

Impact of Electronic Resources on Academic and Research Programs of the University

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October, 2009

Abstract:

The University of Nairobi (UON) is heavily investing in access to electronic resources for research. The UON Library is keen to know how this information is impacting academic programs. During her sabbatical leave, the author of this paper visited two libraries advanced in usage of e-resources in USA and carried out a literature review on the subject. This paper suggests ways of effective use of electronic resources by students and researchers at the University of Nairobi.

Introduction:

Electronic resources are online information resources, including bibliographic databases, electronic reference books, search engines for full text collections, digital collections of data, and data sets. Non reference e-books and e-journals will be referred to as e-resources in this report.

With the information explosion, the internet has revolutionized the research processes and made information retrieval very convenient. The electronic resources which come in the form of e-books, and e-journals, accessed through various databases have made research activities conveniently available.

E-resources are convenient to use and make research a lot easier in that, they enable one to search for information at a faster rate because search engines are utilized as opposed to manual searches. Money and energy are saved since one doesn't have to physically move to and from traditional resource centers as it is all done online. Also, e-resources give the researcher access to more information, which means the research done will be more informative and comprehensive. This increased access comes

about because in an online system, a huge amount of information is stored in one place. The researcher has access to everything from one central location, while in a library one is limited to resources available in that particular library only. E-resources have helped the organization of information in their various categories conveniently managed through databases for easy online retrieval by researchers.

Libraries can no longer assume that their value will be recognized by the academic communities they serve. As Payne and Conyers (2005) state, “the rapid change that now permeates higher education has blurred boundaries between libraries, IT, student support, and academic departments. Technology is altering the way in which knowledge is created, accessed, and used, and the effect has been that libraries cannot take for granted, if they ever could, that they have a monopoly over the provision of information to support teaching, learning, and research. Higher education institutions are fundamentally being transformed with increased student numbers, greater diversity in the student community, higher expectations of fee paying students, new ways of delivering, teaching, and learning, the development of widening participation strategies, greater pressure to deliver world class research, and an enhanced profile for knowledge transfer and supporting enterprise.”¹ This means new challenges and opportunities for higher education institutions and for their libraries. It is not only a question of libraries being proactive, taking on new roles, developing new partnerships, and establishing new services. Libraries must also be able to demonstrate the value of what they are doing and provide evidence of the impact that they are making.

¹ Payne, P and Conyers, A. Measuring the Impact of Higher Education Libraries – In *Library and Information Research*, vol. 29, issue 91, 2005.

It is acknowledged that there exists a very wide technological gap between the North South countries. The 2000 decade has seen Africa make great efforts in the development of Information and Communication technologies (ICT). Although the overall internet connectivity and internet users in Africa have greatly improved, the level of ICT in the libraries, particularly in Kenya, is still very low. The UON Library must move in tandem with the fast growing application of ICT in Kenya to embrace and step up the use of e – resources to provide access to information for research and teaching. The next section of this paper explores in detail the position at the UON Library and compares with the Libraries in the west.

Implementation of E – Resources: A Comparative Analysis

Kenya joined the Program for Enhancement of Research Information (PERI) project, whose objective was to introduce developing countries to the use of e – resources in 2000. PERI provided countrywide access to electronic journals. When the project funding ran out in 2002, Kenyan libraries decided to form a consortium with a common goal of sharing the cost of electronic resources. The consortium pays for collective subscription for electronic resources. Currently Kenyan libraries are accessing over 20,000 full text electronic journals for teaching and research. Kenya Library & Information Services Consortium (KLISC) has supported the improvement on internet connectivity, provision of computers and development of the capacity of library staff and researchers in the use of e- resources.

