

**THE OPEN ACCESS (OPEN JOURNAL SYSTEMS) PARADIGM
AND THE PRODUCTION OF SCHOLARLY JOURNALS IN
DEVELOPING COUNTRIES**

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Abstract

Despite the relevance of journals to the development of scholarship on the African continent, printed journals are going through turbulent times. Alternative models of distributing scholarly communication are needed. A model such as the Open Journal Systems (OJS), which is reversing the declining access for faculty and students, is considered for developing countries in this report. The report examines OJS, an open source journal management/publishing system designed to support open access scholarly publishing and its application in the developing countries.

The report describes the historical timeline of the Public Knowledge Project at University of British Columbia, which gave birth to the OJS, and the efforts that have been made by developing countries to adapt OJS to journal publishing with the hope that the developing countries may increase their contribution to global knowledge.

The report concludes by discussing the challenges facing developing countries in embracing open access models for scholarly publishing.

*To my wife Maame and daughter
Vanni (Houses and wealth are
inherited from parents but a
prudent wife is from the Lord)*

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CHAPTER ONE

The State of Scholarly Publishing in Developing Countries

1.1 Introduction

Access to adequate and current scientific and technical information is essential for economic and social development. Access to social analysis and humanistic inquiry is also important to the creation of just, affirming and sustainable societies. This scientific and technical, social scientific and humanistic information and analysis derives from scientific and scholarly research, which in considerable part, is validated and communicated through publication in scholarly journals. This validation and communication process takes place in the same way for both developed and developing nations. In developing countries however, access to the ever-evolving knowledge contained by current system of scholarly publishing has become too costly for the academic community. The increasing volume and costs of scholarly publications are making it impossible for universities and their libraries to support the collection needs of the institutions they cater for. Furthermore, the pressure on library budgets from the cost of scientific, technical and medical journals has contributed to the difficulty that academic publishers in the humanities and social sciences have in publishing specialized monograph work.¹ For developing countries the picture of creating the scientific and scholarly record is more dismal. After surmounting all the barriers to publish, scientific

¹ For detail refer to ICSU-UNESCO report on Principles for Emerging Systems of Scholarly Publishing.

and scholarly journals from developing countries face several distribution and dissemination barriers that limit the access and usage of local research. The result is that developing countries have been marginalized in the creation of and access to global knowledge.

In the wake of developments in information technology, new models or paradigms for scholarly communication have been developed. These low-cost software systems that conform to international standards, such as the Open Journal System created by the Public Knowledge Project at the University of British Columbia, Canada, can be seen as a means by which scholars from developing countries may increase their contribution and exposure to the international scholarly community.

This report examines open access initiatives, with particular emphasis on the Open Journal System and its application to journal publishing in developing countries. The report also reviews the current state of journal publishing in developing countries and the significant opportunities that open access publishing provides for libraries and publishers to disseminate local research and knowledge beyond a country's borders and thereby bridging the South-North gap. The report concludes with a discussion of some of the challenges faced by developing nations in making the transition to open access journals.

1.2 Scholarly Publishing in Developing Countries – Current trends

Although the history of journal publishing in Africa has gone largely undocumented, scholarly journals have been produced for many years on the African continent.

According to Janet Hussein and Carol Priestley, “A review of periodicals listed in the Africa Periodicals Catalogue (APEX, 1997) shows that the South African Law Journal was started in 1884 and in 1902 the first volume of the proceedings of the Rhodesia Scientific Association - now Transaction for the Zimbabwe Scientific Association - was produced.”² However, the growth and proliferation of scholarly journals started with the advent of independence from colonial powers in many African countries. Independence created an education explosion in the later half of the twentieth century and journals became an instrument in the development of academic publishing.³ According to Association of African Universities (1999), in 1999 there were about 593 institutions of higher learning in 46 Africa countries. The chosen medium to communicate the knowledge produced and consumed by these institutions is the journal.⁴

Developing countries publish scientific journals for many of the same reasons that developed countries do. In fact, Christopher Tomlin states: “journals were initially created as a mechanism crucial to the defining of professional identity and to communicating the distinctive practice that would constitute it and thereby bring discipline, as it were, to scholarly disorder.”⁵ Tomlins elaborate further, “in addition to being a disseminator of authoritative scholarship, the journal exists to promote original scholarship, to accommodate scholarship in its variety and also to influence general direction and shape of scholarship, to certify scholarship as worthy of note and trust to

² Hussein and Priestley presented a paper on current status and challenges ahead for scholarly journal publishing in Africa July 2002, Zanzibar

³ Adebowale S, (2001): The scholarly journal in the production and dissemination of knowledge on Africa: exploring some issues for the future. *African Sociology Review*, 5 (1)

⁴ Ibid

⁵ Tomlins, C. L. (1998). The wave of the present: the printed scholarly journal on the edge of the Internet. *Journal of Scholarly Publishing*, 29(3), 133.

whatever audience it reaches and to preserve that knowledge.”⁶ While many scholars in the developing countries agree with Tomlins, they will be quick to add that journals were created to do much more. In the words of Paul Zeleza, “Journals were founded mostly in literature, history, political science and development economics to trace the teleological march of the once reviled “native” subjects to respected national citizens and their societies from underdevelopment to development.”⁷ Adebowale would like us to believe that “this added responsibility was crucial in not just the development of the academic publishing enterprise in Africa as a whole, but also in the modalities and modes of operation of academic publishing, in this case, journals.”⁸ The journal is therefore a medium that helps stimulate African scholars to write and to establish a reputation for scientific work. Journals help to establish a reputation for African-produced scholarly products. Perhaps most importantly, journals bring knowledge about Africa, often by Africans, to an audience within and outside of Africa. The journal was central to giving Africans “a voice and an opportunity to realize their dreams” of scholarly development, “dreams that may be similar to those of their compatriots.”⁹

Despite the relevance of journals to the development of scholarship on the African continent, for many years, printed journals have been going through turbulent and difficult times. Many renowned journals have been reduced in publication and size or have ceased to exist. Diana Rosenberg has described how university presses that

⁶ Ibid

⁷ Zeleza P., (1998) “The Challenge of editing scholarly journals in Africa”. In *Knowledge Dissemination in Africa; the role of the scholarly journal*, edited by Philip Altbach and Daniel Teferna. *Bellagio Studies in Publishing* 13-38

⁸ Adebowale S., (2001): “The scholarly journal in the production and dissemination of knowledge on Africa: exploring some issues for the future “ *African Sociology Review*, 5 (1)

⁹ Ibid

spearheaded the publication of academic journals have reduced production or folded completely. Research is suffering because of a reduction of means to publish research and this means the results on which to develop further research are not disseminated.¹⁰

The entire continent of Africa was affected by the economic crisis in the late 1980s and it was especially difficult for those segments of the economy that depended solely on central government to survive. Describing the economic situation in Africa in the 1980s, Altbach, states, “the combination of low prices on the world market for African exports, the international debt crisis, political instability, overpopulation and mismanagement has been extraordinarily.”¹¹ This condition has been detrimental to the continent’s growth. Most sub-Saharan African countries from the 1980 to date have regressed in terms of per capita income and spending for education. Economic problems have restricted government spending on university libraries and academic research with harmful effect on journal publishing.

All over the world the prices for journals continue to rise significantly faster than inflation and library budgets and libraries everywhere in the world are unable to adequately continue journal acquisition. According to Create Change, a publication sponsored by Association of Research Libraries, Association of College and Research Libraries, and SPARC, research libraries in North America “spent 227% more on journals in 2002 than in 1986 and in the UK, journal prices rose 158% between 1991 and

¹⁰ Rosenberg D, (2002) “African Journal Online: Improving awareness and access”, *Learned Publishing* 15 (1): 51-57

¹¹ Altbach P. G and Hoshino E. S, ed, (1995) *International Book Publishing Encyclopedia*, Bellagio Publishing Network and Garland Publishing, NY p. 288

2001 compared to a 28% increase in inflation”¹². A report published in the *Scholarly Communication Toolkit* also shows that due to high journal prices “academic libraries in the UK purchased 19% fewer books per student today than they did eight years ago. In North America, research libraries purchased 5% fewer books in 2002 than in 1986, despite spending 62% more”¹³. In another example, “in 1993, Australia's 38 university libraries purchased a combined total of 200,666 scholarly journals, but in 1998, total subscriptions dropped to 112,974, a decline of 43.7%. During that same five-year period, the average unit cost for journals increased from \$287 (Australian dollars) to \$485, a jump of 70%.”¹⁴ For libraries in the developing world, the rising cost of academic journals is a burning issue. Subscriptions are costly, foreign currencies scarce and when these conditions are met, physical delivery through the mail is uncertain.

One way to assess a country's scientific progress is to analyze the publication rate of its academic in scientific journals. A recent study written by Gálvez, A., et al. looked at the Science Citation Index (SCI) of 160 nations from 1991 to 1998. During this period the African continent as a whole produced only 1% of worldwide scientific publications. In contrast, during that same period, “85% of all scientific papers originated from three regions: Western Europe, North America and Asia (Hong Kong, Indonesia, Malaysia, China, Singapore, South Korea, Taiwan, Vietnam and, in particular, Japan). Moreover, 70% of papers were attributable to Western Europe and North America.”¹⁵ This research

¹² “New systems of Scholarly Communication, old system of scholarly Communication” (www.Createchange.org)

¹³ ACRL: Scholarly Communication Toolkit. (2003). *Journal Pricing*. Retrieved July 25, 2005, from www.ala.org/ala/acrl/acrlissues/scholarlycomm/scholarlycommunicationtoolkit/librarians/librarianeconomics.htm

¹⁴ Create Change. (2000). Under siege: Scholarly communication crisis. Retrieved July , 2005, from <http://www.createchange.org/librarians/issues/silent.html#Australia>

¹⁵ Gálvez A., et al., (2000) Scientific Publication Trends and the Developing World. *American Scientist Online* pp. 526-33 Retrieved July 25, 2005, from <http://www.americanscientist.org/template/AssetDetail/assetid/23760>

confirms two other statistics. According to Teferra (1998), “of the 70,000 journals published worldwide, only about 150 come from Africa, many of which are characteristically dubious in nature, frequency and duration.”¹⁶ David King (2004), Chief Scientific Advisor at the Office of Science and Technology, UK posits that researchers in eight countries, led by the United States, United Kingdom, Germany and Japan, produce almost 85 % of the world’s most cited publications, while another 163 countries, mostly developing countries, account for less than 2.5 %.¹⁷ A recent World Health Organization (WHO) survey quoted in Chan and Sely shows that “56% of institutions in 75 of the world’s poorest countries, with less than \$1000 per capita per year have had zero journal subscriptions for the past five years. In countries with a per-capita income of \$1000-\$3000 per year 34% of their institutions have not had subscription for the last five years and another 34% with an average of only two subscriptions over the past five years.”¹⁸

One conclusion that can be drawn from these statistics is that the majority of scholarly journals are published in the industrialized nations and the knowledge network is essentially controlled there. The importance of scholarly journals and the limited access to these journals leave developing nations less able to participate in scientific endeavours. Take for example, the Faculty of Agriculture Library of the University of Malawi. By the late eighties, this library had over 200 print journal subscriptions, but by the mid 1990s,

¹⁶ Teferra, D. (1998) in “Knowledge Dissemination in Africa: The role of scholarly journals”, Bellagio Publishing Network and Garland Publishing, p. 41. NY

¹⁷ King, David A. (2004). The Scientific Impact of Nations, *Nature* **430** 311-316

¹⁸ Leslie C, Sely C. (2005) Participation in the global knowledge commons: challenges and opportunities for research dissemination in developing countries. *New Library World*, **106** (3-4): pp. 141-163.

journal collections in support of research programs had almost disappeared.¹⁹ In the words of John Willinsky, “The cut to serial titles among less fortunate institutions, especially in developing countries, has been far more drastic and devastating, virtually wiping out the universities’ access to the current print literature.”²⁰

Fewer printed publications are available to scholars in developing countries despite the fact that production of scholarly information grows exponentially. Scholars and graduate students in developing countries have access to fewer and fewer scholarly publications each year. Obviously, academics and researchers in developing countries are starved of information. What this means is that scholars in developing countries are marginalized in intellectual debates even about international and indigenous issues.

