

## **Western Dominance in The Use of ICT for Scholarly Discourse: A Challenge For African Scholars**

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### **Abstract**

*This is a paper on the challenges facing African scholars when it comes to the use of ICT in Dissemination and access of their work globally. Most African Scholars have not realised the benefits of ICT to bridge the gap which exist between them and scholars of the Western world. Therefore the paper seeks to provide remedies on how to increase online access and Dissemination of Academic papers among African Scholars.*

**Key words:** ICT, online, dissemination, visibility, indexing, metadata, OA, developing nations

### **1.0 Introduction**

Among the numerous challenges facing social research in Africa is the lack of visibility for research output. Traditionally, research findings are presented in conferences through conference papers which are subsequently published as articles in scholarly journals, and eventually as books. Presently, it is extremely difficult for researchers in the various social science disciplines to publish in African Journals, either because such Journals do not exist in their fields, or because those that exist are published very irregularly or have discontinued publication. Rare are African Social Science Journals that are regular, and very few that manage to be published benefit from good dissemination.

The reasons for this situation are first related to a chronic lack of financial resources in higher education and research institutions, and in the professional associations that publish Journals, in a context where there are very few commercial scholarly publishers. When these Journals manage to be published somehow, only a few copies are produced. Even then, the Journals published do not benefit from efficient distribution networks and, besides, suffer from the slow and unreliable African mail systems, resulting in limited distribution that seldom goes beyond the borders of the countries in which the Journals are published. The consequences of such a situation are manifold. Apart from depriving African Social research of the means to enhance its visibility nationally and internationally, the situation results in major hindrances to the promotion of African academics and researchers.

In fact, owing in particular to the lack or irregularity of these publications, African higher education and research institutions tend to put in place teacher and researcher evaluation systems that privilege publications in scholarly Journals published in developed countries. The limited number of articles published by African researchers in so-called "International Journals" is what is taken into account by evaluation tools such as the Sciences Citations Index for measuring the quality and importance of African Social research, giving of course a picture that is not in tune with reality.

### **1.1 Cases**

An important longitudinal study conducted between 1996 and 1998 at the University of Ghana and the University of Zambia, found that although 'the majority of staff (just under 70 per cent) at both Universities considered African-published Journals equally or more important than those published elsewhere, with most (49 percent) rating them equally important', most staff also 'felt their access to African-Published journals was very limited'. The same study found that apart from Journals locally published in their own countries, researchers did not know what other titles were available from the rest of Africa.

One researcher's quote (Alemna et al, 1999:50) was particularly telling, 'My research is focused on Africa and I need more information. But African Journals are harder to identify and obtain than Journals from developed countries.'

Along with resource scarcity, probably the most significant problem for authors and researchers in Africa has been the means to disseminate African published research widely. This has an obvious corollary of making it difficult for African and international researchers to access African-published works. There has been a paucity of indexing systems of African publications, leading to minimal African-published journal discovery. Africa (and the rest of the world) needs access to African-published research, most particularly that done on locally relevant issues. The representation of African research within indexed Western publications is extremely low, at approximately 0.7 per cent of the total publications.

This is not to say that research is not being conducted and published in Africa; it is highly likely that the volume of papers published in Africa is underestimated due to the content not being included in international indexes. Along with bibliometric analysis, numerous studies conducted during the last 10 to 15 years have also shown other areas of relative decline in research and scholarship at many African universities, such as the deterioration of research infrastructure, and a generally poor quality of library resources, with many universities not using automated management systems.

## 1.2 Discussion

With the advent of Electronic Journals since the beginning of the 1990s, new publication opportunities have arisen. Produced and disseminated using ICT facilities readily available today to many African higher education and research institutions, Electronic Journals offer clear advantages in that they do not involve significant production costs, are not limited in terms of number of pages or use of colours for illustrations, do not entail forwarding costs because they are published on the Web and, besides, are available instantly and at any time wherever there is Internet access. Furthermore, with the many specialized or non-specialized search engines that index the Web, they are widely referenced and therefore, easy to view, which increases significantly their dissemination and their impact.

Web publishing carries the potential to spread research results much faster across academic communities and beyond. It opens up new horizons for the advancement of free access to information and the availability of publications. At the same time digital technologies are put to use to enforce rights management, resulting in the publisher's exclusive control over access to scholarship. With e-journal publishing the licensing model has replaced the buying model, keeping ownership and control of digital materials in the hands of publishers.

