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The Adoption of Open Access (OA) and OA Publishing (OAP) Models in Ethiopia

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Abstract

Open Access (OA) initiatives are the ones that contribute immensely to make intellectual contents available world wide. There are few OA available in Ethiopia, however, despite their importance for the scholarly communication, much is not still known about the initiatives. This research was undertaken to examine the adoption of the OAI and the OAP models by institutions, societies and associations. The research used qualitative survey method to secure data. In addition, pertinent literature was used and reviewed to get framework for the assessment of the OAI and models in order to review whether or not the existing contents that are published in OA mode are congruent with the OAP models. In this regard, the Addis Ababa University Libraries (AAUL) system, St. Mary's University College (SMUC), Chemical Society of Ethiopia (CSE), the Ethiopian Health Development Association and the International Network for the Availability of Scientific Publication (INASP) were targeted based on their prior involvements in the OAI and the OAP. The research found that there had been encouraging OAI from both the AAUL and SMUC sides. The AAUL was found to provide more than 2,000 theses and dissertations to its users; while the SMUC was found to provide its users with conference proceedings, journals articles, and other research outputs (e.g. tracer studies, etc.) through its institutional website and network. The CSE, the Ethiopian Health Development Association and the SMUC were also found to provide their respective users with their journals using the African Journals Online (AJOL) of the INASP. A further look at the publishing models used revealed that the journals which had been provided were found to comply with the majority of the models provided for the OAP. However, all of the journals provided were identified that they had not made the authors to pay in order to publish articles in these journals. On top of these, the copyright scheme used was identified to be the traditional one (not creative commons). Based on the these findings, the study forwarded recommendations, including how institutions can follow the same suit as the target of this research to make whatever contents available in the OA mode.

Background of the Study

It has been a long standing agenda for academicians to make research undertakings part and parcel of their day-to-day lives. In fact, the organic document of any academic environment and senate legislations stipulated that academicians are expected to devote some part of their time for research and related activities. The reason for such a kind of engagements is that an academic environment which is not supported by research cannot attain its ultimate goal, as research is also a pillar to create a vibrant academic setup.

Research cannot be undertaken in a vacuum. Among the inputs required to establish a well advanced research environment and academicians' productivity in the publication track, there should be an excellent office setup, a library which is rich in technology-based information sources and a laboratory with acceptable level of standard. Especially, there must be current contents that will cater for the research endeavor of the academicians and researchers in the laboratory. Presently, especially in developing countries, literature which is relevant for the research needs of the academicians and the researchers are meager and when they are made available, it is usually made available not for free. Such problems have created barriers to conduct studies at expected levels in different academic as well as research setup. Due to that, when there are some chances to conduct studies, the standard of outputs generated from such studies is rated as poor. This, by far, discourages researchers to submit their research outputs to the prominent journals as the fate of rejection is high and has created problems in making the academicians and their affiliated institutions visible internationally, minimizing the competitiveness of these professionals to secure grants from funding agencies.

Nevertheless, research undertakings are highly associated with the national development of any nation. For a nation to embark on development, sound studies must be conducted by academicians and researchers. Therefore, availability of contents that support the national research agenda and the research undertakings is

of a paramount importance. However, securing such contents have become more problematic and thus widening the digital divide as a result. The digital divide is a devastating problem that we can see in the scholarly communication circle. Thus, the scholarly communication is facing problems that have hampered its existence and questions the productive capacity of academicians and researchers.