Scholarly publishing is being revolutionized by information technologies, mitigating what has been termed a crisis in the publishing of scholarly journals. The advancement in network information technologies and in particular the Internet, provides the opportunity “for equitable distribution of scientific knowledge and the ideal of a global knowledge commons is no longer seen as an unattainable utopia”²¹. According to Willinsky, “digital journal publishing stands poised to do something far more dramatic in promoting the vital circulation of knowledge”²² The move of scholarly publishing, specifically journal

¹⁹ Accessing Electronic Information: Opportunities and Constraints. The Malawi situation. A Report of and Papers presented at the regional workshop on Networking for Improved Access to Fisheries and Aquaculture Information in Africa South Africa.

²⁰ Willinsky, J. (2003) The Nine Flavours of Open Access Scholarly Publishing. [Electronic version] *Journal of Postgraduate Medicine*, **49** (3) p263-267

²¹ Leslie C, Sely C. (2005) Participation in the global knowledge commons: challenges and opportunities for research dissemination in developing countries. *New Library World*, **106** (3-4): pp. 141-163.

²² Willinsky, J. (2003). The Nine Flavours of Open Access Scholarly Publishing. [Electronic version] *Journal of Postgraduate Medicine*, **49**(3), 263-267.

publishing, to electronic forms is a promising avenue for research, easy access to information, increase access for users in the developing world and collaboration and fluid exchange of information between the North and South. In addition, digital journal publishing as it relates to financial and material constraints in developing countries, has the potential to circumvent the huge cost of paper and scholarly publishing subscriptions.

Unfortunately, the anticipated financial savings from electronic publishing have not happened. Instead, journal publishers have moved to electronic forms of publication but maintained the paper-inspired publishing model. In order to maintain production revenue, publishers have restricted access to electronic information by continuing with subscription-based journals, which means user-pay system. Although one can access the tables of contents of thousands of academic journals via the Internet, one cannot read actual articles without a subscription to the journal in which the articles are published. Alternatively, a publisher may allow access to a specific article for a one-off payment. This is known as “pay-per-view” and the average cost of accessing an article in a commercial journal is usually \$20-\$30.²³ These high access costs to electronic journals are not options for researchers in developing countries.

The high cost for journal subscription also limits libraries from resource sharing, collection development and long-term archiving. Some publishers have bundled all their electronic journals to provide single access to journal “packages”, but for the developing countries, licenses for these packages tie up significant portions of library budgets. As a

²³ Smith, John W. T., (2004). “The Importance of Access to Academic Publications for the Developing and the Implications of the in Academic Publishing”. Invited paper presented at the *International Conference on Computer Communication: Core Platform for the Implementation of the Computer Society*, 15-17 Sept. 2004, Beijing, China

result, libraries' funds are diverted from subscriptions to high-quality titles from small university presses and scholarly society presses. One countervailing point to this practice is that by selling packages to libraries, these multinational commercial publishers ensure "the visibility of their electronic journals and limit the visibility"²⁴ of journals published in developing countries. The operations of these multinational commercial publishers overshadow local publishers and new publishing initiatives that are in need of support. The ultimate effect is the marginalization and under representation of African scholarship within fields of African studies and the production of global knowledge. The current migration of commercial journals to an online format, has for the most part, not changed any of that much.

One solution to the problem has been the provision of access to research publications at a subsidized price to some developing nations through the use of the Internet. Examples are the Health Internet Work Access to Research Initiative (HINARI)²⁵ launched in 2002 and Access to Global Online Research in Agriculture (AGORA)²⁶ launched in 2003. Both programs provide discounted subscription access to major journals in biomedical and related social sciences and agriculture and related sciences to public institutions in developing countries. These programs are the product of collaboration between commercial publishers (Elsevier Science, Blackwell and Springer Verlag etc.), a UN body (World Health Organization and Food and Agriculture Organization) and academic institutions (Cornell and Yale Universities). Both programs provide access close to 4,000

²⁴ Landesman, M. & Reenen, . V. (2000). Consortia vs Reform: Creating Confluence. [Electronic version] *The Journal of Electronic Publishing*, 6(2)

²⁵ This link will give more information about HINARI's program (<http://www.who.int/hinari/en/>)

²⁶ This link will give more information about AGORA's program (<http://www.aginternetwork.org/en/>)

journals to over 1,300 institutions in over 145 countries. “Access to both HINARI and AGORA is free for countries with a per capita income of less than \$1,000 and those with per capital income of \$1,000 to \$3,000 pay annual fees of \$1,000.”²⁷

Other initiatives that provide access to research publications to developing countries are program for the Enhancement of Research Information (PERI) coordinated by International Network for the Availability of Scientific Publication (INASP). One objective of PERI is to negotiate with commercial publishers and information aggregators on behalf of developing countries with the hope of securing affordable, sustainable access licenses to high-value online journal database.²⁸

It is not yet clear just whether these initiatives are having any significant impact on both health care delivery and agriculture in the developing nations. It is also worth investigating the relevance of the content of research information of these initiatives to the local needs of developing countries. As John Smith (2004) points out, “discussion of hi-tech medicine or highly mechanized agriculture may be of little use to countries with limited medical facilities and basic farming technology.”²⁹

The practices of commercial publishers - which has led to what is now referred to as serials crisis - have prompted a search for alternative models of distributing scholarly communication. A model has been developed that is “capable of reversing what has been

²⁷ Leslie C, Sely C. (2005) Participation in the global knowledge commons: challenges and opportunities for research dissemination in developing countries. *New Library World*, **106** (3-4): pp. 141-163.

²⁸ About PERI [Electronic resource] Retrieved Aug. 01, 2005, from <http://www.inasp.info/peri/intro.shtml>

²⁹ Smith, J. W. T. (2004). The Importance of Access to Academic Publications for the Developing and the Implications of the in Academic Publishing. Proceedings of the *International Conference on Computer Communication '04: Core Platform for the Implementation of the Computer Society*, Beijing, China

a state of declining access, for faculty and students.”³⁰ This model will also generate the much needed visibility of scholarship from developing countries and also enable such scholarship to reach a wider audience. This alternative model makes scholarship freely available on the Internet without financial, legal or technical barriers. This alternative, which this report seeks to present, is the “open access” and “Open Archive” models demonstrated through the Open Journal System.

In the following pages this report will look at the Public Knowledge Project (PKP), the products of the PKP-The Open Conference System and the Open Journal System (OJS) and how the OJS has been applied to scholarly publishing in the developing countries.

³⁰ Willinsky, J. (2003) “The Nine Flavours of Open Access Scholarly Publishing”, Journal of Postgraduate Medicine. **49** (3) p263-267

CHAPTER TWO

The Public Knowledge Project and Open Access Systems

2.1 Introduction

The crisis in scholarly publishing has limited access to scholarship both in the developing and developed nations. However the recent stride in network information technologies is beginning to impact positively on access to scholarly journals. This chapter and the next chapters focus on the activities of the Public Knowledge Project (PKP) with particular emphasis on the Open Journal System, (an open source software and product of the PKP) and its application to journal publishing in developing nations.

The PKP, directed by John Willinsky, is a federally funded research initiative located at the University of British Columbia in Vancouver, Canada. The PKP since its beginning has been exploring how Information and Communication Technologies offer new ways of providing access to information and knowledge, and thereby create significant opportunities for learning, networking, and improving the value of scholarly research.³¹

The world is being revolutionized by the growing effect of technology across all dimensions of life. These new technologies offer the promise of completely redefining

³¹ The Public Knowledge Project, (n.d.). What is the public knowledge project? Retrieved July 16, 2005, from About the Public Knowledge Project Web site: <http://pkp.ubc.ca/about/what.html>.

knowledge creation and dissemination. That is to say opportunities have broadened for enormous quantities of knowledge, of all types, to be generated, and transmitted farther faster. This idea of knowledge creation and dissemination is the path that the PKP has chosen. “Bringing together scholars from a number of fields, as well as research librarians, the PKP investigates the social, economic and technical issues involved in the use of online infrastructure and knowledge management strategies. The end result is to improve both the scholarly quality and public accessibility and coherence of this body of knowledge in a sustainable and globally accessible form.”³²

The PKP is also looking at ways of integrating research studies with access to digital archival sources, whether documents or multimedia files. The project’s driving force is the fact that knowledge should be freely accessible.

2.2 Historical Background of the PKP

The Public Knowledge Project began with a team of researchers in the Faculty of Education at the University of British Columbia in Vancouver in 1998. The initial motivation of the research team as spelled out by Lisa Korteweg were:³³

- “To make academic research and scholarly literature more accessible to the public by integrating academic research and scholarly literature with other resources of understanding and information to which people turn”.

³² The Public Knowledge Project, (n.d.). What is the public knowledge project? Retrieved July 16, 2005, from About the Public Knowledge Project web site: <http://pkp.ubc.ca/about/what.html>.

³³ Korteweg, L. (2001). “Inverted Hollywood: The Pitch for e-Knowledge Meets Pre-Service Teacher Education.” In Barrie Barrell (Ed.), *Technology, Teaching and Learning: Issues in the Integration of Technology* (Calgary, Detselig, 2001).

- “To make university-produced knowledge available to the public, and to contribute more scholarly knowledge to the education of pre-service teachers.”
- Another goal of the research team was “to make pre-service teachers appreciate the value of public access to this knowledge and to prepare and assist them to use it in their careers.”

The PKP put together a team of researchers and web site designers that would experiment and work to achieve these goals. According to Korteweg, the research team was to use existing technologies to create an online tool that would allow many different types of users (e.g. teachers, pre-service teachers, and scholars) to access many different types of knowledge texts and to demonstrate how to connect different types of knowledge such as research articles and report, classroom practices and tips, policy documents, organization working to promote change and editorial text reviewing issues.³⁴

However, in recent times the focus of the PKP has shifted. Prof. Willinsky points out that “the Public Knowledge Project gradually switched gears, away from developing knowledge management web sites that increased and enhanced public access to educational and policy research. It moved into developing an open source, easily configurable, easily installable, software for managing and publishing journals.”³⁵

2.3 The PKP-*Vancouver Sun* Prototype

The PKP-*Vancouver Sun* prototype project was the first experiment to be carried out by the Public Knowledge Project. According to Lisa Korteweg, the PKP’s first experiment

³⁴ Ibid

³⁵ Willinsky, J. (2005). Open journal systems: an example of open source software for journal management and publishing. Retrieved July 17, 2005, from publications web site: <http://www.pkp.ubc.ca/publications/index.html>.

was to complement a series of journalistic articles appearing in the *Vancouver Sun* newspaper in the spring of 1999.³⁶ She goes on further to describe how the editorial vision of the *Sun* had been expanded to include articles that would make the public aware of the complex issues pertaining to education and technology in British Columbia. On each day of the newspaper's coverage, a different issue was explored and this coverage was mined by the PKP team for online resources. The issues covered included: the impact of technology on curriculum and teachers, funding, gender and technology, the dangers and advantages of the Internet and equity of access.³⁷

Korteweg pointed out further that in creating their first repository of web documents, the PKP team aimed to encourage newspaper readers to go deeper into the issues raised in the *Vancouver Sun* and to make connections between these issues. The team also created a web site whose content covers five knowledge domains entitled research (academic articles and reports), practices (classroom practices and tips), policy (examples of policies from different locations and levels of government), organizations (non-profit groups working on the topic) and issues (an editorial approach to the topic). These domains were related to each issue that would permit the cross-pollination of connections i.e. to make connections across these issues.³⁸ According to the PKP's records, during the five days in which the *Sun* articles ran, the project received close to an average of 100 visitors per

³⁶ Korteweg, L. (2001). "Inverted Hollywood: The Pitch for e-Knowledge Meets Pre-Service Teacher Education." In Barrie Barrell (Ed.), Technology, Teaching and Learning: Issues in the Integration of Technology (Calgary, Detselig, 2001).

³⁷ Ibid, 3

³⁸ Ibid, 3

day. After six weeks of being on the web, the PKP-*Vancouver Sun* site received 1,881 hits in total, with a quarter of these hits from visitors outside of Canada.³⁹

2.4 The Sequel: the CITE Empirical Example

Having created a sophisticated prototype of online domain using the *Vancouver Sun*, the team decided to focus on a more specific audience, namely educators who might be investigating issues of technology and education.⁴⁰

In this experiment, PKP-*Vancouver Sun* database was maintained but instead of complementing newspaper content, it was applied to a university class. The location for this experiment was the CITE Teacher Education program at the University of British Columbia.⁴¹ The Community of Inquiry for Teacher Education (CITE) is a one-year program of studies for prospective elementary teachers where the students are actively encouraged to analyze and reflect upon “how learning is personally constructed, socially mediated and inherently situated” (UBC, CITE, 2001).⁴²

In the following paragraphs, Lisa Korteweg describes the collaborative venture between PKP and CITE. “In this PKP-CITE experiment, the PKP team wanted to insert academic knowledge into the pre-service teachers' online discussions. Pre-service teachers were to cite sources from the PKP repository to inform their positions and incorporate hyperlinks into their statements and incorporate academic conventions of discourse into their online

³⁹ *Ibid.*, 4.