At the University of Nairobi, e-resources can be good substitutes for conventional resources if the access speed is fast, access to all the important e-journals and e-books is provided, and if more computer terminals are installed to provide access to the e-resources. While a good amount of e-journals are available at the University of Nairobi library, the e-books, e-

bibliography, e-maps, and e-theses are few and less used. There is need to train and encourage faculty members and research scholars in the use of e-resources because the percentage of those who actively use e-resources is very low. Research scholars tend to use the library e-resources more frequently than the lecturers. As it is now, research scholars access relevant material mostly from e-journals. Very few lecturers use PowerPoint presentations for teaching the classes, however, they should be encouraged to do so more often. Those who use e-resources have said they are easy to use, more informative, more useful, and less expensive than traditional resources. More improvement of IT infrastructure at the University of Nairobi will encourage usage of e-resources.

Although not fully implemented, electronic resources in libraries and for teaching have taken root, but only their proper and optimum use is debatable. The internet has successfully overcome the geographical limitations of the print media. With the internet, the time taken between publication of a document and its delivery and distribution has been drastically reduced. The internet can be used for efficient retrieval and meeting information needs which are very important for University libraries since most of them call for more and more research work. The convenience of the internet has attracted libraries towards e-resources which are found to be less expensive and more useful for easy access. This is especially helpful to distant learners who have limited time to access libraries from outside by dial-up access to commonly available resources.

As Sharma (2009) rightly puts it "Libraries have witnessed a great metamorphosis in recent years both in their collection development and in their service structure. A significant transformation has been noticed in

collection development policies and practices. Print medium is increasingly giving way to the electronic form of materials.”²

At Collin County Community College Library, traditional library service tools such as the card catalog, the microfilms, and microfiche readers have all given way to electronic resources which are used extensively by both students and academic staff for research. A consortium by institutional libraries in this area has greatly improved sharing of information by different libraries electronically. The library has research guides that help researchers get started with their research on many different subjects through the 'Library' tab on the Cougar web. Their students have access to thousands of scholarly articles from their databases, and can view electronic reserve materials (E-reserves) for classes. They are also able to read and download a plethora of e-books. This has increasingly enhanced research at this institution.

Some surveys have revealed that speed of availability and ease of accessibility of information causes the users to utilize electronic resources more frequently. Electronic journals are becoming a basic need for the academic research scholars every day. Speedy publication and availability on the desktop are key advantages that attract research scholars. Lack of training is a major de-motivating factor in the usage of e-resources, and that is why each library must have someone available to both students and academic staff to train library users on e-resource usage. The inclusion of web pages to the library catalog could also help in this manner.

According to Haury and Rillero, (1994) “teachers who embrace hands-on learning in science seem to recognize certain desirable outcomes and

² Sharma, C. Use and Impact of E-resources at Guru Gobind Singh Indraprastha University (India): A case study. In *Electronic Journal of Academic and Special Librarianship*. Vol. 10, No. 1, Spring 2009.

endorse student centered instructional approaches. Research has confirmed many of the seemingly intuitive benefits of hands-on learning and has also documented a variety of unanticipated benefits. Students in a hands-on science program will remember the material better, feel a sense of accomplishment when the test is completed, and be able to transfer that experience easier to other learning situations. When more than one method of learning is accessed as in hands-on learning, the information has a better chance of being stored in the memory for useful retrieval. In this case, students actually become part of the learning process and not just as spectators because they are participating in the learning process. Students who are involved in labs and activities are empowered in their own learning process."³

In the past, research involved a person going to the library and spending hours looking through many card catalogs to find books, encyclopedias, and journals to find information about any given topic. Even though this system is still available and is widely used in developing countries, many people utilize the plethora of e-resources available to do research.

With the use of e-resources, research is much more time efficient. Using search engines such as Yahoo.com, Google.com, and Bing.com, one can put any topic in for a search and bring up many pages of matching information. For example, when I typed "surgery" in the Yahoo search field, I was given over 464,000,000 websites that matched my search. These matches include journals, medical sites, blogs, online encyclopedias, and much more. However, with all of these matches, a person can be overloaded with information that may not be accurate, or may not have

³ Haury, D.L. and Rillero, P. Perspectives of Hands-on Science Teaching. Eric Clearinghouse for Science, Mathematics and Environmental Education, Columbus, Ohio. 1995 - p. 2.

anything to do with what is being researched—but it is a good starting point when doing research.