Statement of the Problem

The challenges that some of the stakeholders in the scholarly communication faced are known as serials crisis or scholarly communication crisis. Scholarly communication is an academic communication that provides us with an intellectual output at the end. In such highly intellectual activities, consumption of other research outputs is mandatory. However, due to the monopolization of academic contents by the giant stakeholders, commercial publishers, academicians and researchers are often not in the position to access quality content. In addition, due to the unreasonable dramatic and drastic price increase of journals, libraries as major stakeholders in scholarly communication are forced to cancel subscriptions of journals as the price surpasses the capacity of the libraries to purchase (Bergman, 2006). Sometimes, if librarians believe that the journals are not relatively important for the academicians and researchers, they will be targeted for cancellation and, hence, the overall effect is reducing the amount of contents channeled through libraries. Fortunately, the international community has not considered such a kind of challenge that will have direct impact on the humanity in complete passive silence. Rather, there were a number of movements that will counter challenge commercial publishers in the light of making scholarly contents freely available. Open access is what librarians, academicians and/or researchers, funding agencies and learned institution brought as real challenge for commercial publishers. It promotes the availability of intellectual content freely at point of use (Chang, 2006; Asamoa-Hassen, 2010). The publishing model that open access promotes is covering all the necessary costs associated with publication of articles by authors and have been considered as a blessing for developing countries as they create a mechanism to

bridge the digital divide (Chang, 2006; Frandsen, 2009). Currently, through a number of international partnerships, developing countries are embarking on open access initiatives and striving to shift their publications to open access publishing model to create wider access to contents that had been locked for centuries. In this regard, Ethiopia is not an exception, even though their number is not yet so significant, there are in fact some open access initiatives that have tried to make local content freely available. Similarly, few institutions, societies and associations have also made their publications accessible through open access publishing models, but still research has not been undertaken to see the level of adoption of open access initiatives and open access publishing models in Ethiopia. Besides, although there are international institutions striving to create awareness in the promotion and adoptions of open access contents as well as publishing models, their activities have not been assessed so as to identify their contributions in the national effort to make open access one of the main activities of academic and research environments.

Objectives of the Study

The general objective of this study is to examine the available OA initiatives and the adoption of OA publishing models by institutions, societies and professional associations in Ethiopian context. The research questions employed in order to attain the above-stated study objective are:

- What kinds of resources are made available through OA initiatives?

- Are there sufficient resources in terms of human capital and infrastructure?

- Are the publishing models followed congruent with world standard open access publishing models?

- What are the roles of international partner institutions in promoting open access?

- What possible challenges might institutions, societies and professional associations face in their efforts to scale-up open access initiatives in Ethiopia?

Methodology

The research employed qualitative survey methodology to secure some of the relevant data for the research through literature review, while interviews were conducted for responsible individuals at Addis Ababa University Libraries and St. Mary's University College.

Evaluating Open Access Journal system

At present, there are 18 journals from Ethiopia that are made accessible through the open journal system (system provided by the African Journals Online, AJOL) of the International Network for the availability of Scientific Publications (INASP). Among these journals, four journals have been the subjects of this research. These journals are published by Chemical Society of Ethiopia (1); Ethiopian Health Development Association (1) and by St Mary's University College (2) and all were subject for assessment to a confrontation of open access publishing model (Chang, 2006).

Literature Review

This literature review presents issues that are related to open access initiatives and open access publishing. The review starts by putting the broader perspective of the scholarly communication that serves as an umbrella for both open access initiatives and open access publishing, then trying to define the basic concept of open access. The rational behind the OA has also been documented, followed by the benefits of OA, considering even open access initiatives and open access publishing models separately.

Scholarly communication

Scholarly communication is a communication that is deeply rooted in academia and research environment. Basically, it deals with those aspects of communications that are associated with publication process. It starts from the activities of researchers striving to get research grant (Ochalla, 2011). The write-up of research grant is one form of scholarly communication activities. Once the grant is secured, the researcher is responsible for conduct research. After the research has been successfully undertaken, it will be presented in the form of research output. The result of the research can be communicated using such formal forums as conference, seminars, workshop, symposia and similar, or otherwise, the researcher can also use informal communication to disseminate the findings of the research. In fact, articles can also be published as part of the research output in professional journals. Scholarly communication is a long standing communication culture available in the academic and research empires, and recently, with the advent of technology and several other challenges, it has taken its newer shape which is called open access (Asamoa-Hassen, 2010).