⁴⁰ *Ibid.*, 4.

⁴¹ *Ibid.*, 4.

⁴² <http://www.curricstudies.educ.ubc.ca/project/cite.html>

chat. Students were to have easy access to a range of texts and knowledge documents from the PKP-*Vancouver Sun* database that they would probably be unable to find on their own and that they could integrate into their learning and their discussion about learning to teaching.’⁴³

The collaboration between PKP and CITE was to investigate how pre-services teachers will incorporate into their studies the web cite tool created by the PKP, especially when it was made a requirement of use.

The PKP team designed a task or purpose that required the students to employ the PKP-*Vancouver Sun* database. The goal was to test the prototype with real educators to attempt to track how users interacted with the web site: what connections they were able to draw between texts and between practice and research and which resources from PKP database users found to be most valuable.⁴⁴

The next projects of the PKP are three open access Internet technologies - the Open Conference System (OCS), and the Open Journal Systems (OJS), and the Research Support Tool (now called Reading Tool (RT)), which relies on the Public Knowledge Project’s OAI Harvester.”

2.5 The Open Conference System

The Open Conference System (OCS) is a free web-base tool for publishing scholarly conference on the Internet. John Willinsky points out, “OCS enables conference directors to manage all of the components of the typical academic conferences, including online

⁴³ Korteweg, L. (2001). “Inverted Hollywood: The Pitch for e-Knowledge Meets Pre-Service Teacher Education.” In Barrie Barrell (Ed.), *Technology, Teaching and Learning: Issues in the Integration of Technology* (Calgary, Detselig, 2001).

⁴⁴ Ibid, 5.

submissions, peer reviews, scheduling presentations and posting papers.”⁴⁵ He goes on to show that OCS uses OAI protocol in indexing papers, providing valuable resources which is made available online before and after the conference. Work on OCS is still in progress with plans for the inclusion of other conference proceedings to the package. OCS has been in use internationally for the past two years.⁴⁶

The functions of OCS is summarized as follows:

- Create a conference web site
- Compose and send a call for papers
- Electronically accept paper and abstract submissions
- Allow authors to edit their work
- Post conference proceedings and papers in a searchable format
- Post original data sets
- Register participants
- Integrate post-conference online discussions

The benefits of OCS include the ability to post conference papers and resources in a standardized OAI format which makes it easy to link up with other Open Archives databases. OCS makes it easy to make conference information available and increases the scholarly and public value because posted papers become part of a database of a universal research library, making organization and access of online research easy.⁴⁷

⁴⁵ Willinsky, J. (2003). Report on the NLM/AMPA Archiving Forum. *D-Lib Magazine*, 9, 4. Retrieved July 17, 2005, from <http://www.dlib.org/dlib/april03/04inbrief.html>.

⁴⁶ Ibid

⁴⁷ The Public Knowledge Project, (n.d.). What is the public knowledge project? Retrieved July 16, 2005, from About the Public Knowledge Project web site: <http://pkp.ubc.ca/about/what.html>.

2.6 Open Journal System

The Open Journal System (OJS) was first released in 2002 by Public Knowledge Project at the University of British Columbia. The development of OJS was made possible through the financial support of the Social Sciences and Humanities Research Council of Canada, the Max Bell Foundation, the Pacific Press Endowment and the MacArthur Foundation.⁴⁸ Canadian Centre for Studies in Publishing of Simon Fraser University has entered into partnership with the PKP of UBC to oversee the continuous development of OJS.⁴⁹

As a result of what has been perceived as crisis in scholarly publishing, and the widespread dissatisfaction with the current scholarly communication model, many online publishing tools are being developed to give open access to research. The Open Journal System is one of those online tools that support “open access peer-reviewed publishing.”⁵⁰ From conference papers, journal articles and other related documents, Prof John Willinsky describes the functionality of OJS in the following paragraphs. “Open Journal System offers precise metadata indexing of publishing materials on a global scale through the use of OAI standards. A highly flexible editor-operated journal management and publishing system that can be downloaded for free and installed on a local web server.”⁵¹ Some distinctive features of OJS that make it a practical alternative to printed subscription-based journal is that OJS has been designed to help enhance high quality

⁴⁸ <http://www.pkp.ubc.ca/>

⁴⁹ SFU library & CCSP and UBC Public Knowledge Project form partnership. (2005). Retrieved June 17, 2005, from News and Events web site: <http://www.lib.sfu.ca/whatsnew/announcement.htm?id=252>

⁵⁰ <http://www.pkp.ubc.ca/>

⁵¹ Public Knowledge Project, (n.d.). What is the Open Journal Systems? Retrieved July 12, 2005, from Open Journal Systems (Overview) <http://pkp.sfu.ca/ojs/>.

standard for journal publishing, reduce cost, and provide efficient editorial processes.⁵²

Prof. Willinsky emphasizes this by saying, “OJS is made freely available to journals worldwide for the express purpose of making open access publishing a viable option for more journals, as open access publishing can increase a journal's readership as well as its contribution to the public good on a global scale.”⁵³ Table 1 on the following page summarizes the efficiencies that OJS helps to achieve.

⁵² Willinsky J. Can a Portable, Open Source Journal Management/Publishing system improve the scholarly and public quality of research? A workshop paper

⁵³ Ibid

Table 1 Savings with automated e-journal management systems, compared to traditional print journals

Stage	Agent	Automated and Assisted Journal Management	Savings
Submission	Author	a) Online upload in variety of formats, including “camera ready” tables and figures, as well as room for appendices, data, instruments, etc. b) Templates to assist authors indexing their papers by Asking them to provide appropriate metadata.	Clerical time Copying Postage Courier
Submission	Editor	a) Author notified of receipt of submission b) Queuing for review	Stationary Editor time
Peer Review	Editor	a) Maintain list of reviewers, interests, record b) Contact selected reviewers with abstracts d) Provide access to paper and reminders e) Tracking review progress (viewable by author)	
Peer Review	Reviewer	Management of review comments and marked copy	
Editor Review	Editor	Author notification, with reviews (complete or excerpts) and judgment	
Revisions	Editor	a) Ready back and forth with manuscript. b) Re-circulate paper to reviewers, if needed.	
Editing	Copyeditor Proofreader	a) Editor & author ready access to manuscript, re-queries. b) Preparation of manuscript for publishing.	
Layout	Editor	Revert to commercial software, such as MS Word, to convert word processed document to HTML. Including text, footnotes, references, appendices.	Printing Services Time
Publishing	Editor	a) Ability to include and order articles. b) Volume and number assignment.	
Distribution	Editor	Automated, e-mail notification of contents for readers.	Postage Packaging Time
Indexing	Author/ Reader	a) Automated harvesting of each article’s author-fed metadata by Open Archives Initiative engine creating a distributed global index. b) Citation indexes and tracking with hyperlinking of citations to sources and of article to materials in related databases, using metadata.	Indexing Services (purchased separately by library) Time
Interchange	Readers Authors	Posting of comments (with editor as moderator) for continuing open peer review, as well as online forum for continuing exchange on range of themes.	Not otherwise available
Archiving	Host library &/or PKP	Server maintenance and backup, software upgrading/migration	Cataloguing Storage

Source: Reproduced with kind permission from the PKP

According to Willinsky, while the system takes a little effort to learn, the use of OJS requires little or no technical or programming expertise on the part of the journal authors, editors or management staff.⁵⁴ “Using OJS’s templates, editors can configure the system

⁵⁴ Willinsky J. Can a Portable, Open Source Journal Management/Publishing system improves the scholarly and public quality of research? A workshop paper

to match their current policies and practices, as well as post those policies for peer reviewing, journal sections, publishing patterns and other features.”⁵⁵

OJS also allows authors to submit articles using the journal's web site. They can upload their papers, data sets, research instruments and source documents in different file format, i.e. Microsoft Word or WordPerfect. Authors are helped to index their papers and data to ensure the widest possible readership of their work.

As OJS allows any number of individual and distinct journal web sites to be generated, new journals can be created and managed at any time. The OJS site administrator gives a journal access to the site by assigning the journal its own URL that is based on a certain path name. An example is <http://www.cjc-online.ca>, which belongs to the Canadian Journal of Communication. Journals that are in the process of going online can be hidden from the main site until the journal is ready to go live.

“OJS will appeal to international users because it is designed to be a multilingual system and supports wide variety of languages to be hosted under a single site. The site administrator can specify the site default language and install additional locales (locales are the base files for language localization) as they become available, to make other languages available for use by journals.”⁵⁶

⁵⁵ Ibid

⁵⁶ <http://pkp.sfu.ca/ojs/conferencedemo/index.php/demojournal/help/view/site/topic/000002>

OJS covers all aspects of online journal publishing, from setting up the journal web site, article submission, peer review, editing, publishing, archiving and indexing of the journal. OJS also helps to manage the human aspects of organizing a journal, including keeping track of the work of editors, reviewers and authors, notifying readers assisting with the correspondence.⁵⁷

Although the main goal of OJS is to provide free open access electronic journals, OJS also supports subscription journals by providing a subscription management component for the journal's online content. This functionality for subscription-based journals was developed by the Canadian Centre for Studies in Publishing.⁵⁸ The subscriptions can be managed for individual users, organizations or institutions. A subscription journal can also offer free access to its back issues through a form of delayed open access. “In the *issue management* section of the journal, the editor can allow readers free access to the content of an issue or individual article from zero to 24 months after the initial publication and availability to subscribers.”⁵⁹

2.7 Reading Tools

Reading Tools (RT) is an online device intended to help readers of research to establish a direct connection between the study they are consulting with a wide set of related resources to provide a context for interpreting and situating the study. Both the OCS and OJS include a RT aimed at helping the reader add value and quality to the scholarly

⁵⁷ Willinsky, J. (2005). Open journal systems: an example of open source software for journal management and publishing. Retrieved July 17, 2005, from Publications web site: <http://www.pkp.ubc.ca/publications/index.html>.

⁵⁸ This statement is ascribed to Dr. Roland Lorimer, head of the Canadian Center for Studies in Publishing

⁵⁹ Willinsky, J. (2005). Open journal systems: an example of open source software for journal management and publishing. Retrieved July 17, 2005, from Publications web site: <http://www.pkp.ubc.ca/publications/index.html>.

research.⁶⁰ Prof John Willinsky, whose brainchild is the Public Knowledge project, gives a good description of the usefulness of the Reading Tools in the following paragraphs.

Anytime an article or paper is published in OCS or OJS, the paper comes with RT. The RT provides detail information about the paper – the date it was published, format, content, and the author’s background, where the article can be found and who can access it.⁶¹ This metadata is important because it helps potential users to find needed information and determine whether an article will meet their needs before they spend the time and money to obtain it.

The RT, which looks like a traditional bookmark (see fig.1 on the next page) is found at the right side of the web page of every published article and “has 10-15 links depending on the subject area of the research.”⁶² Authors are required during the submission of papers to provide keywords for their papers. The RT relies on these keywords to search a number of open access research databases to provide related and relevant resources to the reader. By this readers are able to evaluate the position of the paper in relation to other works.⁶³ According to Willinsky, “the working hypothesis is that each article will have a set of explicitly labeled context clues that will extend every reader’s ability to find meaning and value in reading scholarly research”⁶⁴

⁶⁰ <http://pkp.ubc.ca/demos/rsttour/index.html>

⁶¹ Willinsky, J. (2005). Open journal systems: an example of open source software for journal management and publishing. Retrieved July 17, 2005, from Publications web site: <http://www.pkp.ubc.ca/publications/index.html>.

