E – Resources use via the internet improvement is a must: a case of special libraries in Tanzania

Hubert Shija
The Librarian

Research on Poverty Alleviation (REPOA)
Dar es Salaam, Tanzania

May 2009
Abstract

In this age of information, electronic resources like e-journals that are accessed via the internet are very important. These resources are very useful for they are, amongst other advantages, timely; for instance, once a journal issue is ready is published online before being printed and distributed, the process which takes much time.

The study has two objectives that are to highlight main causes of low use, and suggest possible ways to alleviate this problem. The methodology employed to carry out this study was secondary survey data and experience.

It has been found that the following have mainly been causing a low usage of e-journals via the internet: lack of enough internet skills; lack of awareness; poor infrastructure and connectivity; inadequate financial resources; non use of single sign on systems; and lack of uniform license. Minor causes could be confidence, attitudes, literacy, and language which do not affect the usage of resources in this context.

To improve the use of internet generally and e-journals in particular the following should be taken into account: Internet skills training must be incorporated in curriculum of secondary, vocational and tertiary education; libraries should offer internet training to their patrons and members of staff regularly; marketing should be done rigorously and continuously; to improve infrastructure and connectivity; discount to consecutive renewals; to make a good use of Millennium Development Goals 8 (MDG 8) that insist on use of Information and Communications Technologies (ICTs); and single sign on systems.
Introduction

Internet has improved and changed the way libraries offer their services and products. This has been led by online publishing of materials like electronic books and journals that can be accessed via the internet. The majority of journals now have their online versions.

Electronic journals are beneficial since they allow search ability and manipulability; represent a net increase in the information base, economical in terms of storage and easy to search in the large number of journals. Other benefits are currency of information, multi-user access, ability to download, reduction in theft and damage of materials, 24 hour availability on any terminal connected to the internet (Ashcroft and Langdon, 1999)

This paper focuses on the researchers and use of electronic journals via the internet which is still low in Tanzania despite all efforts have been made so far by special libraries like Research on Poverty Alleviation (REPOA) library. Thus main causes of this problem are highlighted and possible ways to alleviate it are put forth. The minor ones like literacy are not relevant in this context.
Methods of study

This study based on secondary survey data and experience obtained over time by working in the library and information industry. Previously collected surveys or other data have been re–analyzed. These documents were mainly reports, surveys, journals, books just to mention few. This method was chosen because it is inexpensive, allows comparisons across groups, nations or time, facilitates replication and gives a room for asking issues rather than thoughts of by the original researchers (Neuman, 2006). I have been working with libraries that offer e-products like journals and books, and giving support patrons to access them via the internet. The majority of patrons who visited REPOA library have never heard of e – journals especially the Programme for Enhancement of Research Information (PERI) journals before visiting REPOA library.

Box 1: Contextual framework.

Source: Adopted and modified from Shija (2002)
Findings

Internet skills

In order for someone to access and use electronic journals effectively and efficiently, one must have a good command of skills of how to use the computer and internet. In 2005 there were low levels of ICT literacy and e-resource use among users (International Network for the Availability of Scientific Publications [INASP], 2005). Mendes (2003) also illustrated this problem two years prior to INASP report as shown in table 1. This is still a problem since whenever the majority of REPOA library users were asked to use e-journals, most of them said that they did not have adequate internet skills: when convinced that they could manage to use them with their limited skills, it showed that they needed more training and practice.

Table 1: Five Levels of ICT Skills

<table>
<thead>
<tr>
<th>Level</th>
<th>Estimated % of Population</th>
<th>ICT Awareness and Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>50</td>
<td>Little or no awareness of ICT, especially of computers</td>
</tr>
<tr>
<td>Level 2</td>
<td>45</td>
<td>Aware of ICT and computers but no skills to use them</td>
</tr>
<tr>
<td>Level 3</td>
<td>5</td>
<td><em>ICT users</em> – computer business applications (e.g., word processing, spreadsheets, e-mail, internet)</td>
</tr>
<tr>
<td>Level 4</td>
<td>&lt;0.01</td>
<td><em>ICT technicians</em> design websites, data bases, install telecommunications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Power users and ‘IT Fundis’ train other staff, advise management on ICT, etc.</td>
</tr>
<tr>
<td>Level 5</td>
<td>&lt;0.001</td>
<td><em>ICT professionals</em> (hardware engineers, software engineers, telecommunications engineers etc.)</td>
</tr>
</tbody>
</table>

Source: Adopted in Mendes, 2003.