Open access

Open access is the modern form of scholarly communication that promotes the free availability of scholarly content for academicians, researchers as well as the general public using the internet platform (Lawlor, 2003). OA has been believed to create wider access to scholarly content and thus creating immense value for the research outputs. It is a publishing model that makes authors pay for the research output they want to publish (Dulle, 2011).

Specifically, there are two types of open access contents. First one is the contents that we consume using the open access journals while the second one is the contents that we get through institutional repositories (Bosch, 2005; Utulu and Bolarinwa, 2009).

The Rational behind OA

OA has been initiated due to what we call scholarly crisis or serials crisis. In fact, the advent of information and communication technologies has played its primary role for stakeholders to venture in OA (Asamoa-Hassan, 2010).

Scholarly Crisis/Serials Crisis

Scholarly crisis/serials crisis is a phrase coined as a result of unprecedented price increase from publishers' side (Bosch, 2005; Chang, 2006). The price increase had direct impact on the capacity of libraries to purchase such scholarly contents as journals. The dramatic increase, which sometimes reached about 200% (Bergman, 2006) and bundling of a number of journal titles into a database (Lally, 2001) has enforced libraries to cut budgets and this, in turn, had impact on the overall budget of acquisitions of the library. Whenever, libraries are not in a position to buy scholarly content, research will suffer. This is because commercial publishers have strength in controlling the circulation of intellectual output through a number of approaches, for instance, big deal (Bosch, 2005). As far as the content is locked into the giant publishers' database, researchers will not have access to these contents as their libraries do not have capacities to buy and to unlock the contents. Therefore, it was to address such a chronic academic epidemic that OA model has come in force (Asamoa-Hassan, 2010).

Benefits of OA

OA counts between its enormous benefits: creation of wider and unlimited access; increasing international visibility of authors and their affiliated institutions; bridging the digital divide between developed and developing countries; and increasing quality of research output. What follows is a more detailed analysis of these benefits.

Creating Wider and Unlimited Access

The very nature of OAI promotes accessibility of research outputs without any restrictions (Chang, 2006). This has been achieved from the fact that studies which have been undertaken using public funds (Bergman, 2006), drawn from the public that must be the final owner of the research output (McCulloch, 2006; Cockerill, 2009). When the outputs of researches are accessible for unlimited number of users, their values will increase and having a multiplier effects to produce and to reproduce further research undertakings. In this regard, OAI will create a platform for making as much intellectual contents accessible as possible in a freely manner. In the process of consuming contents of OA, the only thing that users are required of is to acknowledge the authors of the study that they have read or quoted (Krishnamurthy, 2008).

International Visibility

The authors who are willing to publish their research outputs in OA platform are provided with a marvelous chance as they will get visibility internationally (Chang, 2006). This is achieved as there are no restrictions for all scholars and institutions to have access to the available contents. In fact, if the articles are of high quality, there is a high chance to be cited in further research work which, in turn, will increase accessibility and visibility (Nicholas, Huntigton and Jamali, 2007; Haider, 2007; Ezema, 2011).

Bridging the Digital Divide

The digital divide is a divide that has been there for ages between North and South hemisphere of the world. Usually, the north is the advantaged one in many aspects. The inaccessibility of the intellectual contents due to the monopolization of commercial publishers contributed a lot in this regard; in fact, those researchers who can afford to purchase the content only have access to them and the effect is making

them more productive by skewing the knowledge production to the north. However, with the advent of the OAI, the digital divide has become blurred and contents are made available irrespective of the continent the researcher lives in (Chang, 2006; Ghosh and Das, 2007).

Increasing Quality of Research output

This point has got some sort of connection to the previous one in that whenever a researcher is provided with unlimited access to intellectual content, the quality of the research is going to produce will improve. Previously, before the OAI system come in to reality, the productivity and quality of research outputs were sometimes not satisfactory as this depends on the level of access one gets to the commercial contents (Nicholas, Huntigton and Jamali, 2007; Jantz and Wilson, 2008).