⁶² Ibid

⁶³ Ibid

⁶⁴ Ibid

Figure 1 Research Support Tool integrated into Open Journal System

The screenshot displays a journal page with a navigation bar at the top containing links for Home, Current, Archives, About, Login, Notify, Contact, Search, and a language dropdown set to English. Below the navigation bar is a breadcrumb trail: "Publica > Vol. 1, No. 2 (2002)". The main content area features the article title "Understanding in the Absence of Meaning: Coming of Age Narratives of the Holocaust" by Theresa Rogers, University of British Columbia. The article includes an abstract and an introduction. On the right side of the page, there is a vertical sidebar labeled "Research Support Tool" which is currently collapsed, indicated by a right-pointing arrow. The tool's content is hidden behind a black bar.

Home | Current | Archives | About | Login | Notify | Contact | Search English

Publica > Vol. 1, No. 2 (2002)

**Understanding in the Absence of Meaning:
Coming of Age Narratives of the Holocaust**

Theresa Rogers, *University of British Columbia*

Abstract
This working paper explores recent debates about teaching the Holocaust through literary representations written for and read by adolescents, asking how we can witness this event without idealizing or mythologizing victims and without necessarily ascribing coherent meaning to their experiences. Holocaust memoirs, such as the *Diary of a Young Girl*, by Anne Frank and *Night* by Elie Wiesel, are now being supplemented by more recent works that employ different narrative strategies and call for new forms of witnessing in classrooms and for new ways of reading the Holocaust. A final version of this paper was published in *The New Advocate*, Volume 15, Number 4, and is printed here with the permission of Christopher-Gordon Publishers, Inc.

Introduction
In recent years there has been a resurgence of interest in how young adults can witness traumatic historical events, such as the Holocaust, through memoir and fiction (e.g. Baer, 2000; Britzman, 2000; Kertzer, 1999; Ozick, 2000; Russell, 1997). This critical work has begun to ask more difficult questions about how the Holocaust can be rendered for younger readers without mythologizing or idealizing its victims and without necessarily ascribing coherent meaning(s) to their experiences particularly when those victims came of age in the context of deportation and concentration camps during World War II.

Research Support Tool

Source: Reproduced with kind permission from the PKP

In this report, a brief explanation is given to some of the links on the navigation bar. The explanation is based on Willinsky's article titled "Open journal systems: an example of open source software for journal management and publishing"⁶⁵

⁶⁵ Ibid.

2.7.1 Links on Navigation Bar

Refereed/Non refereed: This indicates to the reader whether the paper is a peered review or invited conference paper. It is hyperlinked to a page that explains what form of peer-review process was used – blinded peer review or nonblinded peer review.

View the item's metadata: A click on this link reveals the study's indexing information, including as discussed above, its discipline, keywords, coverage, method, and sponsor.

To look up a word: This helps the reader find the meaning of words using one or two online dictionary service.

Author's Other Works, Research Studies, and Online Forums. Clicking on any one of these will link the reader to other open access databases.

Research Studies, Discussions and Forums: With this link, “the relevant open access databases that we have identified in advance are searched using the first two keywords provided by the author of the article to ensure relevant materials come up.”⁶⁶

Press and Media Reports and Government Web Sites: These links help the reader explore other “relevant public materials that give a contemporary and applied context to the work being read.”⁶⁷

⁶⁶ Ibid

⁶⁷ Ibid

The birth of the Public Knowledge Project has resulted in remarkable developments that have the potential to impact significantly on access to scholarship, wider readership of research, and the creation and distribution and consumption of knowledge. Also the OJS, which is a recent development, has the potential to positively impact the scholarly and public quality of academic research. In the following chapter, this report will examine the application of Open Journal System to Journal Publishing in some Developing Countries.

CHAPTER THREE

Application of Open Journal System to Journal Publishing in Developing Countries

3.1 Introduction

In 1999 the World Bank published a report on *Knowledge for Development*.⁶⁸ Since that time, international development agencies, as well as national governments have made it a priority to narrow the knowledge gap between developed and developing countries and within country's own borders. The development of infrastructure and systems that will increase the global circulation of knowledge and contribute to the development of local and national research capacities in developing countries is seen as key to achieving this goal. One of such system is the Open Journal Systems (OJS).

This chapter examines and describes the adaptation of the OJS to the Portuguese language and its application in the administration of the editorial and publishing processes of the journal *Ciência da Informação* (CDI) by the Brazil Institute for Information in Science and Technology (IBICT). The analysis resulted in the development of the Electronic System for Journal Publishing (Sistema Eletrônico de Editoração de Revistas - SEER) which has become part of the Brazil Digital Library (BDB) project of IBICT. The chapter also examines the Africa Journal OnLine (AJOL), an initiative of the International Network for the Availability of Scientific Publications

⁶⁸ World Bank (1999) *Knowledge for Development: World Development Report 1998/99*. New York, Oxford University Press

(INASP). The INASP journal publishing system (used for AJOL) is based on the Public Knowledge Project's Open Journal System (OJS). AJOL now includes 226 journals from 22 African countries⁶⁹. Some of the efforts by other developing countries in the adaptation of the OJS to the administration of the editorial process of electronic journals are also highlighted.

3.2 OJS and the Journal *Ciência da Informação*

According to a conference report on *Building Digital Bridges* presented by Fonseca, R. M., Arellano, M. A., & Meinert, C. R (2004), the Journal *Ciência da Informação* (CDI) has been published without interruption since 1972 by IBICT. In 1996 the journal began publishing an on-line version but the editorial process was manual, (with the exception of using email).⁷⁰ According to the paper, before adopting OJS, an interface for the electronic format and a small bibliographic databank for the digitized numbers were established called the “CIONLINE”.⁷¹ However, this interface was not updated, allowing no advanced search and searching was very slow. Once the journal learned of OJS it saw the possibility of moving from a semi-automated state to full automation.

Fonseca, R. et al. (2004) describe further how in 2003, OJS was tested by using it to create an entire digital version of the latest issue of the journal *Ciência da Informação*. The exercise began with the installation of version 1.1.5 of OJS software on the Institute's server to which the OJS development team was given access. After the

⁶⁹ African Journal Online.. (n.d.). *Home Page*. Retrieved July 27, 2005, from <http://www.ajol.info/index.php?tran=0>

⁷⁰ Fonseca, R. M., Arellano, M. A., & Meinert, C. R. (2004). *Building Digital Bridges: Electronic Journal Publishing System – SEER*. Proceedings of the 8th ICC/IFIP International Conference on Electronic Publishing, University of Brasília, Brazil. Retrieved July 27, 2005, from <http://portal.cid.unb.br/elpub/viewabstract.php?id=36>

⁷¹ Ibid

installation, translation of the main screen, and correction of some tags, symbols and uppercases, the design of the pages was defined by incorporating logos, covers and the editorial language. All the layout options available in OJS were tested offline from the first draft papers to their final output in HTML and PDF formats.⁷²

3.2.1 The Setup

The *Building Digital Bridges* report shows that the setup of the journal web site was made by using the following features of the OJS system: “principal contact for the journal; technical contact; scope and focus statement for the journal; journal sections and policies; author guidelines; and indexing elements. Other elements (also features of OJS) were: peer-review policy; author submission guidelines and editorial board/review board.”⁷³

The journal’s editorial policy was adapted to the OJS to allow for an automated review process, preliminary review of papers and editorial decisions regarding which submissions to publish in the journal. Following the developer’s instructions, a few changes were made to the system so as to remain true to the original CDI editorial process.

⁷² Ibid

⁷³ Fonseca, R. M., et al.(2004). Building Digital Bridges: Electronic Journal Publishing System – SEER. Proceedings of the 8th ICC/IFIP International Conference on Electronic Publishing, University of Brasília, Brazil. Retrieved July 27, 2005, from <http://portal.cid.unb.br/elpub/viewabstract.php?id=36>

The following are the editorial criteria that were altered in the system:

- “Definition of all online tasks to be appointed to editorial team members.”⁷⁴ The description of the responsibilities associated with a given job and the assignment of these responsibilities to members of the editorial team.
- “Submission and forwarding method of papers.”⁷⁵ The journal presents its policies, procedures and other relevant material, with the intention of making potential authors know how to format and prepare a submission, as well as how to submit an article to the journal. Detailed technical guidelines for the author with reference to file size, image formats, hyperlinks and copyright were outlined.
- Customization of e-mail messages.⁷⁶ OJS uses email to coordinate the functioning of the editorial and publishing processes. All of the prepared emails have default versions. The default emails to be sent to the appropriate recipient(s) in advance, such as, reviewers and copy editors were edited to suit CDI.
- Number of reviewers per article (two reviewers and six members of the editorial committee)⁷⁷
- Double blind review.⁷⁸ The names of both the author and reviewer are omitted.
- Complete record of all transactions that occur for each paper submitted⁷⁹
- Offer of an alert service to readers of table of contents of each issue.⁸⁰ How registered readers were to receive notification with the publication of each issue of the journal.

With OJS in place, tested, and adapted, the editorial team began to enroll reviewers and authors from an existing database into the new system. And just as the adoption of emerging technologies is a constant challenge for organization, the enrollment posed a lot

⁷⁴ Ibid

⁷⁵ Ibid

⁷⁶ Ibid

⁷⁷ Ibid

⁷⁹ Ibid

⁷⁹ Ibid

⁸⁰ Ibid

of challenges to OJS and the research team. From Fonseca et al., (2004) the OJS did not allow the inclusion of two types of reviewers previously existent in CDI External Consultant (external reviewer) and member of the Editorial Committee (internal reviewer).⁸¹ Another operation found in CDI that OJS did not cater for was to allow a reviewer to make more than one review per submission. For example, in the paper-based version of CDI, a member of the editorial committee may review an article and later in the process define which articles will be in the journal's issue⁸². To solve these problems, the system was modified to accommodate both the External Consultant and members of the Editorial Committee and allowed for the dual responsibilities of the editorial committee.

The next step was for the co-ordinator of the editorial team to feed original articles into the system. Thirty-two papers with their respective metadata were submitted. Of the 32 articles submitted, the reviewers recommended 24 and 16 were approved by the editorial committee.

The final stage in the exercise was to take each submission through the editorial and publishing processes. Copyediting, however, was excluded from the testing stage because the copyediting process was an in-house job at the time of the testing. The three types of submissions tested were articles, experience reports and editorials. These formed the table of contents of the first version of the digital journal in Sistema Eletrônico de Editoração de Revistas (SEER).

⁸¹ Ibid

⁸² Ibid

3.2.2. Customization of OJS

Some other major changes were made to OJS to meet SEER requirements. For example in print journals, the structure of the written reports that reviewers produce depends on how the editorial board questions its reviewers. Some editorial boards guide the comments of their reviewers with sheets of pre-written answers or questions. “These questions are designed to evoke answers that inform the press of accuracy, originality and pertinence of the manuscript to its field of study, or of how the manuscript could be improved to make the text more accurate.”⁸³ In OJS, provision is not made for a standard list of questions. Since these were important components in the editorial practice of the journal *Ciência da Informação*, the OJS was customized to automatically require that all reviewers respond to a list of questions.

Most of the effort in customizations made to the original OJS system were spent in translating the language files into Portuguese, changing the installation code to allow for the correct choice of language and making the translation to other languages easier. “To accomplish this, an external language file that lists languages with a simpler structure for non-programmers was created to simplify the translation.”⁸⁴ Some corrections to the original code were made to correctly print variables in Portuguese where the order in English was inverted. A few more variables had to be created and more changes were

⁸³ Cooper, Deborah (2003), The Scholarly Review Process at the University of Toronto Press. Unpublished project report, Simon Fraser University, Vancouver

⁸⁴ Fonseca, R. M., et al. (2004). Building Digital Bridges: Electronic Journal Publishing System – SEER. Proceedings of the 8th ICC/IFIP International Conference on Electronic Publishing. University of Brasília, Brazil. Retrieved July 27, 2005, from <http://portal.cid.unb.br/elpub/viewabstract.php?id=36>

also made to the system code to detect the current language. Further changes to OJS were:⁸⁵

- Inclusion of code to print existing variables in the language files.
- Correction and standardization of help screens to show scrollbars. This is because Portuguese text is longer and exceeds the size defined.
- Creation of a standard masthead and images for system distribution in Portuguese.
- Change in code to hide name of the authors from the reviewers.
- Recreation of images in Portuguese for the article submission steps.
- Substitution of the original ISO 8859-1 character set to UTF-8. This change was necessary because in a few HTML pages in the system, the existing variables in the translation file were not being used, having instead a hard-coded character set. This caused an error in the character set of the web browser, improper display of accented characters used in Portuguese.

OJS offers users a number of features designed to improve users experience with research and scholarship, however not all these functions were used during the testing of CDI.