This problem has not yet been seriously addressed because some libraries offer one off training workshops to researchers and the other do not do it at all. INASP (2005) and Ondari – Okemwa (2000) put emphasis on training library members of staff and users to cope with rapid changes of ICTs especially internet which is a vehicle of e – resources access and use. It is obvious that training staff increases a quality of delivery of services and one of specific suggested areas of training needs is accessing information via the internet (Ondari – Okemwa (2000)); in other words, Said (2006) says that in order to obtain the maximum impact of e-journals, use specialized training to user groups is essential.

Knowing the importance of having adequate skills to use e – products publishers like Wiley – Blackwell (personal communication, October 31 & November 28, 2008) informed me on free online training for October and November 2008 specifically called webinars to library members of staff especially administrators who in turn for sure will be training the patrons. Access to Global Online Research in Agriculture [AGORA] is also conducting training especially training of trainers (AGORA, 2008). Tanzania Library Association (TLA) (personal communication, December 12, 2008) has notified me on Information Literacy, Access and Sharing of Scientific Research Information among Research and Academic Libraries in
Tanzania, to be held at Kibaha conference Centre from 17th to 19 December 2008. TLA could do training needs assessment and come up with a training schedule to avoid giving short notices about training.

It has also been proved that Internet usage rates are even low where IT facilities are available in developing countries. For example, Pigato (2001) in (Kenny, 2006) finds, in a survey of Tanzanian firms, that computer usage remains very low even in firms that own computers because of poor skills. The World Bank (2008) reports that by 2006 in 100 Tanzanians only one person used internet; in 2004 it was 0.9 (World Economic Forum & INSEAD, 2007), thus in two years there was an increase of 0.1. Therefore, in order to promote and foster the use of ICTs especially a computer and internet to facilitate information transfer through the internet, teaching relevant skills is very crucial (Shibanda & Isabel, 2000).

**Lack of awareness**

Most users are not aware of e-journals; for example, most of those who have visited REPOA library said that they heard about these materials for the first time at REPOA library. For instance, PERI resources are not well known by many of university, college and research institution library users who are the main beneficiaries. For instance, one Economic and Social Research Foundation (ESRF) researcher heard about PERI e-journals for the first time when visited REPOA library and went back to ESRF and told a librarian about this; the librarian said that they also subscribed to them: this shows that the librarian there did not inform her and her colleagues before and the library staff do not market them constantly.

It is emphasized that libraries need to be aggressively marketed to both existing and potential users. Libraries lack library and services marketing skills (Ondari – Okemwa, 2000); realizing this, REPOA librarian attended a four day training workshop on marketing, promoting library services and products. In order to make sure that there is a full use of electronic journals, patrons must be aware of those electronic journals that are available through promotion (Ashcroft & Langdon, 1999). Librarians should employ some of communication models like AIDA which stands for awareness/ attention, interest, desire and action. Once attention or awareness is created users will develop interest that will lead to desire to use the products and lastly they use them (Smith, 1999).

**Box 2. Communication Model (Mental processes): AIDA**

| AIDA = Attention/ Awareness | ➔ Interest | ➔ Desire | ➔ Action |

Source: Adopted from Smith, 1999

**Poor infrastructure and connectivity**

Although Tanzania has a comprehensive Internet service, including nine licensed public data service providers and 21 licensed Internet Service Providers (ISPs) (Economist Intelligence Unit, 2007) and URT (2006) reports 30 registered ISPs; Tanzania continues to use the micro – wave ICT national backbone which is below users’ demand and expensive (URT, 2006).
Under policy, Tanzania Government through Tanzania Communication Regulatory Authority (TCRA) has made two initiatives: firstly, it encouraged data and internet service providers to use the Internet Exchange Point (IXP) located in Dar es Salaam to permit domestic exchange within Tanzania traffic without using valuable international bandwidth to improve the connectivity (United Nations, 2003) but not all mobile phone companies agreed to join (URT, 2005). Normal internet access using commercial satellites or dial – up or wireless links are still very expensive and unreliable to most Tanzanians who are low income earners (Kamuzora & Baruch, 2003 and Madamombe 2007). In addition it is said that inadequate capacity of existing ICT national backbone made infrastructure and connectivity poor (United Republic of Tanzania [URT], 2005).