Increasing accessibility of African research outputs through Open Access, and sustained commitment to building partnerships, collaborations and networks amongst African stakeholders with linkages between these and their overseas counterparts are two pivotal and necessary conditions to move Africa away from the global knowledge periphery.

Several online initiatives do exist to improve affordable access to scholarly information from the developed global North to Africa, such as INASP's, PERii Programme, GORA, JSTOR's African Access Initiative, and OARE, HINARI, however, while immensely valuable, this content does not necessarily provide relevant knowledge pertaining to context-specific issues in Africa. Since most publications included in these initiatives are published outside the continent; they are not directly or specifically Africa relevant. For the most part, except for publications from within their own country, it has always been easier for Africans to obtain publications from overseas than from the rest of Africa.

Today, very few institutions of higher education and research in Africa currently take advantage of the opportunities offered by Electronic Journals. For examples, the African Journals Online (AJOL) project only offers 271 titles on-line –including five (5) published by CODESRIA, namely the CODESRIA Bulletin, Africa Development, Afrika Zamani, Identity, Culture and Politics: An Afro-Asian Dialogue and the African Sociological Review – of which 67% come from two countries, Nigeria (125) and South Africa (56).

Reasons for the low number and poor knowledge of Electronic Journals in Africa include ignorance, distrust, defiance, resistance, lack of skills and lack of equipment. The Open Access (OA) Movement is a plan to make the IT revolution a reality in the world of scholarly communication. The Budapest OA Initiative (BOAI) of the Open Society Institute foresaw two paths to the scholarly information highway or open access to all scholarly information. The first, popularly known as the Green Route, is self-archiving of articles by authors in open electronic archives.

Statistics as of September 2008 reports that 68% of publishers allow some form of self archiving, a great achievement in removing the legal barriers to self-archiving. The second path also is known the Gold Route, is the publishing of articles in OA Journals. If all scholarly articles were to be born free then it would be an ideal solution to the free flow of scholarly communication. But there are many obstacles to this path, which we hope to overcome with time, effort and ingenuity.

The developing nations have a certain advantage that gives them the agility to leap ahead in the publishing of OA Journals. The barriers to OA Journals are often seen from the Western point of view, where there are already established commercial publishers in the market with high impact Journals. On the other hand developing nations do not have a strong presence of commercial publishers. Rather, a large fraction of Journals published from developing countries like Africa are by national academies, research institutes, professional associations and other bodies with non- commercial interests. So the resistance from commercial publishers to OA is quite weak. But there are other obstacles that we need to overcome that are unique to this marketplace.

Most of these online African journals do not comply with indexing standards of OA, i.e. the OAI-PMH (Open Access Initiative – Protocol for Metadata Harvesting) protocol and thus lie outside the OAI interoperability framework. The search and display interface of these Journals revealed lack of support for field-based metadata search and display. A consequence of this is that in spite of their online presence, the articles in these Journals tend to be less used, as they are not easily ‘discoverable’ due to poor metadata and poor indexing. The SJPI project (<http://sjpi.ncsi.iisc.ernet.in>) aimed to study these problems and educate Journal publishers of these issues.

### **1.2.1 Problems of publishing OA in Africa:**

Through two open ended questions we realized that the major barriers to OA publishing according to the participants were:

- Fear that revenue loss from print subscriptions if Journal becomes OA.
- Lack of technological skills by people using the system like editors, reviewers etc.
- Lack of IT infrastructure or the funds to develop it.
- Other barriers include copyright issues, lack of management support, and need to continue print journals due to the low penetration of Internet among user base.

### **1.2.2 Barriers to OA Journals in developing countries:**

Bjork in 2004 studied the various barriers to OA publishing. We reexamined each of the barriers he has listed from the perspective of developing countries like Africa. Legal Framework: Even Bjork in 2004 did not consider legal framework to be an obstacle for OA Journals. Many OA Journals however let the author retain the copyright. Workshops mentioned copyright issues to be a barrier to OA. This could be due to the lack of awareness about developments in the legal domain.

The need in India is to develop greater awareness and debate among the stakeholders - the publishers and the academic community on issues like the Creative Commons and Scientific Commons. Scholars are more interested in disseminating their work than holding on to them.

So the legal system needs to differentiate scholarly works from the artistic and commercial types of information and more suitable frameworks need to be developed that facilitates dissemination rather than restrict it. IT-Infrastructure: We believe that automating the workflow of the peer-review process using IT systems instead of the cumbersome paper-based process will make the publishing activity economical. Tools for the process already exist in open source or are relatively easy to build.