Some of the functions that were not analyzed because they were not part of the editorial process of CDI were: forum of discussion, reader comments, observance of assigned task deadlines, entrusted articles, reviewer committee, filing and long-term preservation of digital documents.

The customization of OJS has resulted in the Electronic Journal Publishing System (SEER), the Portuguese version of OJS, which has become part of the Brazilian Digital Library project of IBICT. Today, a number of universities and other journal publishers

⁸⁵ Ibid

are training their staff to make use of SEER in order to make their journals more widely accessible.⁸⁶

3.2.3 Evaluation

In a report *Building Digital Bridges*, the old electronic version of CDI did not have a means to retrieve its content in a way that met international standards. OJS components, the Research Support Tool (RT) and the internal system of a simple or advanced search, including an index of authors brought other perspectives to CDI, especially in the retrieval of the journal's contents that did meet international standards. It is hoped that OJS-RT will provide a new reading experience for laypersons and experts.⁸⁷

Helio Kuramoto, Coordinator de Projetos Especiais of the Brazil Institute for Information in Science and Technology says, "I think this (referring to OJS) will facilitate the implementation of a Digital Library of papers from reviews and more than this, this action will save the Brazilian journals, because many journals don't have money to survive"⁸⁸

3.3 OJS and INASP (AJOL)

The International Network for the Availability of Scientific Publications (INASP) is the brainchild of the International Council for Science (ICSU). Established in 1992, INASP has the objective "to provide support for networking between information providers and

⁸⁶ Leslie C, Sely C. (2005) Participation in the global knowledge commons: challenges and opportunities for research dissemination in developing countries. *New Library World*, 106 (3-4): pp. 141-163.

⁸⁷ Fonseca, R. M., et al. (2004). *Building Digital Bridges: Electronic Journal Publishing System – SEER*. Proceedings of the 8th ICC/IFIP International Conference on Electronic Publishing. University of Brasília, Brazil. Retrieved July 27, 2005, from <http://portal.cid.unb.br/elpub/viewabstract.php?id=36>

⁸⁸ http://www.pkp.ubc.ca/ojs/ojs_comments.html

users and particularly to bridge the information divide between the developed and developing world.”⁸⁹ Initially registered in 2003 in the United Kingdom as a company limited by guarantee and in 2004 registered as charity organization, INASP is being transferred in 2005 to the National Inquiry Service Centre (NISC) South Africa, to be managed in Africa.⁹⁰

One of the goals of INASP is developing and promoting capacity building in the research sector, especially in the developing countries by strengthening the production, access and dissemination of information and knowledge “necessary for sustainable and equitable development.”⁹¹

To achieve this goal *African Journals OnLine* (AJOL) was launched in 1998. According to Pippa Smart, AJOL began with only ten journals, displaying their table of content and contact information but as mid 2005 AJOL now includes 226 journals from 22 African countries.⁹² It is not the goal of AJOL to publish journal articles but rather to publish a web site of journal homepages with information about editorial boards, guidelines for authors, and tables of contents, titles, abstracts and so forth. This is accessible to the public at no cost.

⁸⁹ Smart P (2004) International Network for the Availability of Scientific Publications: Facilitating Scientific Publishing in Developing Countries. *PLoS Biol* 2(11): e326

⁹⁰ Cumming, S. (2005). Africa Journal Online. *International Network for the Availability*, (9), Retrieved July 2005, from <http://www.inasp.info/info/index.shtml>

⁹¹ Smart P., (2004) International Network for the Availability of Scientific Publications: Facilitating Scientific Publishing in Developing Countries. *PLoS Biol* 2(11): e326

⁹² Ibid

One relevant link between AJOL and this report is the fact that the AJOL database was developed using the open-source journal management software - Open Journal Systems (OJS).

As in the case of the CDI, the OJS system was adapted from the original model to accommodate the different requirements of AJOL. AJOL-OJS has been designed in such a way that access can be restricted to abstract only. Full text articles are made available upon request. In addition, “a system has been added for handling orders, which allows readers from certain countries to be exempted from payment. Journals that may not want to make their publications free globally are still encouraged to join the system and they can allow some content to be distributed freely under specific circumstances.”⁹³

According to the INASP web site, “OJS is designed for the highly devolved content creation of one journal per system. It allows for the complicated workflow involved in a number of authors submitting articles to an editorial review process prior to final publication.” However, “the INASP-OJS system is customized to allow a parent organization to maintain an online repository of a number of journals devolving maintenance of subsets of journals to journal administrators.”⁹⁴

“Finally, there are a number of extra screens for managing the new user types, orders and gathering statistical information.”⁹⁵

⁹³ http://www.inasp.info/ajol/software_download.shtml

⁹⁴ http://www.inasp.info/ajol/software_download.shtml

⁹⁵ http://www.inasp.info/ajol/software_download.shtml

The INASP system differs technically from the parent OJS only in terms of the PHP scripts (PHP is a server-side, HTML embedded scripting language used to create dynamic web content) and SQL schema (SQL schema consists of tables that contain the core information needed to manage all repository objects, relationships and collections). “All the system requirements are largely the same, with the single exception of the optional credit-card payment interface for the system. The system is not designed to handle finance directly but instead uses the PHP curl module to forward transactions.”⁹⁶

3.3.1 Evaluation

In reflecting on the development of AJOL after almost seven years of existence, Sioux Cumming has this to say:

AJOL has continued to grow and there are now more than 1,500 tables of contents and over 18,000 articles on the site and the average monthly page requests is increasing dramatically – from 7,000 in May 2004 to almost 30,000 by May 2005. More than 3,000 people registered to use the service in 2005 – not only from Africa, but from all around the world – and of these almost half have signed up to receive an email alert when new issues are published.

He states further:

The number of document deliveries also increased dramatically during 2004 and it looks as if this upward trend will continue into 2005 with an expectation of providing almost 3000 articles this year. Another new development introduced during the last year was the ability of individual journals to load their own content – including full text – and treat their space on AJOL as their own publication site. Over 17 journals are now managing their own space on AJOL, and there is already one journal in full text, and others experimenting with selected articles and issues.

AJOL has become firmly established, and new journals apply to join on a daily basis. It is an opportune time for new management to take the initiative over, and for AJOL to move to full African ownership. Although we are sorry to lose our daily involvement with this project,

⁹⁶ http://www.inasp.info/ajol/software_download.shtml

we know it will continue to be a successful tool for African journals, and we will certainly stay involved and committed to its success.⁹⁷

From the above statements, one can conclude that AJOL now receives more international submissions and has increasing contact with international researchers. The Usage statistics also show that AJOL has succeeded in raising the visibility of African journals. The web server statistics are encouraging. This report underscores the very spirit behind the creation of the OJS: “the use of online infrastructure and knowledge management strategies to improve both the scholarly quality and public accessibility and coherence of this body of knowledge in a sustainable and globally accessible form.”⁹⁸ This online tool, has achieved its objectives in providing additional visibility of African research in the international academic research community.

Open access resources such as OJS are of great importance to all researchers and scholars but particularly for those in developing nations. Free access to research from the North has inestimable benefits for local research. And more importantly is the opportunity for researchers in developing countries to contribute to the global knowledge base, which will contribute to reducing the knowledge gap between the South-North. Open access resources create avenues for “distribution of local research in a way that is highly visible and without the difficulties that sometimes are met in publishing in journals”.⁹⁹

⁹⁷ Cumming, S. (2005). African journals online (ajol). *INASP Newsletter*. Retrieved July 01, 2005, from <http://www.inasp.info/newslet/jul05.shtml>

⁹⁸ What Is the Public Knowledge Project? (<http://www.pkp.ubc.ca/about/what.html>)

⁹⁹ Chan, L. & Kirsop, B. (2001). Open Archiving Opportunities for Developing Countries: Towards equitable distribution of global knowledge. *Ariadne*, (30), Retrieved on June 30, 2005 from <http://www.ariadne.ac.uk/issue30/oai-chan/intro.html>

3.4 OJS and the National Centre for Science Information

In India, the National Centre for Science Information (NCSI) has initiated a research project to assess and refine an online indexing system that will improve the accessibility of scientific literature published in Indian journals. This proposed collaboration aims at developing database using the open-source journal management software - Open Journal System. According to NCSI, “this project will seek to demonstrate to editors and others involved in scholarly publishing a variety of ways of adapting OJS and related systems to indexing Indian scholarly journals, as well as conference papers, e-print archives, theses, etc”.¹⁰⁰

The NCSI presents the focus of the project as follows:¹⁰¹

- The OJS system will be used for indexing selective content from the eleven journals of the Indian Academy of Science (IAS), to demonstrate a more powerful metadata-driven (field-based) search interface compared to the current system which has a very simple table of contents page indexing system.
- PKP's OAI harvester will be used for harvesting and setting up a cross-journal search system for the 11 Indian Academy of Sciences journals and demonstrate single interface search system for content of all 11 journals
- The OJS will be used for managing journal publishing workflow for the *Journal of Indian Institute of Science* and also for indexing papers submitted to this journal
- PKP's OAI harvester will also be used for demonstrating an “Indian Indexing Portal” by harvesting and indexing content from selective OAI-compliant repositories like e-print archives and theses, operational in India.

¹⁰⁰ National Centre for Science Information (NCSI). (2004). *Scientific Journal Publishing in India: Indexing and Online Management. (NSCI Project Proposal)*. Retrieved July 10, 2005, from http://web.idrc.ca/panasia/ev-61422-201-1-DO_TOPIC.html

¹⁰¹ Ibid

This project promises many benefits to researchers in India and abroad, as well as to journal publishers in India. These benefits include easy access to research publications, improved visibility greater impact of their research and opportunities for expanding research contacts and collaboration. Indian journal publishers will have the opportunity to launch new online journals in topical research areas (e.g., agriculture and medicine). And there will be improved visibility of their journals and also the impact of their journals promises to be greater.

3.5 OJS and the National University of Singapore

The University Press of the National University of Singapore (NUS) uses OJS through the *Singapore E-Press* to provide supplemental materials to books published by Singapore University Press and to make materials related to scholarly communications and academic publishing in Asia available to a much wider audience.¹⁰²

Also in Singapore, the National Museum is utilizing OJS to publish *The Heritage Journal*. *The Heritage Journal* “publishes research articles on the history, culture and the art practices of Asia, with an emphasis on material culture, cultural resource management and museum practice.”¹⁰³ The web site of *The Heritage Journal* declares special focus on subjects relevant to Singapore and its surrounding region with the goal of fostering research in areas of professional museum practice in the region.¹⁰⁴

¹⁰² <http://epress.nus.edu.sg/>

¹⁰³ <http://epress.nus.edu.sg/nhb/index.php>

¹⁰⁴ Ibid

Both the *NUS Journal* and *The Heritage Journal* provide access to all of their contents based on the principle that making research available to the public at no cost supports a greater global exchange of knowledge. Both journals acknowledge that free access to scholarship is bound “to increased readership and increased citation of authors’ works.”¹⁰⁵

In other countries (i.e., Argentina, Spain and Turkey) open-source software developers are translating OJS into their national languages. These efforts demonstrate how scholars and scientists in the developing world are determined to take advantage of open access Initiatives to increase access to research and scholarship and to become participants in the creation of global knowledge.

This report has so far covered institutions/organizations that have adopted OJS. It is possible that others may be using OJS that have not been covered by this report. Since OJS is open-source software, it is difficult to keep a complete record of users. Open source software makes the source code available to the general public for use and/or modification from its original design free of charge and keeping track of users can be difficult.

As demonstrated in this chapter, OJS is making significant inroads into scientific publishing in developing countries. OJS is an available means to distribute local research in a way that is highly visible and without the difficulties that sometimes are met in traditional journal publishing. OJS has the potential to increase global circulation of

¹⁰⁵ <http://epress.nus.edu.sg/nhb/index.php>

knowledge and contribute to the development of local and national research capacities supplying the tools needed to achieve these goals. However, developing countries have many challenges to overcome before being able to take full advantage of this new online publishing model. The next chapter of this report examines some of these challenges and makes some recommendations where appropriate.