With regard to telephone lines, Dickinson (2002) says that a coverage is patchy; thus the second initiative is to address this problem by forming the Fibre Optic ICT National Backbone which will use other existing fibre optic networks owned by Tanzania Electric Supply Company (TANESCO), Tanzania Railway Limited (TRL), Tanzania and Zambia Railway (TAZARA) and Songo Songo Gas (SONGAS) and regulated by TCRA that seems to improve infrastructure and connectivity once completed and it would also bring about connectivity to all Tanzania mainland districts headquarters (URT, 2006): this project handled over to Tanzania Telephone Company Limited (TTCL) the thing that could not lower the cost because of monopoly.

Looking at computers, connectivity becomes easier if most producers and consumers had telephone and computer access before the expansion of the internet which lowers the cost of purchasing a modem and an ISP account as the case in the United States of America (USA): in LCDs, it is a different story (Kenny, 2006). For example, by 2006 in 100 Tanzanians only 0.4 subscribed to mainline telephone (World Bank (2008). Another example is that the majority of schools in developing countries could not afford to install IT labs (Grace & Kenny, 2001 in Kenny, 2006). Most libraries do not have enough computers and some do not have at all the thing which is vital for connectivity and access of e – journals; for instance, REPOA library started with one PC and it has three computers.

Mobile technologies like 3G Mobile internet using USB modem and WAP are less widely adopted (United Nations, 2003). Based on the experience, Vodacom 3G mobile internet using USB modem is very slow, for
example, the speed is 236.8 kbps and it is very expensive. This may take ages to open e–journals and cost lots of money. The USB modem is also costly for a normal Tanzanian, for instance, one USB modem is sold at Tsh. 300,000.00 (USD 230). Libraries cannot afford to connect their computers using 3G mobile internet because of the cost of USB modem and surfing while the speed is very slow though almost all mobile phone companies; Vodacom, Zantel, Zain, Tigo, and TTCL; offer mobile internet.

Supporting infrastructure like electricity and bandwidth also contributes to poor internet connectivity. For instance, unreliable electricity and frequent power cuts disrupt the availability of the internet (URT, 2005 & 2006); another example is that in rural Tanzania, it is 99.2% of the population lacks an access to electricity (Albouy, 1999 in Kenny, 2006). Bandwidth as another supporting infrastructure, low bandwidth makes access somewhat difficult, for instance, many users access bandwidth ranging from 16 to 32 kbps; few are in the range of 8 – 16 Kbps and a few others use above 32 Kbps. This bandwidth range is very low for Internet access (Kamuzora & Baruch, 2003). Ralphs (2008) says that according to the survey done in 2004, the gap between the lowest connectivity in 2006 (7 kbps from computer to internet and 20 kbps from internet to computer) and highest (8 mbps both ways) is stark. AGORA (2000s) specifies a bandwidth size from 56 kbps in order for users to access the e–journals from its database, the thing which could be difficult to those with bandwidth below the specified one. It has also been common for internet to go down or be very slow frequently for minutes or hours which in turn affects e-serials access and use; this has been experienced rarely in REPOA possibly because REPOA increased bandwidth to 100 mbps.

Inadequate financial resources

To access electronic journals entails a range of requirements that need adequate funds. Improvement of connectivity and infrastructure, computers, journal subscriptions, training, and the like require finances. For instance, a cost for 20 hour internet use is USD 117 (the World Business Council for Sustainable Development [WBCSD], 2000?). In other words, the cost is USD 5.85 per hour. In 2006 Sokoine University of Agriculture, Tanzania paid one US dollar for 7.63 kbps which was considered to be most expensive (ATICS, 2006). The cost is even higher with 3G mobile internet.

It seems INASP will reduce their sponsorship; and institutions will have to pay almost a fifty percent of a fee in the near future. Most institutions that benefit from PERI project will no longer do that because of insufficient funds. Lack of funds also affects the maintenance of journal subscriptions thus users will not access journals that have not been renewed until renewal is done; in other words, it is not easier to own online journals since they are on an annual subscription basis; thus once that subscription expires, the library ceases to possess it/ stops to offer that product until it renews that subscription. For instance, REPOA library subscribed to online version of European Journal of Development Research in 2006 and not renewed in the following year, thus since 2006 we have not been able to access the volume of 2006 and other back issues. It would be better if we could continue accessing the volume of 2006 since we paid for that as the practice for printed volumes; this shows that without sufficient funds, the institution cannot own the online resource. Other projects like Access to Global Online Research in Agriculture (AGORA) offer e–journals
for free to the countries with GNP per capita not more than USD 1000 per annum and for fee to those with the GNP from USD 1000 to 3000 (AGORA, 2000s).

**E – Resources Multiple Sources**

There are many different publishers like Oxford University Press, Science Direct/ Elsevier, Cambridge University Press, just to mention few, who publish electronic journals that are accessed online. Each publisher issues a different username and password to access those subscriptions. This necessitates a user to have many usernames and passwords and different browsers get an access – it is very tedious. For example, most of researchers in REPOA have always been asking for usernames and passwords though they have been provided with them severally (see appendix 1b). With the improvement of ICTs, online access management systems like Athens and ExLibris – SFX came into existence to reduce this problem but most libraries have not yet employed such a system possibly because of cost, lack of awareness or failure to meet systems IT requirements.

**License Uniformity**

Based on MDG8, there has been a cooperation between rich countries with a private sector to make available the benefits of new technologies especially information and communications (United Nations Development Programme [UNDP], 2007). Under e – journals access and use, one of the suggested approaches as a global initiative is for institutions like United Nations agencies – FAO, WHO, UNEP; SIDA SAREC just to mention few to pay for journal subscriptions for academic, research or non – profit use for developing countries (United Nations Conference on Trade and Development [UNCTAD], 2007) and (PERI, September 2008). For instance, INASP through its project, PERI, amongst other products includes over 20,000 full text online journals.

It was learned that one database can offer what others cannot – journals and backfiles/ issues. For instance, a Postgraduate Diploma in Poverty Analysis student failed to access an agricultural article via Blackwell Synergy now Wiley Interscience; and he inquired about that, after explaining the cause I assisted him by using AGORA on which I found and downloaded a full text document and passed it to him via e-mail as an attachment.

Access control also varies between publishers. Some use a username and password and some use Internet Protocol (IP) address which must be static. Most ISPs offer dynamic IP addresses which change unknowingly thus configuration is needed frequently to get the access. The solution put forth by some publishers like Emerald whose resources require static IP address is either to use referring URL or embedded URL login.

Lowe (2002) mentions some causes of low use of internet as confidence, attitudes, skills (that has already included in the main causes), literacy and language. These are minor or not relevant in this context since researchers and library members of staff are literate, fluent language speakers. Confidence and attitude can contribute to low use but not as much as the main ones. It is obvious that if one of the main, say, training or awareness is taken care of, confidence will be gained and attitude will change.
Conclusion and Recommendations

Conclusion
With all efforts that have been done so far, the use of e-journals via the internet is still very low although they are very good and essential in doing research and studying. The leading interdependent causes amongst other main causes are lack of internet skills (Kenny, 2006), good infrastructure/ connectivity as (Ashcroft & Langdon, 1999) conclusively emphasizes that good IT infrastructure is required to underpin the provision of electronic serials because the internet will be faster and reliable, and awareness.

Library and information services providers, the government and development partners are responsible at different levels for giving an enabling environment that will increase the use of these e-resources via the internet to fasten a pace of development in Africa in general and Tanzania in particular.

Recommendations
In order to at least improve the use of electronic journals through the internet, the stakeholders of library and information services in specific and development in general should take the following into account:

One, library and information services should introduce or improve training on computer and internet skills they give to their patrons. They must be proactive and conduct training needs assessment regularly in order to offer right levels of internet use skills. They should also prepare and give internet use manuals to their patrons who could read and understand how to use it. Library staff should make use of training offered by some publishers like Wiley – Blackwell. Basic computer and internet skills should also be incorporated in curriculum in all levels of education especially from secondary to university level (United Nations, 2008).

Two, libraries should inform their target audience about the products they offer especially electronic journals via the internet and promote them. They could use e-mail alerts, new arrivals, journal links to library website or e-resources page, posters and leaflet specifically about e-resources to develop an interest and a desire of users to use them.

Three, the libraries should have enough computers with cutting edge technologies before connecting them to the internet. Most libraries do not have enough computers connected to the internet for their patrons. For instance, for five years REPOA had had one computer used for library catalogue search and internet surfing; now there are two more computers dedicated for e – resources.

