from the Schools of Business and Economics, Pure and Applied Sciences, Health Sciences, Social Sciences, Medicine and Education mainly use Mount Kenya University Library. Therefore, the patrons from these six schools were involved in the study. From these schools, a snowballing sample was drawn. In order to reach a sample of 300 e-resource users, 10 staff members and 40 students within each school were requested to complete the questionnaire. The authors personally distributed the questionnaires to both the faculty members and the students. Other questionnaires were provided to the users while visiting the library service points. At the end of the entire exercise, a total of 240 responses were received.

### **Results and discussion**

The categories of users covered in the study included undergraduates (80), graduates (120), school staff (50) and guest faculty members (10). Gender was equally catered for as a total of 94(39%) females and 146(61%) males participated in the study. Table 1 below shows the size and composition of the sample, as well as the response rates. A response of 68.5% can be considered being of above average, when considering the fact that answering the questionnaire took about 5-10 minutes. Only 60(20%) respondents did not return the questionnaires. The study found that all the respondents are familiar with the e-resources. However, the majority of these users (i.e.170 or 70.83%) accessed e-resources in the main library's e- learning section. Others fairly used their smart phones and laptops to read the e-resources. Only 10(4.16%) of the respondents indicated having bought e-books but it was not clear whether this was at home or in the university premises. Unfortunately 60(25%) of the respondents did not have access to the e- resources.

**Table 1: Sample and return rates**

Subgroup	Issued	Returned	Response rate
<b>Students</b>			
Business and economics	40	39	97.5%
Social sciences	40	35	87.5%
Education	40	28	70.0%
Medicine	40	20	50.0%
Health sciences	40	27	67.5%
Pure and applied science	40	40	100%
<b>Member of staff</b>			
Business and economics	10	09	90.0%
Social sciences	10	08	80.0%
Education	10	07	70.0%
Medicine	10	09	90.0%
Health sciences	10	08	80.0%
Pure and applied science	10	10	100%
<b>Total</b>	<b>300</b>	<b>240</b>	<b>80.0%</b>

**Skill and length of using e-resource for research**

The study found that only 180 (75%) out of 240 library users had the necessary skills to use the internet without much help the library support staff. This is when the authors defined e-resource users as persons who use one or more e- materials during the last two months of the study/research or work related purposes. Table 2 shows the length of internet use by the university users per school. It shows that 180 (75%) of the respondents have been using internet for more than one-year now. The school of health sciences 29(82.86%) showed the highest number of respondents who have used e-resources to conduct their research for more than one year, compared to the school of social sciences 28(65.12%) and 39(81.25%) for the school of business and economics.

Surprisingly, there were 2(4.00%) respondents in the school of pure and applied science out of the 9(25.71%) that indicated having started using e-resources in less than a month in the school of education.

**Table 2: Length of e-resources use for research, total and discipline**

Period	Total (n=240)	Business (n=48)	Social sciences (n=43)	Education (n=35)	Medicine (n=29)	Health sciences (n=35)	Pure and applied (n=50)
More than 1 year	154 64.42%	39 81.25%	28 65.12%	23 65.71%	-	29 82.86%	35 70.00%
Between 3 months - 1 year	27 11.25%	6 12.5%	5 11.63%	2 5.71%	-	4 11.43%	10 20.00%
Between 1 month-3 months	45 18.75%	3 6.25%	7 16.28%	1 2.86%	29 100%	2 5.71%	3 6.00%
Less than 1 month	14 5.83%	-	3 6.98%	9 25.71%	-	-	2 4.00%

**Importance of e-resources to research**

Respondents in this situation were to identify the facilities available for accessing e-resources that are important for study/research or any other related work. By far the most important used facility is e-journals as shown in table 3. Table 3 shows that more than 223(92.92%) of the respondents use e-journals services. As confirmed from unscheduled interview with most of these users, it was found that the majority of the users use it regularly. However, they find computer facilities insufficient to enable them access these resources due to high number of student using them.

Electronic journals were also found more popular as 70.83% and 12.92% of the respondents treated them as important and very important for their work respectively. However, most of these electronic journals are CD-ROMs based and kindles which are in limited number to serve all patrons. Notably, 80.00% of users also make use of e-books which shows very good trend to support print books whose number is dwindling due to increased student enrolment and need for information from the community.

**Table 3: Perceived ratings of important internet facilities for various services**

Characteristics	Unimportant	Slightly important	Important	Very important
E –journal	17(7.08%)	22(9.16%)	31(12.92%)	170(70.83%)
E –books	32(13.33%)	50(20.83%)	120(50.00%)	38(15.83%)
E–magazine& news papers	99(41.25%)	97(40.42%)	24(10.00%)	20(8.33%)
Internet	-	78(32.50%)	140(58.33%)	22(9.17%)

### Conclusion and Recommendation

Despite the increased investment of resources to Information Communication Technologies particularly e-resources in Mount Kenya University and massive adoption and use of digital resources in the institution's main library, a worrying number of patrons are still in the process of adopting it. Similarly, there was a disturbing trend of embracing the said technology among persons from the school of education begging the question of the quality of teachers for the future students.

Respondents who used e- resources in their research reported an improved access to information and reduction of the amount of time dedicated for completion of a research project and thesis. It therefore follows that intensive marketing and awareness is needed among the staff and students in order to promote the use of electronic materials. Librarians have a mandate of creating this much needed awareness ensure equal distribution of resources among the patrons. The users should also be encouraged to develop study skills to back up their research needs.

### Training and development for librarian

Librarians and other paraprofessionals should be trained and retrained in order to obtain required skills to guide clientele in IT-driven information environment. The acquisition of requisite ICT skills will help them to develop digital information resources.

### Intensive marketing of e-resources

Vigorous marketing to be done by librarians to all library users and the community at large aimed at creating awareness about the current information trend.

### Purchase of more e-resources

As awareness is created, more users are expected to emerge. It therefore follows that higher learning institutions need to increase their budgetary allocation in order to procure resources to enhance and support e-learning.

### Commitment to digital library projects

These digital projects that need to be developed in the University library include integrated library automation, creation of standardized databases, digitization of theses and dissertations, and creation of various types of institutional repositories (IRS). Commitments to each of these projects will redefine, reposition and reinvent the university library for user-centered services (Onyegiri, 2013).

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