CHAPTER FOUR

Challenges and Opportunities for the Developing Countries

The fundamental principles of the open access movement are that scientific knowledge should be recognized as a global public good and a strong force for sustainable development that requires the broadest level of dissemination. Proponents of open access argue that open access journals have a larger potential audience than any subscriber journal can, even the most prestigious. John Willinsky, an open access enthusiast opines that, “in every field open access journals are making research available to a much wider range of readers than print and subscription models have been able to achieve.” To him, the open access publishing model is destined to “have a profound impact on the state of knowledge, as that state depends on the extent of its circulation and exchange.”¹⁰⁶

Unfortunately, the current system of scholarly publishing runs contrary to these potentialities. Too often, research funded by the taxpayer, written by authors, vetted by editors who donate their labour at no cost, remains locked away behind price and permission barriers thus limiting access to even the most resourced institutions.¹⁰⁷ Peter Suber, an outspoken advocate for open access creates a dispiriting picture of the effect of the current system of scholarly publishing:

¹⁰⁶ Willinsky, J. (2003) “The Nine Flavours of Open Access Scholarly Publishing”, *Journal of Postgraduate Medicine*, **49** (3) p263-267

¹⁰⁷ Suber P, (2003) “Removing the Barriers to Research: An Introduction to Open Access for Librarians” *College & Research Libraries News*, **64** p. 92-94, 113 (<http://www.earlham.edu/~peters/writing/acrl.htm>)

The serials pricing crisis is now in its fourth decade. We're long past the point of damage control and into the era of damage. Prices limit access and intolerable prices limit access intolerably. Every research institution in the world suffers from intolerable access limitations, no matter how wealthy. Not only must libraries cope by canceling subscriptions and cutting into their book budgets, but researchers must also do without access to some of the journals critical to their research.¹⁰⁸

This description is not different from the situation that prevails in developing countries.

Subscriptions to journals in many developing countries are severely wanting. Subbiah Arunachalam, an information consultant described how many libraries in Sub-Saharan Africa have not subscribed to any journals for years.¹⁰⁹ They simply cannot afford it. For African journal publishers, subscriptions to substantial number of journals have been cancelled resulting in shorter print runs. And many of journals are languishing in mediocrity and obscurity because they are not known outside their institutions or region.

The good news is that the serial crisis in scientific publishing has given rise to the open access movement (and the development of open access systems) among academics and librarians. The goal of these systems, such as the Open Journal System, is not to undermine expensive journal production by publishers, but to provide an accessible alternative and to take full advantage of new communication technologies, by delivering wider and easier access for readers, larger audiences and impact for authors.

As stated earlier, the capacity of universities in developing countries to produce research is hampered by resource constraints. However, open access systems can make journals

¹⁰⁸ Ibid

¹⁰⁹ Arunachalam S, (2003) "Information for Research in Developing Countries: Information Technology – Friend or Foe?" *BULLETIN of the American Society for Information Science and Technology* **29**, (5)

available to the academic communities and libraries almost for free. Researchers community can have easy access to the latest research for both teaching and research purposes, including journals to which libraries currently have limited or no access.

Time and time again various observers have emphasized that the knowledge gap is widening and, due to a lack of access to reliable research information, developing nations find themselves in a state of knowledge imperialism.¹¹⁰ The Open Access Initiative (OAI) can help to address knowledge imperialism. Publishing through an open access system like OJS enables scholars in developing countries to increase their exposure to the global knowledge base, which helps to reciprocate the flow of knowledge between the North and South, reduce the South to North knowledge gap and remove the high wall of professional isolation that researchers in developing countries face. It also facilitates the consideration of third-world perspectives when dealing with issues affecting developing countries.

More importantly, Africa has an enormous wealth of indigenous knowledge that is often not accessible to those outside the continent, a situation that contributes to the African voice being heard less in world affairs. Open access journals have the potential to give visibility to knowledge produced on the continent. Open access journals for developing countries can be more easily accessed, abstracted and indexed, leading to a greater

¹¹⁰ De Beer, J. A. (2005). Open access scholarly communication in South Africa: a role for national information policy in the national system of innovation. Unpublished Master's dissertation, University of Stellenbosch 2005 Retrieved on July 19, 2005 from <http://eprints.rclis.org/archive/00003110/01/DeBeerJenniferThesisMPhil2004.pdf>.

discovery of indigenous contents. Open access is a great windfall to scientific research and a tremendous opportunity to researchers and the societies they represent.

It is difficult to make a direct comparison between open access publication and closed, subscription-based access. Also, open access is a relatively new concept. However, initial research findings give credence to the fact that open access allows greater dissemination and impact. A major research study, undertaken at NEC Research Institute in the USA by the scientist Steven Lawrence, analyzed 120,000 computer science articles cited in a standard disciplinary bibliography. When he looked at articles with successively higher levels of impact or citations, he found a successively higher percentage of open-access articles compared to print articles. He found the strength of this correlation steadily increased over a decade.¹¹¹ A more dramatic picture is given by Peter Suber when he compared downloads between a closed, subscription-based journals, Elsevier's *ScienceDirect Journal* and open access journal, *BioMedCentral*. The average number of downloads for articles in *ScienceDirect* over a year was 28, compared to an average number of 2,500 downloads over the same period from *BioMedCentral*. Simple arithmetic shows that, on average, an open access journal gets 89 times as much usage as a publication limited by subscription-based access.¹¹²

While the evidence is not entirely conclusive, open access appears to facilitate greater dissemination, usage and impact, at least in some instances. An open access journal immediately makes its contents available to the over 6.4 billion people worldwide who have access to the Internet.

¹¹¹ Lawrence S., (2001) "Online or Invisible?" *Nature*, Vol. 411, No. 6837, p. 521

¹¹² Suber P, (2003) *Removing the Barriers to Research: An Introduction to Open Access for Librarians*, *College & Research Libraries News*, 64 p. 92-94, 113 (<http://www.earlham.edu/~peters/writing/acrl.htm>)

4.1 Challenges

In spite of the many benefits that open access offers to both developed and developing nations in dealing with the many of problems that have plagued scholarly publishing, many scholars in developing nations are reluctant to accept this new technology because of the challenges in these developing economies. These convoluted, political, economic, social, infrastructural and technological challenges have had a debilitating effect on developing nations in keeping pace with the ever-changing communication technologies. This report will now examine a few of these problems.

4.1.1 Infrastructure/network

There have been numerous reports of the steady growth in the number of Internet service providers (ISP) and improvements in the telecommunication infrastructure in many developing countries. But it can be also argued that the minimal communication technology essential for open access journals and databases is lacking in many developing countries and this is a challenge to a successful implementation of online journal publishing developing countries. One of the world's leading analysts of Internet trends and statistics *Nua.com* puts the number of African Internet users to be about 6.31 million as of September 2002.¹¹³ The *African Internet*, a status report, estimates that about one in every 250 to 400 Africans currently uses the Internet, compared to a North American and European average of about one in every two person.¹¹⁴ Subscription charges for ISP are considerably higher in Africa than in the countries of the North.

¹¹³ http://www.nua.ie/surveys/how_many_online/index.html

¹¹⁴ Internet World Stats, an International website featuring up to date free worldwide Internet Usage, the Population Statistics and Market Data, for over 233 countries and world regions, puts Internet users in Africa (for December 2005) at 22,737,500 (<http://www.internetworldstats.com/stats1.htm>)

Currently, the cost of a local dial-up Internet account for 20 hours a month is approximately US\$60, which is higher than the average African's monthly salary.¹¹⁵ In some countries bandwidth for Internet access is very small and downloading large files, even those that do not contain graphics and images can be expensive and slow even if the information itself is free. Computer availability is also limited. Dr. K. Satyanarayana who is the Deputy Director General at the Indian Council of Medical Research, claim that there were about 6.4 million computers in India in 2002, compared to 30 million in the UK and 190 million in the US.¹¹⁶

Again, the state of other infrastructure for reliable and good communication systems is precarious. The 2002 World Telecommunication Development Report points out that most of the existing telecom infrastructure cannot reach the bulk of the population in most developing countries: 50 percent of the available lines are concentrated in the capital cities, where only about 10 percent of the population lives. In over 15 countries in Africa, including Cote d'Ivoire, Ghana and Uganda, over 70 percent of the telephone lines are still located in the country's largest city.¹¹⁷ Stable electrical power is one of the most important ingredients for an ISP to be able to provide a good and efficient service. Unfortunately, power supply is unreliable in many developing nations. Rationing power and power interruptions are common practices and many electronic devices have been damage by frequent power surges.

¹¹⁵ Ibid

¹¹⁶ Satyanarayana, K. (2004) Open access publication in biomedical research: implications for developing countries, [Editorial]. *Indian J Med*, pp 67-69

¹¹⁷ When the International Communication Union held its first World Telecommunication Development Conference, in Buenos Aires, Argentina, in 1994, there was only one fixed telephone line for every 25 developing country citizens and only around a third of the world had a mobile network or was connected to the Internet

These facts have important economic implications. Developing countries have less opportunity to take advantage of network economies and therefore less potential for electronic-database development. And so, considering poor connectivity compounded with the high cost of Internet facilities, minimal or no access to computer facilities, online publishing is not a quick fix, even though traditional scholarly publishing has become difficult to sustain. Although the open access journal allows for wider access to resources, it is not necessarily cheaper than a subscription to a print journal because the costs of electronic scholarly resources are still prohibitive due to dwindling resources and unfavorable currency exchange rate. Statistics reported by Stevan Harnad, (quoted in *Science and Development Network*) show that the United States already has 114 open access archives, the United Kingdom 51 and Germany 28, while in contrast India has only six and China four.¹¹⁸ So far the acceptance and use of open access journal and archiving in developing countries has been slow and many are concerned that there may be an initial widening of the digital divide.

Closely related to the connectivity problem is the concentration of database production in North America and Western Europe. “Over 94 percent of 12,111 databases traded worldwide, which are listed in the *Gale Directory of Databases*, are produced in North America and Western Europe,” states Clemente Forero-Pineda.¹¹⁹ The vast majority of archives, even those about Africans, in open access schemes, are based in the North.

¹¹⁸ <http://www.scidev.net/editorials/index.cfm?fuseaction=allitems>

¹¹⁹ Forero-Pineda, C., (2004). Forero-Pineda, C., (2004). Scientific Research, Information Flows, and the Impact of Database Protection on Developing Countries. In Esanu, J.M., and Paul F. Uhlir, P.F., (eds.), *Open access & the public domain in digital data & information for science: proceedings of an international symposium*. The National Academies Press, Washington, D.C.

Other databases for open access journals currently being experimented with in developing nations are hosted in the North with support from funding agencies from the North. The *African Journals OnLine* (AJOL) project is managed in the United Kingdom and the Botswana HIV Institute's database is housed at Harvard, as are others like Bioline International, AGORA, PERI and HINARI. Holding data in the North has the potential to perpetuate access and user problems in the South. The feeling is that Africans lack control over these databases and cannot guarantee their own access in the future.

It is not clear how developing countries will access research when donations and subsidies are no longer available. The fear is that for countries that are struggling to build research capacity, termination of electronic access would mean termination of local research because no hard copy or back-up files will exist in their local libraries. This possibility presents a strong case for the continuity of the print journal over the e-journal. With a physical collection, the libraries still have the paper journals, CD-ROMs and microfiche, etc, but with network databases, it is a case of "when the giver dies in the morning, the eater dies in the evening".

4.1.2 Human resources

Another challenge developing countries face in building research capacity through online publishing is the inadequate exposure and training of editors, academic staff and librarians in Internet and computing skills. Most senior professionals running the universities in Africa, for example, were trained in a system that had not fully embraced fast growing information and communication technology (ICT) and they therefore still prefer the slow paper-based peer-review process. Editors need to negotiate a steep

learning curve when their journal goes online. This is because a successful online journal requires greater degree of technological skill and expertise. The other personnel problem is lack of motivation and morale on the part of researchers and scientists to pursue aggressive research agendas. Researchers are poorly remunerated and not properly recognized, which affects their morale and in turn, affects scientific publishing.

4.1.3 Misconception

At the inception of the web, the common complaint was that it was full of junk. And truly, some of the content of the web is biased, inaccurate, sloppy and simply wrong. A misconception about open access journals is that they are less rigorous and lack stringent peer review of traditional journals. If academic authors were to self-archive and every individual were to publish anything he or she wanted on the Internet, then the traditional approach for establishing quality in scholarly journals based on peer review and editorial control would not be maintained. Because of this, many scholars and researchers from the developing nations think publishing in electronic journals may neither bring them recognition from their peers nor be endorsed by university promotional boards.