Four, libraries should also purchase enough bandwidth to make e – journal opening and articles downloading quicker and more reliable. In the meantime, all ISPs should use Internet Exchange Point (IXP) and in the long term solution, the government should use cables and do away with satellite connection which is not as fast as cable connection. Competition should also be encouraged once sub marine fibre optic cables projects are completed possibly from June 2009 to avoid ‘the last mile’ high cost that could be imposed by ISPs (Ralphs, 2008).
Five, in order for libraries to afford to maintain their e-journal subscriptions, journal publishers should offer a discount to subscribers who renew their subscriptions continuously. Libraries should also use an opportunity of free journal access offered by development partners through programmes like International Network for the Availability of Scientific Publications (INASP) through PERI; AGORA; HINARI; just to mention few.

Six, all development partners and publishers who have decided to adhere to MDG 8 must give a uniform license to let library patrons access evenly backfiles/ issues. The current situation is that someone can access current and backfiles of World Development journal on AGORA but cannot do that on Science Direct database (or Health Policy and Planning on Oxford database and HINARI or Wiley – Blackwell).

Seven, it is a fact that not all journals are published by one publisher thus each publisher has a browser and a different access control like username and password, IP address, embedded and referring login. Therefore someone must have many usernames and passwords; many browsers to access journals from different publishers. To streamline the access libraries should employ single sign on system like ExLibris – SFX and Athens whose annual subscriptions is offered at nominal fee for developing countries institutions that are public and not for profit and most publishers accept Athens.

For the institutions that use dynamic IP address could use Referring or embedded URL login. Referring URL login requires a secure webpage to allow websites and web servers to identify where users are visiting them from, for security purposes. Embedded URL login is a link provided to the institution by the publisher and must be hosted on a secure server like the intranet; the link will automatically authenticate the user when they click on it and arrive to the publisher website.

Bibliography


Economist Intelligence Unit (2007). *Tanzania country profile.* London: Author


Lowe, L. (2002). Modelling demand in order to meet it: can the information and knowledge management systems of the urban poor be understood and strengthened? In C. Gandelsonas (Ed.) *Communicating for development: experience from urban environment* (pp. ). London: ITDG Publishing


**Appendices**

1. Inquiries about login
   a. Walk-in user (PDG student) e-mail
      
      From: Walter L Mbaula [mailto:walterseke@yahoo.com]
      
      Sent: Thursday, January 10, 2008 11:15 AM
      
      To: Femida Patwa
      
      Cc: Hubert Shija
      
      Subject: accessing of online journals

      Dear Femida - PGD Course Administrator,

      HAPPY NEW YEAR

      it's my hope that you back to work and all is well with you and you had nice holiday coupled with festival season.

      I have a problem of accessing the following online journal from Blackwell-Synergy:

      I used the ID (repoa06) and password (Research) you provided to us but it seem they can't work, it give me the following information

      **Agricultural Economics**

      Vol. 26 Issue 1 Page 1 October 2001

      **The rural non-farm sector: issues and evidence from developing countries**

      Jean O. Lanjouw, Peter Lanjouw

      Why don't I have access to this article?

      · Repoa - Dar Es Salaam - TZA does not have a subscription to this journal. You may purchase personal access to this article or recommend that your institution subscribe to this publication.

      Its my hope that you help me with this soon,

      Regards,
      
      Walter
      
      PGD Student 2007/08.

   b. Member of staff e-mail

      Mzee Shija
What are the login codes for jpart, I have tried repoa06 and repoa@repoa.or.tz but they don’t seem to work

Jamal Msami, Assistant Researcher, 
Research on Poverty Alleviation, 
157 Migombani Street, Regent Estate, 
P.O Box 33223, Dar Es Salaam, 
Tel: 255 22 2700083/2772556, 
Mob: 0713 946 500 
Fax: 255 22 2775738

From: Hubert Shija 
Sent: 10 December 2008 07:41 
To: Researchers 

Journal of Public Administration Research and Theory Advance Access Alert

New Journal of Public Administration Research and Theory Journal of Public Administration Research and Theory Advance Access articles have been made available (for the period 28 Nov 2008 to 9 Dec 2008):

Articles

The Strategic Games that Donors and Bureaucrats Play: An Institutional Rational Choice Analysis 
Eduardo Araral 
http://jpart.oxfordjournals.org/cgi/content/abstract/mun024v1