

## **OPEN ACCESS TO SCIENTIFIC PUBLICATIONS: IDEAS AND PROBLEMS**

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### **ABSTRACT**

Open access scholarly publishing did not have yet a serious impact on the slow-moving world of research. Neither could it solve the serials crisis. Nonetheless we have to see that the push of journals from paper to electronic media resulted in an infrastructure the existence of which shed light – among others - to the fact that the system of journal publishing, acceptable in the print environment, is no more sustainable. One of the most promising solutions to solve the serials crisis is open access (OA) publishing that has been initiated by researchers feeling responsibility for scholarship and which has many faces.

This paper describes the main features of open access scholarly journal publishing and some of the obstacles that stand in its way.

### **INTRODUCTION**

Ginsparg (2007) sets the scene as follows: “The technological transformation of scholarly communication infrastructure began in earnest by the mid-1990s. Its effects are ubiquitous in the daily activities of typical researchers, instructors and students, permitting discovery, access to, and reuse of material with an ease and rapidity difficult to anticipate as little as a decade ago.”

The advent of electronic journals raised awareness of the fact the current system of journal pricing is too expensive, while the Internet offers much lower cost of reproduction and distribution than print does (Varian 1998).

That is why researchers and universities begin to feel the need to re-establish their control over scientific publishing.

Since the 1990s there is a growing dissatisfaction with the system of scientific communications, in particular with journal publishing. Many scientists think that many journals no longer serve their community of researchers, as their costs are too high.

Okerson (1991) pleaded for universities to publish their own research. To the title of her paper she put a question mark: “Back to Academia?”. This question mark decisively has to be and can be substituted by an exclamation mark: Back to Academia!

Still, we have to agree with Buckholtz (2001) who points out that “restoring the researcher in research publishing requires long-term, cultural shifts to right the balance in favour of the scientist”.

### *Out of the “Faustian bargain”*

One of the basic problems of the present system is of ethical nature. Many have raised the question: Is it ethical for scholars, who do research based mainly on public subsidies to give away the ownership of the fruits of their intellectual labour to profit-driven enterprises? (Morton 1997). Harnad (1995) names this the “Faustian bargain” that means that authors trade the copyright of their works in exchange for having them published. Harnad sets up two categories: “trade” and “esoteric” publishing. Esoteric publishing, mainly identical with scholarly publishing that is targeted towards a relatively small circle of readers. The truth is that the real consumers of scholarly publishing are not the readers but the writers, as the scholars are paid by their institutions and by granting agencies in direct proportion to their scholarly output and reputation, thus they benefit from scholarly publishing first of all by publishing the result of their research. Publications are written by scholars for other scholars, and their understanding depends on highly specialised knowledge. Reading is secondary in this regard.

Opposed to this form of publishing is “trade” publishing, which is designed to make money: Consequently, it has to appeal to a reasonably large audience.

The “Faustian bargain” with the paper publisher was valid for both the trade author and the esoteric author. Electronic publication nonetheless changed this situation. Electronic publication namely provides an alternative to this bargain (Atkinson, 1996).

The technological possibility of electronic publication thus had a decisive impact on scholarly publishing.

Publication of scientific content has been one of the areas that benefit most from the emergence of the Internet as scientific publications can easily be delivered electronically to the end users who already have the necessary equipment and skills to access the material in their normal work environment (Björk, 2004). The “Faustian bargain” is no more needed. New forms are required instead.

### *Commercial practices*

Commercial publishers try to understand the threats and opportunities new technologies have caused. They try to solve the constantly emerging problems and seek solutions they can take advantage of. The main practices set up are the following ones:

Dual (print and electronic) publication,  
Bundling,  
“Pay per view”.

Without discussing these in detail, we have to say that most of these practices unfortunately either continue old business models or are disadvantageous to the scholarly community compared even to the old ones. There is only one ideal alternative: open access.

### *What is open access?*

Open access means that a reader of a scientific publication can read it over the Internet, print it out and distribute it for non-commercial purposes without any payments or restrictions. The use of the content by third parties and for commercial purposes is, however, as a rule prohibited. In addition to this, the author keeps almost complete copyright and can also publish the material elsewhere (Björk, 2004).

There is a serials pricing crisis, now in its fourth decade. As Suber (2003) indicates it, the serials pricing crisis means that prices limit access, and intolerable prices limit access intolerably.

He also mentions a newer crisis that can be named permission crisis. It is the result of raising legal and technological barriers to limit use.

Suber argues that open access will solve them both. Open access journals are free of charge to everyone. This solves the pricing crisis. The copyright holder has consented in advance to unrestricted reading, downloading, copying, sharing, storing, printing, searching, linking, and crawling. This solves the permission crisis.

Open access includes not only scholarly journals, but research-area-specific archive (e-print) servers, institutional repositories of individual universities, and self-posting on authors' home pages (Björk, 2004).

Self self-archiving is often called Green OA, while Gold OA refers to publishing in open access journals (Oppenheim, 2008). The latter is the topic we will restrict our discussion to.

### *Financing open access*

Open access obviously has to be financed by some means.

As Björk (2004) point out, open access scientific periodicals have been founded since the early 1990s, mainly as individual efforts. This model meant that cost had to be minimised usually. That's why these journals appeared usually electronic only. The voluntary funding includes largely the work of the involved editors. Direct and indirect grants, the latter in the form of free usages (for example of university Web servers) also play a role. This model is still continued.

Efforts to publish open access journals on a larger scale emerged in the recent years. Such ventures intend to finance their operations through charging authors for publications (author charges).

The author charges model means that there is a submission fee, a publication fee, or a combination of the two. The fee covers the cost of operating the publication. One of the problems with this model is that it essentially shifts the cost of publication from the institutional subscriber to the author's founder or employer (Oppenheim, 2008).

Alternatively, some open access journals are based on traditional subscription. They become freely available in electronic form after a delay of, typically, six months.

The Budapest Open Access Initiative enumerates the following means and sources of financing open access:

- author charges;
- foundations and governments that fund research;
- universities and laboratories that employ researchers;
- endowments set up by discipline or institution;
- friends of the cause of open access;
- profits from the sale of add-ons to the basic texts;
- funds resulting from cancelling journals that charge traditional subscription fees (BOA, 2002).

Whether individual or large scale efforts, funding from foundations or government research funding, universities and laboratories, endowments and obviously friends of the cause will continue to play an important role.

### *The barriers to open access*

Financing is not the only problematic issue. Even more, there are a number of factors that represent obstacles in the way of open access. What are these obstacles?

Buckholtz (2001) names a whole host of barriers including:

- The primacy of promotion and tenure;
- The grant making process;
- The prestige that follows from publishing in certain journals;
- The importance of peer-review;
- The disjunction between libraries (as fiscal agents) and users;
- Entrenched interests of the various stakeholders;
- Under-capitalization of non-profit societies and publishers;
- The profit motives of commercial publishers;
- The conglomeration of the scientific publishing marketplace through mergers and acquisitions;
- Bundled offerings from publishers to libraries;
- The rise of electronic publishing and the associated empowerment of university departments, libraries, societies and individual researchers.

Questions in 1, 2 and 3 will be addressed below in regard to the reward system, question 7 under "The resistance of scholarly societies". