

Running head: OPEN ACCESS AND DEVELOPING COUNTRIES

## **Open Access and Developing Countries**

Dayna Canada

San Jose State University

### Abstract

Digital technology can make the works of humans permanently accessible to people all over the world. Historically, public libraries have been recognized for their great potential s to improve the quality of life and provide free and equal access to information. Now, open access to support research and publishing equally and widely available. The internet has created new ways to promote this same service on a much larger scale and with the possibility to connect a global society more easily. This paper presents on overview of open access and the benefits to developing countries for research and educational goals. The challenge will be in how readily available these digital collections will be, how freely they can be accessed, and how the needed technology and learning opportunities will be made available to developing nations.

## Introduction

The internet has changed the way people communicate, create, share and process information enormously. Additionally, the internet not only acts as a format for storing information but for sharing it publicly. Increasingly information in the form of books, journals, images, manuscripts being digitalized to provide not only greater worldwide shared access but to preserve the individual cultures and heritage. Currently, it is possible to visit a large number of digital libraries, museums, and archives. There are also several projects dedicated to providing free access via large collections of literature, which, however are mostly in the public domain. This digital revolution was accompanied by a shift from printed journals to online access. The ability to circulate information through open access sources like journal repositories for self-archiving which allows for creator possibilities for publication without printing costs. Additionally, an open access journal allows those with Internet access to freely read, download, copy, distribute and print articles and other informational material. In fact there are more than four thousand OA journals launched in the past decade with central resources such as the Directory of Open Access Journals, and OALister (Abdulrasak, 2009). Of particular interest is the possibilities that the open access movement can and have created for developing countries. It can foster information and knowledge sharing within research, educational, and scientific communities in traditionally economically disadvantaged regions. Increasingly, this capacity to close the gap between developed and less developed countries access to information becomes more important for educational, cultural, and scientific development. This paper will examine the potential for the open access movement in developing countries as well as the difficulties that a developing country may experience to take advantage of these benefits. It will in also look at some specific

examples of how the open access movement is making inroads toward greater information access in India, Latin America, and Africa.

### Growth of Open Access

The continued rise of electronic resources and the ability to digitize print has revolutionized how information can be accessed. The idea of “open access” refers to the ability to access all digital information. However, historically and culturally, open and *free* access to literature and other writings has long been considered essential to education and to the maintenance of an open society. Ideally, there is also worldwide access that is available to download and share. Many believe that the ability to have easy access to other cultures heritage can help to break down cultural barriers. In particular there are documented benefits for developing country researchers, although there are also some disincentives that make it difficult for researchers in these countries to fully participate in the open access movement (Papen-Ramcharan & Dawe, 2008). There is also the philosophical standpoint that all sources of information should be openly accessed free of charge to support an informed public.

For instance, many databases and other electronic resources routinely charge a fee to access them. In the past much of the knowledge that has been produced was locked away in scholarly journals and accessed only by paying for it. This could have a long term effect on freedom of information if information is only available to those who can pay the fees. The gap is narrowed by libraries paying for a subscription and making them available to their card holders. Universally, however, this may not always be an available option. But, there have been changes in the ability of the public to access the results of research which was publicly funded by tax

payers. In fact, Congress has recently mandated that papers arising from NIH sponsored research be made available, free, in the federal PubMed Database (Akst, 2008). However, a 12 is allowed.

Access is more a question of where and how information is disseminated and who has the ability or opportunity to find this information. The concept of “open access” actually can apply to various types of formats and institutions that encompass various electronic resources and information retrieval. Academic libraries are using institutional repositories to digitally collect and preserve academic papers and documents that can be freely accessed by the students, faculty and the public. Many libraries include in their collections databases which are a form of digitally archived journals and articles. However, many of these databases are often fee based and libraries must pay for subscriptions to them. They, however, then make the databases free to their cardholders. Many museums are archiving digital images of their collections to be accessed by the public. In terms of preservation of cultural artifact this is a valuable way for all these types of information to be accessible to a larger audience.

### Benefits and Barriers for Developing Countries

In this way, the open access movement seeks to provide people worldwide, particularly in developing countries, with equal access to knowledge and information through repositories and self-archiving in open access journals. The dissemination of knowledge through academic and scholarly electronic research journals is a commonly used. However, access to these electronic journals is not free. Subscription fees or site licenses fees are required to gain access to the publication. The increasing cost of subscription for these journals has become a growing

concern for libraries and institutions. Because of this, libraries and institutions in developing countries that have limited or no funding are forced to cancel their subscriptions. Of course, this then limits or restricts access to scientific and educational institutions or research and development.

The commonly held belief is that the real advantages of open access to research journals and literature will accelerate research, enrich education, and share knowledge between more developed countries and poorer, less developed countries. The idea of open access emerged in response to the way access to knowledge in scholarly and scientific journals was becoming more restrictive due to the commercial publishing house's subscription fees (Christian, 2008). There were three groups in particular which address this concern by creating initiatives to address it. One of these, the Budapest Open Access Initiative defined the concept in the following:

[the] free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself (BOAI, 2002).

Another initiative, the Bethesda Statement on Open Access Publishing, continued to promote a gradual transition to open access publishing, although within the biochemical community. It stated their belief that "open access will be an essential component of scientific publishing in the future and that works reporting the results of current scientific research should be as openly accessible and freely useable as possible". (Bethesda Statement on Open Access Publishing, 2003). Although in neither of these early initiatives outlined the impact or implications of the

open access movement on developing countries, there is the philosophical imperative intrinsic that the idea of free, equal and open access would apply to all communities and countries.

The potential for researchers, educators, and institutions in developing countries to benefit from open access is great. This seems obvious considering the limited financial resources available in these countries. With funding less available to libraries and institutions, having this type of unrestricted access helps researchers in the developing world, already struggling with limited resources, the ability to do research and publish their own research (Christian, 2008). This is important to ensure future technological and economic development in these countries. Another offshoot of having better access in their own countries is that it provided the impetus to remain in their countries and contribute to further developing them rather than migrating to more developed countries. In many cases the main cause for this migration is the desire to have a more adequate research opportunities. In this scenario, open access not only provides open access to knowledge but could help to support development in developing countries.

However, beyond the ideals embodied in how the open access movement can help to empower developing countries are the very real barriers that need to be considered. The internet and the information and communication technologies (ICTs) required for access can be problematic. This is mainly due to the high cost of connectivity and the poor telecommunication infrastructure. There is often limited connectivity in higher educational institutions for students, and the economic realities make it less likely they will have this at home. This makes the actual use of any open access journals, repositories, or even the use of open source software to implement this access more difficult. Unfortunately, the availability of open access journals isn't really sufficient. There also needs to be efforts to fund, build, and upgrade the internet infrastructure of these regions.

Fortunately, there have been various organizations that, over the past decade, have recognized the potential for the internet to raise the quality of life in developing countries. They have made it their aim to provide the needed infrastructure to support the internet and its applications. For example, the Internet Society (ISOC), held a series of networking workshops to train technicians, information providers and policy makers from developing nations starting in 1993. Graduates of these programs went on to promote the Internet in their home nations (Press, 2007). More currently, the World Summit on the Information Society (WSIS) held a meeting in which it they declared a “common desire and commitment to build a people-centered, inclusive and development-oriented Information Society, where everyone can create, access, utilize and share information and knowledge” and “to achieve their full potential in promoting their sustainable development and improving their quality of life” (Press, 2007). Again, much of this depends on the subsidizing of communication. The efforts made by individual organizations, government and non-profit subsidies to can better connectivity in developing countries combined with open access movement will create the most potential.

The goal of open access is a concept that will continue to grow as emerging technologies and electronic resources slowly become the primary method to access information. As lofty as this aspiration is, the concept rests largely on the reality that everyone has the access to the technology and the required knowledge to access these new digital libraries. A “digital divide” is the definition of what separates those who can access and use these technologies to benefit from them or those who, for one reason or another, can’t. Past phrases that have been used to describe a similar situation is “information haves and have nots” and “information rich and poor. (Aquli & Moghaddam, 2007). As the use of digitalized information increases, those who fit into the several categories that define aspects of the digital divide are becoming increasingly



disadvantaged. There will be a growing gap as well, internationally, between those parts of the world with easy access and those without. So, there is a concern that technological advancements tend to make the digital divide more apparent. Access to knowledge in disadvantaged regions is limited and keeps developing countries decades behind. Economic factors as well as issues with infrastructure of lesser developed countries all contribute to less access. Unlike in developed countries where access infrastructure is practically complete, in developing countries it is still a central problem, especially in rural areas and remote villages. In most developing nations, the Internet is concentrated in large cities (Sorg, 2008 p.68)

Although open access progress is slow in developing countries, regions like India, Latin America, and Africa are beginning to improve the distribution of knowledge through OA publishing. In India there are workshops and seminars being held by the Indian Academy of Science in 2006 to raise awareness of OA. From this last meeting the Bangalore Model National Policy Statement, a declaration for establishing open access strategies were established (Abdulrasak, 2009). In addition, leading Indian information scientist Subbiah Arunachalam is one of the country's strongest advocates for the open access movement. Although he believes that there is a shared problem among researchers of the developing world, particularly India, Brazil and Africa, of a lack of resources, he states that in his opinion "the most important element that restricts our researchers is access to information. All science takes place in an 'information space' in which researchers make a contribution by adding to the body of existing knowledge" (Weitzman, 2003). He has actively worked toward involving open access advocates from other developing countries to India to discuss issues with the research community.

Latin America, and in particular Brazil, is embracing open access to publications. Much of the national research literature is distributed through OA journal services. Two of these resources

include Bioline International, a Brazil-Canada initiative that gives assistance to publishers in developing countries, and SciELO (Scientific Electronic Library Online) which is a collaboration of publishers in Latin countries (Abdulrasak, 2009). At the Ninth World Congress on Health and Information Libraries in 2005, Brazil also proclaimed the Salvador Declaration on Open Access. It urges “governments to make Open Access a high priority” and “all stakeholders in the international community to work together to ensure that scientific information is openly accessible and freely available to all, forever” (Declaration of Salvador, 2005).

Africa, with South Africa and Nigeria taking a lead, is also taking action in its efforts to promote Open Access. In March 2009, it was announced that free access will be provided to a range of South Africa’s top academic journals in a two year pilot program. The project is modeled on the Brazil-based Scientific Electronic Online Library (SciELO). Robin Crewe of the Academy of Science of South Africa (ASSA), the publisher of the journal *The South African Journal of Science*, announced the project at the African Science Communication Conference in Johannesburg (Makoni & Scott, 2009). There, in addition, have been successful initiatives such as African Journal Online, a non-profit organization based in South Africa which is working to fill the gap of the digital divide. It currently provides access to research published in Africa and hosts over 340 African published journals from 26 countries. (Abdulrasak, 2009). These are other efforts to spread awareness and provide support for access will contribute greatly to Africa becoming an active part of the knowledge-based culture and being left behind as an information poor nation.

## Conclusion

One of the tenets of traditional library service is to provide free and equal access to information and knowledge. From the ancient Alexandria Library, they have been a place that collects preserves and disseminates are the cultural information and knowledge. Historically, the format for accomplishing this has changed and libraries and the definition of what a library changes as well. Clay tablets were replaced with scrolls, handwritten manuscripts with printed text, and now digital collections is replacing, or at least adding to, printed material.

However, with rising costs and shrinking budgets, the ability to find electronic information that is only accessible at a cost could start to challenge the idea of equal access. The open access movement is making creating possibilities to provide equal access to knowledge to all countries, regardless of economic status. A larger digital divide based on economic means could be created. The ability for anyone to provide access, without charge, much of the OA information available online almost seems like an impossible task. Yet, some of the building blocks for this collecting of open access journals are already being laid down. There are hundreds of organizations and libraries digitally creating large comprehensive collections and making them available via the Web. The many people and organizations that are pursuing this goal realize the number of issues involved, as well as the potential, but nevertheless believe that in time it can happen. The potential to empower developing countries and to create a greater information exchange between all countries is great. To support these efforts, however, ongoing initiatives and funding are needed to continue the effort to find ways to create infrastructures to support open access to information. This will take a combined commitment by governments, education and research institutions, as well as private organizations to provide funding and increase awareness of the open access movement and open access resources.

## References

- Abdulrasak, S. (2009). Open Access in Developing Countries. *Frontiers in Neuroscience Magazine*. Retrieved October 6, 2008 from [http://frontiersin.org/global\\_open\\_access\\_3\\_2](http://frontiersin.org/global_open_access_3_2)
- Akst, D. (2008, March 7). Information Liberation. *Wall Street Journal*. Retrieved November 26, 2009 from <http://www.online.wsj.com>
- Aqili, S., & Moghaddam, A. (2007). Bridging the Digital Divide: The role of librarians and informational professionals in the third millennium. *The Electronic Library*, 26 (2), 226-236. Retrieved October 26, 2009 from Emerald database.
- Berlin Declaration on Open Access to Knowledge (2002). Retrieved October 15, 2009 <http://www.earlham.edu/~peters/fos/bethesda.htm>
- Bethesda Statement on Open Access Publishing (2003). Retrieved October 15, 2009 <http://www.earlham.edu/~peters/fos/bethesda.htm>
- Christian, G.E. (2006). Open Access Initiative and the Developing World. *African Journal of Library, Archives & Information Science*, 18(1), 1-9. Retrieved October 8, 2009 from Library Literature and Information Science Full Text database.
- Declaration of Salvador-Commitment to Equity (2005). Retrieved October 15, 2009 from <http://www.icml9.org/public/documents/pdf/en/Dcl-Salvador-Commitment-en.pdf>
- Fox, E., & Marchionini, G. (1998). Toward a worldwide digital library. *Communications of the ACM*, 41(4), 29-32. Retrieved October 8, 2009 from ACM Digital Library.
- Makoni, M., & Scott, C. (2009, March 8). South Africa: Top Journals to go open access. *University World News: Africa Edition*. Retrieved October 8, 2009 from <http://universityworldnews.com/article.php?story=20090305194327495>

Papen-Ramcharan, J., & Dawe, R. (2006). Open access publishing: A developing country view.

*First Monday: Peer-Reviewed Journal on the Internet*, 11(6). Retrieved October 15, 2009

from [http:// firstmonday.org/issues/issue11\\_6/papin/index.html](http://firstmonday.org/issues/issue11_6/papin/index.html)

Perry, L (2004). The Internet in developing nations: Grand challenges. *First Monday: Peer-*

*Reviewed Journal on the Internet*, 9(4). Retrieved October 15, 2009 from

[http://firstmonday.org/issues/issue9\\_4/press/index.html](http://firstmonday.org/issues/issue9_4/press/index.html)

Sorj, B. (2008). *Information societies and digital divides: An introduction* [Electronic version].

Polemetrica Publisher: Italy Retrieved October 28, 2009 from

<http://eprints.rclis.org/14288/>

Weitzman, J.B. (Ed.) (2003, December 15). Interview with Subbiah Arunachalam. *Open Access*

*Now* [Online Newsletter]. Retrieved October 15, 2009 from

[http://www.biomedcentral.com/openaccess/pdf/OpenAccessNow\\_11.pdf](http://www.biomedcentral.com/openaccess/pdf/OpenAccessNow_11.pdf)