However the threshold to jump over to a new system is high. For example, a journal like Current Science, a peer-reviewed science journal published by the IASc, has about 1000 reviewers. There are also the editors, sub-editors and the journal office staff involved in the publishing workflow.

These people would have to go through various degrees of handholding or training to begin using a new system. There is also requirement for a system that can run fast, with little downtime and a dedicated help-line to resolve issues arising from users of the system. So the reluctance of the decision makers to move away from a system that is running smoothly to another one fraught with risks is understandable. Another kind of publisher is the small professional body or association running from a small office. One of the Journals used the SJPI project (the SJIM) publishes a print-only Journal. The editor of SJIM is very eager to publish the Journal OA but does not have the required skills among his existing staff. He also cannot afford the costs of hiring appropriate manpower to set up and manage IT systems.

The decision makers in the publishing body do not understand IT systems or fear changes. They either want a perfect system tailor-made to their order or they want a very simple system to avoid complexity and steep learning curves. We found the lack of simple and affordable IT systems to one of the important barriers to OA publishing. Business Models: Revenue from sale of printed Journals is an important source of income for most associations, academies or institutes. Willinsky (2003) has dealt with the financial complexities of scholarly Journals from such learned societies. Though not greedy for profits most publishers have apprehension about the loss of revenue if the Journal becomes freely available online.

Much effort has gone into exploring effective business models for OA publishing. Experiments have mostly been top-down approaches, like mandating OA on grants, research grants accommodating 'author publishing fees' and using public funds to subsidize costs. We now need a bottom-up approach that by breaking down the work of publishing into different components can see which of these can be done away with and what other means of income can exist. The Tata Memorial Library of the Indian Institute of Science, Bangalore gets 1238 journals by spending public funds of about \$2.5 million. That works out to be about \$2019 per Journal subscribed. A major chunk of this goes to Elsevier – a commercial publisher.

Let us consider a back-of-the-envelope calculation of the actual cost of producing an online Journal in India. The Journal of Cancer Research and Therapeutics (JCRT) (<http://www.cancerjournal.net>) is the OA publication of the Association of Radiation Oncologists of India (AROI) and is published quarterly. The annual cost of publishing this journal in print and electronic is about \$10000. JCRT uses the services of a Medknow (<http://www.medknow.com>) to host the Journal online.

JCRT has a about 1000 print subscribers, whereas the members of AROI get it free. That works out to be \$10 for every subscriber who pays for the print Journal. We are not considering some figures here like the membership fees paid by members, costs associated with running the association's office etc. Though the comparison here is superficial, it does give the feel that the cost to produce a Journal in a developing country may actually be much cheaper than what our libraries pay to a commercial publisher. An online only Journal would cost much less to publish. An IT system that takes care of the needs of many publishers synergistically can further drive down the costs.

Our challenge is to demonstrate an OA Journal that can break even in the existing environment. An ad-sponsored publishing model also seems to be a good bet. But this may be a chicken-and-egg problem for small or new journals because advertising requires that the journal first be widely read. This fear of loss of income is one of the biggest barriers that we could notice to OA publishing. And that fear can be mitigated by demonstration of robust business models. Indexing services and standards:

The success of any Journal is its impact. Impact happens when two conditions are met – one, publishing high quality papers and two, making them visible to the right users. While Journal publisher are very concerned about the impact of their Journals, we found very little awareness about the automated indexing and online presence. Even among the OA Journal publishers the advantages of exposing metadata using OAI-PMH standard for automated harvesting was lacking. Today when a researcher is about to begin work on an unfamiliar topic, he would probably not head to the library – he would instead make a keyword search on Google Scholar or Scopus or one such discovery tool.

Commercial publishers have successfully reinvented themselves as aggregators and have taken on the role of the indexing and abstracting journals. As Bjork mentions, OA journals should have their presence on these systems so that the users discover them there. But OA advocates should insist that OA status of the articles be clearly indicated in the metadata and the full text should be available freely from the indexing portals. For example, SpringerLink indexes the 11 OA journals of IASc, but clicking on the 'full text' on SpringerLink leads you to a shopping cart even though the free online version is at the IASc website. But Gate (<http://j-gate.informindia.co.in/>), a similar aggregator from Informatics India clearly mentions the open access status of the articles it indexes and leads to the freely available full-text article at the publishers' site. In fact, Open JGate (<http://www.openj-gate.com/>) indexes OA journals only and is freely available.