The reference librarian at the Allen Public Library, Allen, Texas, maintains that the human resource is very important in guiding library users where e-resources are concerned. Like in the case above, the librarian will train users, one by one, on how to narrow down their search terms connecting them to their research topic. The librarian will for instance guide the user on how to search for journal articles from websites such as Ebsco. The user soon gains independence and is able to use the e-resources on his/her own. At the Allen Public Library, students are assisted to do homework and research by the Texshare databases, which include thousands of full-text articles from encyclopedias, almanacs, journals, and newspapers. Here, one may search magazines, film and video, newspapers, biographies, country reports, or use topic headings to search. Ebsco Master File and Academic Search allow one to search across a broad range of reference books, magazines, journals, newspapers, primary source documents and images. Academic Search includes over 4,000 peer reviewed journals for scholarly research. Newspapers are searched using InfoTrac which covers hundreds of full-text newspapers as well as major news and business stories from wire services. New York Times and the Dallas Morning News are found here.

Other databases at this library include LitFinder for reading and literature sources, Gale LegalForms for searching on legal matters, Learning Express for Practice tests which offers unlimited access to interactive skill building courses and a broad range of practice tests. Live homework help is also available through an online tutoring service. Users are guided in accessing information from the above databases by the librarian. This is achieved by publishing brochures which inform the incoming users of the

availability of the databases, and it is all working very well and impacting research positively because the databases are user friendly.

At the Harvard University Libraries, e-research is part of the library's web portal that allows users to find and connect to electronic resources, such as digital texts, dictionaries, music, images, indexes, encyclopedias, almanacs, atlases, and electronic journals. It is therefore possible to search across multiple resources at once, to save information found, and to save sets of journals and resources you use frequently. This is intended for time saving and is a means for organizing references to books, articles, and reviews found while using e-research. At Harvard, still, there is a module called Quick Search, with a Google-like interface, designed to let one enter a search and quickly get to results from a few preselected databases related to the topic one is researching on.

Online book reviews are an important research advantage. Below is an example from Potsdam College Libraries:

At the State University of New York, Potsdam, the college libraries house online book reviews for fairly recent books. Choice reviews online comprise reviews from 1988 to the present of scholarly monographs, reference books, and online resources. Proquest provides access to many book reviews in the journals that it carries. Academic Search Complete, also includes many reviews. Literature Resource Center includes excerpts from reviews and criticism, with full-text of some articles and bibliographic references to other sources. Other web sites with reviews include: The Charleston Advisor which reviews electronic resources, H-Net Reviews which covers humanities and social science book reviews, New York Times Books which contains full-text of more than 50,000 books reviews since 1980, NewsPage Book Reviews which is selected reviews of alternative press books, and The Readers Robot, which

reviews many genres of books including science fiction, mystery, fantasy, horror, etc. Also, included are author interviews and book discussions, Author Event Series from the Free Library of Philadelphia, Connie Martinson Talks Books which contains video podcasts, and FORA.Tv's programs on books. Book review sources for older books are found by use of an index to the reviews that have appeared in periodicals. The aforementioned sources make research at this institution user friendly for researchers in the area of literature and criticism, plus other areas.

A survey at Bournemouth University revealed the following: "the results showed consistent endorsement for the shift to electronic resources from both staff and students—with many respondents asking for increases in e-resources, especially back runs—and that e-resource usage continues to increase year by year. The responses reported illustrate the growth in use of e-resources. A recent development within Bournemouth University's portfolio of e-resources has been the inclusion of course reading lists on our website which revealed that over 70% got to know about the lists on the website, and 35% are using and relevance is a concept affecting the impact of learning resources on the student experience."⁴ At this same institution, impact has reached where: "students recognize the importance of electronic resources to their learning experience; they recognize the need to develop skills to exploit them more fully; being able to retrieve full-text articles to the desktop is highly valued and expected, rather than exceptional; electronic resources are having a positive impact; the impact study has enabled the respondents to express their satisfaction and their aspirations for improvements and several responses included both, along the lines of once I found the information it was very useful; library staff need to ensure that training sessions

⁴ Beard, J. (et al). Bournemouth University. The Impact of E-resources: Results and Key Messages from a Cross-School Study. 2004/2006.

address issues of clarity and simplicity; whenever possible links to resources should be integrated into the VLE."⁵ The survey at Bournemouth University showed the importance of the academic process in exploiting the best of the e-resources while also recognizing the role that librarians play with their knowledge of quality resources and their work in information literacy.