This is a serious misconception and a misrepresentation of what the open access initiative stands for. In its definition, the *Budapest Open Access Initiative*, a 2002 document that is a landmark in the open access movement, states:

By "open access" to a literature, we mean its 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. The only constraint on reproduction and distribution and the only role for copyright in this

domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited.¹²⁰

The word ‘open’ does not remove the refereeing process that has been the gold standard for scholarly publishing for three centuries. Most open access journals and software such as the Open Journal System, support peer review. OJS presumes that every paper is carefully read and reviewed by experts who check the accuracy of the material, suggest improvements and advise editors about the overall quality. The word ‘open’ therefore refers to free availability of research to the public and not the removal of quality-control process.

Another constraint to using open access systems is the lack of awareness of open access Initiatives (OAI). Two factors account for this. First the researchers from developing countries have not been taken into confidence or considered important by the founders of OAI. Take a look at the signatories of the *Budapest Open Access Initiative*.¹²¹ Not one single researcher or organization from the developing world signed the initial document. They were either not informed or not invited to participate. The bane of the developing world has been that the developed world makes decisions regardless of whether or not it’s in the interest of the developing World. If the leaders from the developing countries are not “disciplined” in the OAI, how can they preach the good news about OA to their colleagues?

Second, most of the developments around open access are on the Internet. But the lack of Internet infrastructure in the developing world exacerbates the lack of awareness. A study

¹²⁰ The Budapest Open Access Initiative, is supported by the Open Society Institute's Information Program

¹²¹ <http://www.soros.org/openaccess/read.shtml>.

quoted in *Overview of Initiatives in the Developing World* reports that in a formal survey of library professionals in about 13 African countries, not one librarian had heard of the Open Archives Initiative. Lack of awareness means access and use is low.¹²²

4.1.4 Cost - The Achilles Heel of OA

Open access, with its great potential, has an unproven business model and at this stage, and many people in the developing nations are skeptical about open access' future. For example, there are practical problems with the transition from current paid subscription journals, where the financial responsibility falls on the reading populace or their agents, institutional libraries, to the unsubscribed open access journal where the financial burden falls on the producer: the authors, the journals, research funding agencies or government. This is not practical in Africa. It is important to remember that in Africa the source of funding research is completely dried up. Traditionally, the sustainability of most African journals has not been based on government support or local research funding agencies, but by subscription, especially from a select few institutions in developed nations. The money that is given for research is hardly sufficient for the research, let alone to publish the research findings. It is therefore not surprising that many research results are gathering dust on the shelves of research institutions. In fact, most researchers, especially in the humanities, have no funding. They undertake research, more often than not, without support and motivated by either altruism or personal ambition.

¹²² Durant S. (2004) Open Access in the Developing World. In Esanu, J.M., and Paul F. Uhlir, P.F., (eds.), *Open access & the public domain in digital data & information for science: proceedings of an international symposium*. The National Academies Press, Washington, D.C.

It is estimated that the cost-per-article to an author to publish in an open access journal is between US\$500 to US\$1,500. The cost reflects editorial cost, and staffing cost.

Representatives from Elsevier and Springer, two big journal publishers, predict that open access fees will go up to about US\$6,000 per article in order to sustain the model.¹²³ A summary report of the International Coalition of Library Consortia, posted on the web site of Library and Archives Canada, also claims that the government of Britain is paying for scientists to publish their papers by covering the open access fee, which is about US\$1,200 per article¹²⁴. Other likely costs to be incurred operating open access journal may include capital development costs – hardware and software; value-added services such as extensive metadata attached to each article; publicity and marketing upgrading and maintenance costs; infrastructure and enhancing link options. The question is: who pays for the development and maintenance of open access projects in the developing countries?

Which author in a developing nation can afford \$6,000—or even \$1,500 in order to subsidize the rest of the world? That amount is equivalent to a two years' salary of a university professor in a country like Ghana. From the perspective of the African publisher, author charges are not feasible as publishers are not in a position to waive these fees for local authors or to offset these losses by overcharging international authors as these account for a very minimal input. The author-pay model is not likely to work in most developing countries where majority of researchers do not have publication funds.

¹²³ Proceedings from the *International Coalition of Library Consortia, organized in the Fall of 2004* in Barcelona. Retrieved Aug. 01, 2005, from <http://www.collectionscanada.ca/consortium/s38-1012-e.html><http://>

¹²⁴ Ibid

Because of the many challenges involved in open access publishing developing countries are considering electronic journals as tie-ins and not alternatives.

4.2 Recommendation

There are a variety of critical obstacles to successful transition to open access in the Africa. There are fundamental connectivity problems including: the lack of reliable electricity supply, limited access to networked computers, slow response caused by inadequate bandwidth and the lack of sufficient IT professionals to respond to system-level problems. The development of information communication technology (ICT) infrastructure in developing countries is necessary for unrestricted access to all scholarly research through open access journals. The development of national ICT policies and the deregulation of the telecommunications sector should be pursued by national governments and multinational companies should export to developing countries appropriate technologies (i.e., fiber optic and submarine cable links and satellite capacity to deliver faster two-way electronic transmission) that will increase bandwidth.

Notwithstanding the above need, which is continuing, within the last few years, higher academic institutions in Africa have made a lot of gains in providing Internet facilities for university faculty and students. Although outside of this group the greater percentage of the population is not catered for, it is still worthwhile to make information available through open access to practitioners, policy makers, authorities and academic staff whose work impacts directly on the people. To quote Willinsky:

Faculty members and students have a much greater hope of accessing the wider body of research literature online if only through an Internet café, thanks to open access, than they do through dwindling supply of

current print journals. We need to understand that the gains in access to knowledge are, at best, incremental and are not to be judged against some unachievable ideal of universal access or complete equity of access.¹²⁵

The idea behind open access is that scholarly research should serve the interests of the scholars themselves. Also, those interests are best served by the broadest access to the largest body of high-quality research. As acknowledged by Crow and Goldstein (2003) of the SPARC Consulting Group, “researchers, as authors, require access to the largest possible audience to which to disseminate their findings; researchers, as readers, need the broadest possible access to the relevant literature”.¹²⁶

The current system of scholarly journal subscription, with sky rocketing prices, often precludes broad subscriber and user base, limits readership, availability, visibility, and community benefit. Open access journal publishing has the potential to deliver significant benefits to all its constituent stakeholders and to society at large

4.2.1 Government/University Administrators/Libraries

Like governments in many developed countries, African states could promote open access and Open Archives standards. Governments have a key role to play in accelerating universal access to information and providing leadership for the African continent as a whole. Government, moreover, is the largest provider of information and communication technology in many developing countries. Given this level of influence, government

¹²⁵ Willinsky, J. (2003) “The Nine Flavours of Open Access Scholarly Publishing”, *Journal of Postgraduate Medicine*. 49 (3) p263-267

¹²⁶ Crow R., Goldstein H. (2003) *Guide to Business Planning for Converting a Subscription-based Journal to Open Access*. Open Society Institute, 400 West 59th Street, New York, NY 10019. Retrieved July 28, 2005, from <http://www.arl.org/sparc/resources/pubres.html>

action is bound to stimulate industry in various ways, such as the formulation of appropriate national policies and strategies that will ensure maximum dissemination of research through open access journals and institutional archiving. Governments therefore should aim at improving media and information technology education, enhance awareness and training in the use of ICTs and strengthen local publishing by funding skill development in the preparation, production and management of online scholarly publishing.

Governments from developing countries can emulate the examples of their counter parts in the US, and Western European. A recent report from the British House of Commons Science and Technology Committee entitled *Scientific Publications: Free for all?* (House of Commons, 2004)¹²⁷ was critical of many journal publishers and supportive of attempts at moving to open access journals. The United States House of Appropriation Committee recommends that the National Institutes of Health (NIH) develop a policy requiring that scientific manuscripts resulting from NIH-funded research be posted on the agency's PubMed Central web site.¹²⁸ The basic tenet of such initiatives is that the public should have untrammled access to public funded research.

That said, the Free Software and Open Source Foundation for Africa believes that “there is an urgent need for research funding bodies and various institutions in developing nations to leverage the opportunities presented by the emergence of Open Source

¹²⁷ The full report can be found in <http://www.publications.parliament.uk/pa/cm200304/cmselect/cmsctech/399/399.pdf>

¹²⁸ The Association of American Universities, AAU CFR Weekly Wrap-Up, 1200 New York Avenue NW, Suite 550, Washington, D.C. 2005 (www.aau.edu)

software in the context of limited financial resources and expertise”¹²⁹. If scientists are to use open access publishing, much remains to be done to create awareness of the advantages of open access publishing. The recent rapid increase in the number of international conferences devoted to this theme is promising, but leaders, researchers scientists, people in key positions and policy makers from developing countries should be active participants in these conferences. A more effective decision can be reached by involving all of the parties who would be affected by the outcome. The result will be that the stakeholders feel ownership and satisfaction due to their involvement in the decision-making process.

University administrators also have a crucial role to play in promoting open access. Peter Suber contends that open access journals will have global visibility if university decision makers “adopt university-wide policies that promote open access and allow faculty’s research to be published in open access journals.”¹³⁰ Administrators should work to make scholars at their institutions aware of how to find and access open access journals and archives in their fields.

The decision by authors to submit papers to a particular journal is, more often than not, influenced, to a large degree, by the academic reward systems. Promotion committees sometime indirectly outline which journals to publish in and the institutional rankings of those journals. In other words, the quality of published scholarly articles produced by

¹²⁹ Free Software and Open Source Foundation for Africa (2003-2005). Retrieved July 14, 2005, from Proposed Action Plan web site: http://www.wougnet.org/ICTpolicy/docs/FOSSFA_ACTION_PLAN.rtf.

¹³⁰ Suber, P. (2005). What you can do to promote open access. *The SPARC Open Access Newsletter*, . Retrieved July 15, 2005, from <http://www.earlham.edu/~peters/fos/do.htm>

faculty is measured by the quality of the journal. Prestige rather than wide access is what counts. Arguing for open access journals, Allison Möller contends that “if open access journals are to receive a wide spread acceptance then the journals should receive full recognition and accreditation from promotion committees and national and international councils that have the power to influence decisions about faculty tenure and promotion”.¹³¹ Universities need to redefine and revise their tenure and promotion criteria to establish credence to works produced in open access journal systems.

We have to acknowledge that the quality of a scholarly journal is dependent on its editors, editorial boards and reviewers and not the medium, print or online. The same factors that create high standards and high quality in subscriber-paid journals can be found with Open-Access journals.

Libraries, all around the world, are the ones hit hardest by the serial-pricing crisis and, as primary players in the scholarly communication system, they are falling significantly behind in their ability to acquire, store and make available materials for further study and research. Serious changes are needed in the way scientific information is published, stored and retrieved. Libraries in developing countries can assist in the transition to Internet-based scholarly communication by promoting open access journals to their institutions, indexing services, readers and funding agencies. Most libraries in developing countries now belong to consortia of academic and research libraries. Such consortia can work to provide easy access and can cancel over-priced journals when open access

¹³¹ Möller, A. (2004). The Rise of Open Access Journals: Their Viability and their Prospects for the African Scholarly Community. Retrieved Aug. 25, 2005, from <http://www.codesria.org/index.htm>

alternatives are available. The consortia should be active in supporting the open access Initiative and take the initiative to set up a centralized cost and expertise sharing open access repository for their institutions. Even though libraries have begun to initiate some of these suggestions, they can do much better.

4.2.2 Financing Open Access Initiatives

For developing countries, financing open access journals and archiving content in a secure and guaranteed long-term accessible fashion is very crucial and a strong determinant if OA is to succeed in their countries. This is a complex and perhaps a challenging factor for open access proponents to deal with. Many pricing models have been suggested, but the most feasible solution being practiced today is the “author- of research funding agency-pay with a fee waiver or discount” system for developing countries. The publisher often waives fees if the author pleads poverty. Health Internetwork Availability of Research Initiative (HINARI) and Global Online Research in Agriculture (AGORA) are commendable initiatives in this regard. In HINARI, 28 publishers who account for more than 3,000 journals make their journals available for free to some of the poorest countries (defined as having a per capita annual income of less than US\$1,000) and at a deep discount for some slightly less disadvantaged countries (per capita annual income between US\$1,000 and US\$3,000).¹³²

One other consideration is that private funders, philanthropic organizations and foundations that support research and development and knowledge dissemination, who

¹³² Open Access site campaigning for freedom of research information “(Mis)Leading Open Access Myths” (<http://www.ccs.neu.edu/home/futrelle/talks/NUInfoAccess0404/OpenAccessDocs/myths.pdf>.)

seek to encourage implementation of open access should consider creating an international Open-Access publication funding pool. This funding should be aimed primarily at local capacity building in the form of human resource development and development of communication infrastructure in the developing countries and a start-up and maintenance cost, open access program. One practical example is the George Soros' Foundation. The Open Society Institute (OSI), a program funded by the George Soros Foundation and one of the original signers of the *Budapest Open Archive Initiative* (BOAI)¹³³, makes various grants to support open access, including funds to waive publication fees in open-access journals on behalf of a number of universities. Unfortunately these schemes offer only a partial solution to the access problems of the developing world.