**Academic rewards system:** A widely accepted measure of academic quality is defined by ISI's Impact Factor of journals in which research papers get published. While this is understandable in the pure sciences, there are certain applied disciplines like medicine, agriculture, humanities and social sciences where local relevance matters most. For example, does it not make sense to publish research about an agricultural crop disease in Kerala (a state/province in India) in a local or national level agricultural Journal rather than an international one? Academic bodies and professional associations should develop their own versions of impact factors that can be used by research organizations to measure the academic pursuits of their researchers.

Where there exist so many highly specialized bodies of knowledge, isn't it time we moved away from a single impact factor system that bundled up say, all science Journals together? Each discipline could have its own "Faculty of 1000" We did not measure the impact of this issue in our workshops but literature reveals the cynicism in academia about current use and misuse of measuring academic contributions. This practice is not only a barrier to popularity of OA Journals but also a danger to egalitarian nature of scholarly work itself. Marketing and critical mass: Bjork (2002) mentions that new OA Journals are disadvantaged because it takes time to build a good brand name and therefore attract good quality papers, a difficult task when competing with already established commercial Journals.

Having an online presence can also reduce plagiarism, a plague for a small Journal. The fear of being discovered online and its consequences can deter submitting plagiarized material, thus improving quality. We feel that the marketing and branding issues are closely related to understanding indexing mechanisms and having an online presence. Greater awareness of these is required among the publishers.

### **1.3 Suggestions to Improve Electronic Publishing in Developing Nations:**

Based of these barriers and our SJPI experience we suggest the following measures to promote electronic publishing of Journals in developing countries like India:

**1. Build a centralized IT Infrastructure:** Even well-established academies with large public funds find it very cumbersome to build an entire system on their own. Small publishers would not find it economically viable. One of the feedbacks we got during the workshops is to make available a centralized system that is available to any publisher for free or at a nominal cost. One way to accomplish this is for publishing units to form a guild to pool in resources to build one such shared system.

But Journal publishing is an academic pursuit and editors of Journals do not have the inclination to form guilds or associations with people outside their sphere. We suggest that the governments or NGOs of developing countries form an institute or organization that can put in place a centralized system. Such a system could also address other related concerns like indexing standards and long-term preservation of digital material.

**2. Create awareness among academia:** There is a need to create greater awareness of OA concepts and its modes among the research scholars. While awareness may exist, there are lingering doubts about the quality of OA Journals and the robustness of its economic models. One scientist was surprised when told that in 2004 there were 239 OA Journals indexed in ISI citation databases. These formed approximately 2.6% of the nearly 9000 journals in the Web of Science and approximately 1% of the 20,000 journals in ISI Web of Knowledge. Another way to promote OA is to build communities of students and young researchers that interact on the lines of Open Source Software communities.

**3. Improve quality of OA Journals:** One of the concerns we find is low quality of many African Journals. The need of training programs for editorial staff on good peer reviewing and English language usage. The centralized institute we suggested above can take care of this requirement by periodically conducting training programs and awareness campaigns.

**4. Indexing and marketing of OA Journals:** It is important to create awareness about the issue of indexing and marketing of Journals among the small academic publishers. Right now, the inclination is to hand it over to a commercial outfit without looking at the implications of OA. While tech-savvy publishers sell the right to index their content, those not aware of these trends gratefully hand over their entire content to an indexer. Another thing to educate publishers that studies have shown that OA does not reduce the print subscriptions of the Journals. Even when fears persist publishers can adopt delayed OA or at least make metadata available in electronic format for automated harvesting by indexers.

**5. Educate policy makers about OA:** Policy makers can promote OA or electronic publishing through many initiatives. Funds similar to library budgets can help pay ‘publishing fees’ to OA journals at every research institute. Library budgets and OA funds can be linked in some way. If the library can save on journal spending then that fund can be used for publishing in OA journals. This may appear to be an absurd idea at first. But Balaram in an editorial in current science describes how an exercise to prune library subscriptions at the Indian Institute of Science (IISc) library resulted in savings of \$250,000. Such a linking of library budgets with ‘author-publishing fees’ budgets will motivate academicians and librarians optimize the use commercial publications and rely more on OA journals. There can also be national policies like that of the National Institute of Health in the United States that mandate OA of publicly funded research.

#### **1.4 Conclusion**

Considering the unique position that developing countries have, solutions to promote electronic publishing of journals should be a blend of technological implementations, policy decisions and a promotional activities – converting human will as much as systems. Since we have only one community to address it to - our academicians, who also happen to be publishers, the task though not simple, appears to be more straightforward. The establishments of IT systems and mitigating the fears and apprehensions of the community will greatly increase the flow of scholarly information from the analogue to the digital world and from closed to open access – thereby increasing visibility and barriers to its access.

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