Increased Impact Factor

Impact factor measures the level of citation articles received from a number of authors within a database or a publication. It has been used as index to measure the quality and reputability of a publication. So far, high impact factors have been exhibited in the journals that are being published by commercial publishers. However, with the advent of OAI, there have been a number of journals that are published in OA platform to demonstrate high impact factor (Chang, 2006; Mabe, 2005; Utulu and Balarinwa, 2009).

Open Access Initiatives

Historically, there were a number of initiatives in this category, but the Budapest Open Access Initiative is the one that marks the foundation of the model; remarkable in introducing the ideas and promoting the ideas of open access.

Based on the long established tradition of scholars, which makes their intellectual output accessible to advance knowledge and science without any kind of payment, the Budapest Open Access Initiative promotes the idea of removing barriers to the scholarly contents access in the light of making intellectual outputs as widely accessible as possible in the online environment using the internet technology. It is at the heart of the Initiative's aim that making intellectual contents accessible using the OA initiatives would give a number of advantages for the output as visibility, increased readership, and obtain a higher impact[4].

Likewise, Berlin Declaration is also one of the initiatives that should be considered while analyzing the diffusion of scholarly content in OA platform. It bases its rational on the dissemination of knowledge using the Internet platform as a functional instrument for a global scientific knowledge base and human reflection. The Berlin Declaration puts open access as a comprehensive source of human knowledge and cultural heritage diffusion, which has been approved by the scientific community, too (Haider, 2007; Yiotis, 2005; Correia and Teixeira, 2005). There are also other initiatives that promote OA like the El Salvador and the International Federation of Library Associates and Institutions (IFLA) (Zhang, 2007).

Research in OAI

OAI can come in various formats. They can come through open access journals, or electronic journals that make free available academic resources irrespective of the fact that they have been published before, deposited through self-archiving by authors or their representatives in personal

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[4] http://www.soros.org/openaccess/read.shtml visited on August 12, 2011

homepages, institutional repositories and subject based repositories (Utulu and Bolarinwa, 2009; Xia, 2011; Asamoa-Hassen, 2010).

There have been few studies conducted to analyze adoptions of OAI, for instance, that of Utulu and Bolarinwa in 2009. The study was conducted to examine Nigerian academics' adoption of open access initiatives as authors and readers of scholarly resources. The rational for the study has been identified in the growing need to increase the number of Nigerian scholarly publications on the Internet, making it accessible to scholars around the world. The major findings of the research were that respondents resulted aware of the pre-print and open access journal initiatives more than post-print ones. In terms of the use of open access initiatives, although appeared insignificant among the academics in general, the scientific ones showed more promise of adopting OAI as authors and readers than their counterparts in the humanities.

Another research that was conducted in relation to the adoption of OAI is from India. Sawant (2009) conducted research on the current scenario of open access journal initiatives in India with the objective of gathering data related to local open access journal initiatives with respect to its type, funding agency/host organization, full text availability, article charges, etc. The major finding of the study was that a total of 178 open access journals were peer-reviewed, indexed and abstracted in different services, listed with DOAR and O-Jgate (Sawant, 2009). Thus, we can say that the OAI initiatives have targeted institutional repositories successfully, which include electronic theses and dissertations and open access journals. The focal points of the study have been the types of open access, the agencies (host institution) that fund the initiatives, full text availability and the like (Sawant, 2009).

Anyway, despite the level of awareness, the actual use of OA outlets as medium of publishing and dissemination of research is still not quite encouraging, especially if we consider the infinite potential of such approach (Utulu and Bolarinwa, 2009).

Open Access Publishing (OAP)

Since the traditional publishing model has been a barrier for scholarly communication, the result was what we call scholarly crisis (Asamoa-Hassen, 2010). As it has been mentioned in the scholarly crisis (Bosch, 2005), the pricing model employed by the commercial publishers has not been normal but imposing unfair price (as it targets unfair profit) on the consumer of scholarly materials. The Open Access publishing model is a model that charges authors a modest charge to publish an article in OAJ in the light of making their research output freely accessible at point of final use (Chang, 2006; Xia, 2011; Asamoa-Hassen, 2010).

In addition, OAP model provides an opportunity to reduce marketing as well as subscriber management cost, for the contents that are provided using OAJ are free; it will, in fact, avoid document delivery cost. Even in the case of developing countries, making authors pay for the articles they want to publish seems somehow frustrating. However, the following are some of the approaches used to cover costs associated with publications in OA platform: pay-to-publish (Xia, 2011), print version subscriptions, membership due allocation, grants or gifts, voluntary or institutional support, advertising or corporate sponsorship, licensing content to third parties, and value-added fee-based services (Chang, 2006).

Open Access Publishing Models

Chang (2006) identifies models for the analysis of open access publishing. The model has four components: organization, finance, innovation and marketing. Brief description of each components of the model follows.

Organization

Organization includes the supply side of publishing and it is all about whether or not there are supporting members and if there are well established publishing procedures.

Finance

Finance refers to whether or not the OAP model has a mechanism to draw income from different sources and there are sufficient capital expenditures for publishing process.

Innovation

Innovation is the level of application of technology to provide an integrated retrieval system for the available contents and availability of different publishing functions.

Marketing

Marketing gives more attention to the quality of content channeled through the OA platform by way of peer-reviewing.

The Research Environment

The research environment incorporates Addis Ababa University Libraries system from the public universities side, St. Mary's University College (SMUC) from the private higher institutions, the Chemical Society of Ethiopia, and the Public Health Professionals Association, and the International Network for the Availability of Scientific Publications (INASP) from other categories.

Analysis of Data

This section presents the analysis of the data. The analysis was made based on the frameworks adopted from the extensive literature review made. The data analysis has two parts. The first part tries to present analysis of data for the available OAI. In this case, the targeted institutions for their initiatives are the Addis Ababa University Libraries Electronic Theses and Dissertations and the St Mary's University College as they are currently making freely available online contents using its website.

Analysis of OAI

Table 1 – Outputs of the Analysis of OAI

Ser_No	Questions	AAUL	SMUC
1	Mission	Disseminating research outputs to the University community and beyond	Making research outputs accessible to wider community (policy makers, practitioners, individual researchers, etc.)
2	Year of commencement	2007	2005
3	Ownership	AAUL	SMUC
4	Approaches to create open access	Electronic theses and dissertations	Conference proceedings, journal articles and other research outputs such as tracer studies

5	Capacity HR Infrastructure	Yes	Yes
6	Partnership	Office of Graduate Program and Research	(Finland Embassy for MIZAN Law Review) , but none for the others
7	Challenges	• Bringing more content • Promotion • HR at faculty level	Bringing more content Copyright issues

Source: Compiled by the author, 2011.

Analysis for Open Access Publishing Models

In this part, the study presents analysis of those Open Access Publishing Models which have been used by the targeted institutions. The targeted institution respondents include: SMUC, Chemical Society of Ethiopia and Ethiopian Public Health Association. Here, the journal publications of the targeted institutions are again analyzed using the framework obtained from the literature review.

Table 2 – Outputs of the Analysis of Open Access Publishing Models

Ser_No	Questions	SMUC		Chemical Society of Ethiopia	Ethiopian Public Health Association
		Mizan Law Review	Journal of Business and Administrative studies	Bulletin of Chemical Society of Ethiopia	Ethiopian Journal of Health Development
1	Peer-reviewed	Yes	Yes	Yes	Yes
2	Indexed	Yes (DOAR)	Yes (DOAR)	Yes (DOAR)	Yes (DOAR)

3	Number of journals	2		1	1
4	Innovation	Yes	Yes	Yes	Yes
5	Copyright (creative commons)	No	No	No	No
6	Source of income	Internal	Internal	Internal	Internal
7	Authors charge	No	No	No	No
8	Supporting members/partnership	Finland embassy	No	Yes (members)	Yes (members)
9	Self archiving/public archive	No	No	No	No

Source: the researcher's own survey results, 2011

Findings

Open Access Initiative (OAI)

As can be seen from the above data analysis, there are encouraging initiatives with regard to making contents freely available in Ethiopia. The targeted Institutions, Society and Associations had, in fact, ventured to promote open access in Ethiopia.

What kinds of resources are made available through the Initiatives?

Addis Ababa University Libraries were found to make more than 2,000 theses and dissertations accessible for its users. Similarly, conference proceedings, articles from three of its journals and other research outputs (e.g. tracer studies, etc.) were the contents which had been provided by SMUC. As part of the OAI, Bulletin of Chemical Society (CSE); the Journal of Ethiopia Health Development (Ethiopian Health Development Association) and the MIZAN Law Review as well as the Journal of Business Development (SMUC) were identified as open access publication platforms providing professional contents to their respective audiences.

Are there sufficient resources in terms of human and infrastructure?

With regard to the above-stated Initiatives in the targeted Institutions, the respondents identified that they had had relatively sufficient human resources to manage the Initiatives as well as infrastructure to deliver the contents.

Are the publishing models followed by the Institutions in congruent with world standard open access publishing models?

Fortunately, the targeted journals for the assessment of whether or not they have used open access publishing models, as it has been seen in the open journal system of INASP (using African Journals Online (AJOL)) are in congruent with the model developed by Chang (2006). However, among the elements that are identified by the model, their copyright scheme are not in par with Chang, that is, all the journals are not using creative commons. On top of these, unlike open access publishing models that make authors pay, all the journals do not make authors pay in order to publish articles.

What are the roles of international partner institutions in promoting open access?

To date, INASP has been striving to introduce the idea of open access in Ethiopia. Especially, INASP has sponsored an open access week in Ethiopia in 2011. In addition, INASP, through its different programs, plays prominent role in the promotion of the OA. In this regard, INASP contributed the following:

- Conducted capacity building trainings for the journal editors;
Organized and offered training on how to write publishable journal articles through its Author Aid Program;
- Provided infrastructural support to publish journals in open access publishing models (for instance, AJOL);
- Rendered trainings on how to build institutional repositories; and
- Made available documents that are valuable to promote the OA ideas in Ethiopia in INASP's website (http://www.inasp.info).

What possible challenges might those Institutions face in their efforts to scale-up the adoption of Open Access Initiatives (OAI) and publishing models in Ethiopia?

The study found out the following summary of possible challenges identified by responding Institutions:

- Absence of research undertaking cultures at institutional level;
- Lack of incentive mechanisms to engage academicians in research undertakings;
- Lack of capacity in undertaking research;
- Lack of resources to support the entire publication process;
- Availability of technologically well-versed human resource;
- Migration of readers to online environment; and
- Strong institutional support and commitment of top management.

Recommendations

Based on the summary of the findings of the study, the following recommendations have been forwarded:

- As it has been learnt from the respondents, for open access to be a success, first there should be good research culture at institutional and individual level.

- In addition, resources capacity of the Institutions should be built so that they could create incentive mechanisms to bring more research outputs into the open access platform. In this regard, for instance, the honoraria that are paid for those contributors whose articles have been published on the different journals published by SMUC can be cited.

- Capacity of academicians in conducting research should be built using different forums. For instance, Author Aid Program of the INASP can be used to help novice researchers to integrate them into the publishing process.

- Strong partnership and cooperation with national and international organizations should be ventured to alleviate the problem of resource shortage.

- In the light of channeling OA contents using the Internet platform, the Institutions should build their human resource through partnership. For instance, the Addis Ababa University Libraries have strong human resource conversant with the technology. Therefore, joint capacity building training can be designed to alleviate this problem.

- Even though bringing readers to online environment is difficult, it is possible to develop online reading skills by employing different online discussion forums.

- Institutions, Societies and Associations that have already started publishing journals in traditional publishing models should use the opportunity provided by INASP to migrate their intellectual contents towards online environment using the OAP model.

- As there are a number of intellectual contents available in different academic and research institutions, the contents should be made available in OA mode by sharing the experience of the AAUL and the SMUC.

- For the success of the OAI in Ethiopia, there should be commitment on the part of the top management.

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