Having noted the above, it is the position of this report that the developing countries, especially Africa, need economic emancipation in order to build a strong infrastructure and local capacity in order to take advantage of the new information technologies. Economic emancipation is the result of good governance, fair trade, and an enabling environment for industrialization, not the constant dependence on “gifts” from developed countries. These “gifts” in the form of grants or funding are not dependable. When grants disappear, the programs they support will die. Developing countries must strive for a higher economic growth rate and free and fair trade from developed countries instead of “gifts”. Developed countries can assist in economic emancipation through more informed assistance.

¹³³ <http://www.soros.org/openaccess/grants-awarded.shtml>

If the developed countries have a genuine intention to make life better for developing countries, developed countries should stop attaching unrealistic strings to the aids. As it is stands now, financial aid from developed countries comes with certain conditions that make developing countries completely subservient to the whims and caprices of the developed nations. To solve this problem, developing countries need total and unconditional debt cancellation, which will give them a clean start towards economic development and a balanced economic trade system that will allow developing countries to complete favorably with developed nations. Debt cancellation, coupled with good governance from developing nations, will accelerate economic growth and economic emancipation so developing countries can stop looking to the developed nations for survival.

CHAPTER FIVE

Summary and Conclusion

5.1 Summary

Access to adequate and up-to-date scientific and technical information, that is mainly communicated and validated through publication in scholarly journals, is important if not essential for economic and social development in both developed and developing countries. Scholarly journals exist to promote original scholarship and to certify the contents as authoritative documents to whatever audience is reached. In “Africa, journals were founded mostly to trace the teleological march of the once reviled “native” subjects to respected national citizens and their societies from undeveloped to develop.”¹³⁴

Journals help to establish a reputation for African-produced scholarly products. Perhaps most importantly, they bring knowledge about Africa, often by Africans, to an audience within Africa as well as internationally.

Unfortunately, the increasing value and cost of scholarly journals, particularly in science, technical and medicine, continues to rise significantly faster than library budgets and libraries everywhere can support. The effect has virtually wiped out library access in the developing world and to a lesser degree in the developed world to the current literature in many fields, especially scientific, medical and technical information. Many renowned

¹³⁴ Zeleza P. (1998) “The Challenge of editing scholarly journals in Africa”. In *Knowledge Dissemination in Africa; the role of the scholarly journal*, edited by Philip Altbach and Daniel Teferna. Bellagio Studies in Publishing 13-38

journals in developing countries have reduced their frequency and/or extent of publication or have ceased to exist. University presses that have spearheaded the publications of journals have declined and some have folded completely. Other factors like economic crisis, political instability, overpopulation, lack of infrastructure and mismanagement have restricted government spending on university libraries and research with a harmful effect on access to research.

The net result is that academics, researchers, policy makers and society as whole are starved of relevant and basic research, some of which might assist greatly in national development. Developing countries are further marginalized by an increasing inability to contribute to global knowledge.

The advent of open access publishing provides scholars with an alternative model for the distribution of scholarly communication. Open Journal System assist with the production of inexpensive open access journals by being a free, interoperable, publishing standard that provides the opportunity to developing countries to increase their contribution and exposure to the international scholarly community.

This report described how the Open Journal System (OJS) was adopted to Portuguese and how OJS was used by the Brazil Institute for Information in Science and Technology (IBICT) in the administration of editorial and publishing processes of the journal *Ciência da Informação*. The International Network for the Availability of Scientific Publication

(INASP) journal publishing system (used for AJOL) is also another initiative based on OJS.

The report examined the Africa Journal OnLine (AJOL), an initiative of the International Network for the Availability of Scientific Publications (INASP). The INASP journal publishing system (used for AJOL) is based on the Open Journal System (OJS). AJOL now includes 214 journals from 22 African countries. INASP's use of OJS is not to publish journal articles but rather to publish a web site of journal homepages, tables of contents, titles, abstracts and so forth.

Also in Singapore and India, institutions are using OJS to make their journals accessible to wider audiences. The National Museum of Singapore is utilizing OJS to publish *The Heritage Journal*. *The Heritage Journal* publishes research articles on the history, culture and the art practices of Asia, with an emphasis on material culture, cultural resource management and museum practice. The University Press of the National University of Singapore uses OJS to provide supplemental materials to books published by Singapore University Press and to make materials related to scholarly communications and academic publishing in Asia available to a much wider audience. In India, the National Centre for Science Information (NCSI) has initiated a research project to demonstrate to editors and others involved in scholarly publishing a variety of ways of adapting OJS and related systems to indexing Indian scholarly journals, as well as conference papers, e-print archives, theses, etc.

Open access resources are of great importance to all researchers and scholars, particularly those in the developing nations. Of equal importance is that open access to scientific

research provides a tremendous opportunity for researchers in developing countries to contribute to the global knowledge base, thereby reducing the South to North knowledge. Equally, there now exists a system of scholarly communication that better serve author and readers by removing access barriers to their information need.

In spite of the many benefits that open access offers to developing nations in dealing with the panoply of problems that have plagued scholarly publishing, there are also many challenges. Some of the challenges examined by this report are political, economic, social, infrastructural and technological.

5.2 Conclusion

The challenges facing developing countries are substantial. Governments of developing countries can work with funding agencies, philanthropists and the international community to identify explicit funds for science, technology and innovation capacity building in Africa. The open access initiative embodies enormous potential for freeing scholarly communication and using the Internet as a technological tool for mass change. In evaluating the economics and sustainability of the open access initiatives, it is important to focus on the overall system benefits rather than focus narrowly on the cost of article.

Open access Initiatives like the OJS, have the potential to expand the public domain of research. John Willinsky describes it as “a flexible editor-operated journal management and publishing system. It raises the quality of publishing, improves record keeping,

provides efficient editorial processes and reduces costs.”¹³⁵ OJS can be downloaded and installed on a local web server at no cost. For developing countries, OJS is a realistic alternative to the traditional publishing model whether it is tied to open access or subscription-based access.

The cost of print journals and the cost of financing open access journals in the developing countries are both considerable. However, open access journals have much to offer the developing world. Peter Suber argues that “open access provides free online access to a body of literature, accelerates research in that field, creates opportunities for sophisticated indexing and searching, helps readers by making new work easier to find and retrieve and helps authors by enlarging their audience and increasing their impact. If these benefits were expensive, they would nevertheless be worth paying. But open access can cost much less than traditional forms of dissemination.”¹³⁶

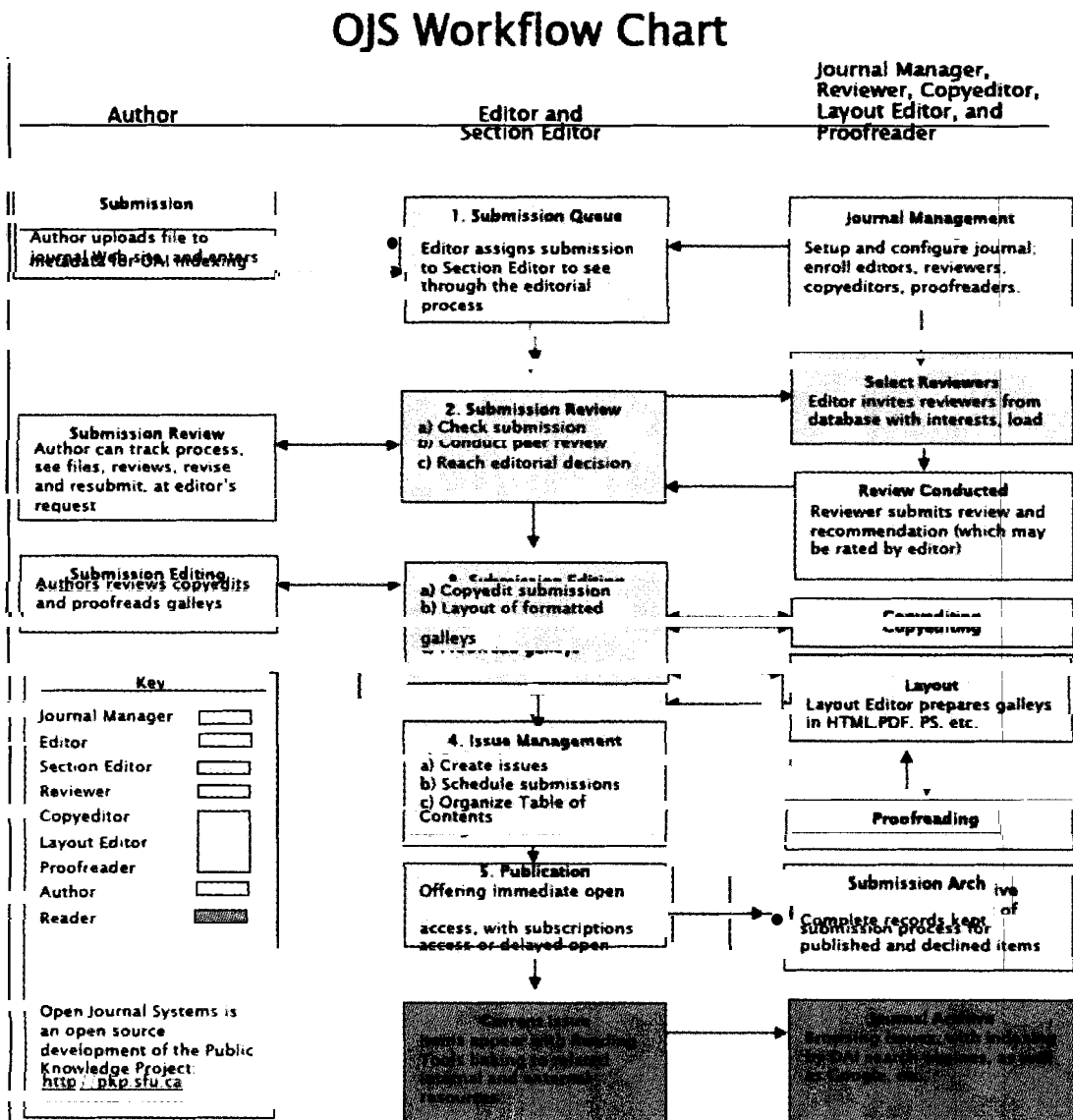
The position of this report is one of optimism. With the support and co-operation of all stakeholders – government, international organizations, donor agencies, learned societies and academics – developing countries can exploit the full potential of this new scientific and technological paradigm for scholarly publishing.

¹³⁵ Willinsky, J. (2005). Open Journal Systems 2.0: The Evolution of Open Source Journal Management. Challenges for the Digital Content Chain: Proceedings of the 9th ICCO International Conference on Electronic Publishing held at Katholieke Universiteit Leuven in Leuven-Heverlee (Belgium), 8-10 June 2005 *ELPUB:2005*, 253. Retrieved Oct 16, 2005, from <http://elpub.scix.net/cgi-bin/works/Show?253elpub2005>.

¹³⁶ <http://www.earlham.edu/~peters/writing/jbiol.htm>.

APPENDICES

Appendix A: OJS Workflow Chart



Source: PKP, by permission

Appendix B: A screenshot of an OJS Demonstration Journal

Open Journal Systems Demonstration Journal

HOME ABOUT LOGIN REGISTER SEARCH CURRENT ARCHIVES

Home > Open Journal Systems Demonstration Journal

Open Journal Systems Demonstration Journal

This is a demonstration site for the open access journal management and publishing system developed by the Public Knowledge Project.

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Open Journal Systems

[Journal Help](#)

USER

Username:

Password:

Remember me

[Log In](#)

JOURNAL CONTENT

Search:

All

Browse

- [By Issue](#)
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- [By Title](#)

INFORMATION

- [For Readers](#)
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