The survey conclusions which are agreeable were: students must be actively introduced to quality resources and taught the best way to use them. The library and academic staff must work together to ensure that both the range of e-resources and best practice in using them, are fully shared. The four main themes suggested which are crucial for integrating e-resources into the curriculum were:

1. Academic staff should be aware of and confident with e-resources and use them as an integral part of the teaching process.
2. Designing assignments to require use of e-resource skills.
3. All teaching rooms should have functioning internet access to enable demonstration of e-resources.
4. Students should receive an initial introduction to e-resources, which is then continually reinforced by academic staff in the teaching environment and/or library staff in targeted skills sessions.

E-resources are essential for work and student learning. One academician in the survey stated, "E-resources have increased my

⁵ Beard, J. (et al)...

functionality. They have added value to my role as an academic and made me a better teacher and researcher.”⁶ The conclusions above indicate that faculty and library have to cooperate to enhance learning using e-resources; and that indeed e-resources have impacted research tremendously in a positive manner, although a few negatives and challenges are encountered here and there as will be seen below.

Advantages & Disadvantages of E – Resources:

Some advantages of electronic resources and preferences which have motivated researchers in their usage are as follows:

Convenience: - the main advantage of electronic journals is home or convenience of accessing articles any time on any computer at home or elsewhere. Experienced users enjoy the ease of skimming and searching, the possibility of downloading or printing the desired document or segment.

Timeliness: - the currency of information, timely availability, the speed of access and the ability to send articles instantly is an advantage. The ability to search text is the most important factor in choosing electronic journals over print.

The ability to link to additional information.

The ability to search across a wide range of journal articles, search within an article, and interact with multiple levels of information objects

⁶ Beard, J. (et al). Bournemouth University. The Impact of E-resources: Results and Key Messages from a Cross-School Study. 2004/2006.

are significant features sought in electronic journals. With e-resources, a researcher is able to access journal articles and e-books internationally. This increases the amount of resources that one is able to cite in their research.

Many colleges and universities have private websites available for their students to use to do research in quick and easy ways. At Southern Methodist University, they have a website specific to many different academic fields, e.g. one for psychology and sociology majors, one for math majors, etc., that students can access which guide them to accredited sites to get information for papers and research.

These days, one finds many encyclopedias and books that were once only available at the library, online. Encyclopedias like Britannica have a great website that has all the information available that you would find in the hard copy. Also, sites like Wikipedia are an easy resource for doing quick research.

Some negatives, problems, or concerns with e-resources are:

The proliferation of sources for articles and the sheer amount of information now available may be confusing to some users. Retrieving too much information is a problem mentioned by some, as is getting lost on a tangent and not knowing when to quit searching. Plagiarism in assignments is more rampant. Periodic updating of the resources, (by the source providers) can be tedious, unlike the case with books that are just written once. In as much as this is a disadvantage, it is also an advantage for those who need up to date information. With hackers everywhere, it is easy for copyright infringement brought about by the unlawful reproduction of materials. Print (hard copy) is a proven archival format. Even those who prefer electronic

access to journals prefer that books remain in print format. Although some people feel that “e-books can significantly reduce our carbon footprint and reduce the amount of trees felled to publish printed words.”⁷ Discomfort of reading from the screen or poor graphic quality is another disadvantage of using e-resources. Respondents consistently report that they prefer to print out articles for reading and do most of their reading from the paper printout. The most important characteristics that would lead them to choose print over electronic are: ability to browse, portability, physical comfort and convenience, an easier to read format, better graphic quality, easier access although access to adequate technology may still be a problem for some. Other reasons include, procedural or technological barriers to access, online access is time consuming, it detracts from doing work, lack of information technology knowledge hinders effective use, unfamiliarity with how to access the journals, and the perception that electronic journals are of lower quality than print.

The overwhelming information which seems negative can discourage a researcher looking for specific information, but with elimination of what is unnecessary, a researcher finally finds and appreciates his final findings.

Another problem with e-research is that anyone can post an article and present it as fact. It is very important when doing e-research to make sure that your source got his/her information from a credible source. Many times, people will present their opinions as facts. When doing research, one should check the website and make sure that it is a government or organization website because it usually means the information presented has been checked by some credible third party and is not just the author’s opinion. Unfortunately, not everyone does this, and many times may be misled by someone’s misinformation.

⁷ O’Brien, T. Suddenly, Earth-Friendly E-Readers are Everywhere. Internet Source, 2009.

E-resources continue to make research more convenient for people, but we must all be aware of the downfalls of this type of research. E-resources should be used in addition to other types of research, so that one can get the best information possible. As long as people continue to double check all e-resources for validity, then e-resources will continue to be valuable for all people who want to do any type of research.

Use of E – Resources in Academic & Research Programs

The Way Forward for UON

At the University of Nairobi, the step taken by the University administration to embrace e-resources is positive and encouraging for researchers for both students and academic members of staff. However, a more active role needs to be taken into marketing the e-resources available. The library has initiated an active role of marketing the e-resources available both at the circulation desk and the computer laboratory, but some academicians are still afraid to move near a computer to explore the usage of such resources. Many students are using the computer laboratory, which is a good sign of progress in usage of e-resources. The University administration needs to improve on capacity building for usage of e-resources to become a success. Trained human resource is integral to the success and impact of e-resource usage. Some lecturers, research scholars, and students depend on e-resources to get the desired and relevant information. Even then, practical use of the e-resources is not up to the worth, considering the heavy investments made by the University in acquiring the resources available. One would say, the

availability of e-resources in the University is not bad, but the infrastructure to use these resources is inadequate and this interferes with meeting the requirements of the users. As in other international universities, remote users at the University of Nairobi outnumber the in-house users of electronic information at the university libraries. Academic staff prefer to access information from their offices or homes as a result of the above problem.

For effective management of e – resources, institutions need to have a maintenance team that monitors the resources hardware and software. Irritating problems can be minimized for instance: a doctor types a prescription message for the patient and tries to send to the pharmacy but the computer hangs and the message refuses to go. The doctor is forced to write the same message by hand for the patient and this is double work. Such a problem may have been caused by errors in the operating system and viruses which can be minimized or eliminated by regular servicing of the machines by the maintenance team. Even though ICT people are supposed to handle such problems, they are not always available.

Access points should be increased especially in the library so that, library users can access the internet using their laptops, since computers are not enough to serve most of the students and staff who frequent the library.

There is need to enforce security measures so that the available computers are not vandalized as it is happening. If possible, all computer labs should be manned by ICT trained staff who can monitor usage for security reasons, and also handle the minor repairs. That will limit the stealing of important computer parts and accessories.

Constant supply of electricity is mandatory for the operations of e-resources to be successful. Fluctuation in electrical supply creates discouragement in

the use of e-resources and can sometimes interfere with and destroy important data.

Access to electronic resources is known to make qualitative difference to research, learning and staff development of an institute. In quantitative terms, the research output of an institution can be measured in terms of number of research articles, citations received by them, patents, research grants, consultancies, research reports, honours and awards, number of research students and placement of students. The number of publications and citations received by them can be used most effectively to measure research output of an institution, which in turn, reflects impact of resources available to an institution.

The way forward is to improve on the available e-resources at the University of Nairobi, such that, they may come to the level of the advanced examples cited above in order that University of Nairobi can measure to and become a world class University of excellence where modern technology is concerned.

All said and done, I would say e-resource implementation is the best thing that happened to academic institutions because it has facilitated and improved research in the best way possible. As already mentioned, networking due to improved infrastructure of e-resources will enhance and greatly improve research and academic programs of the University of Nairobi.

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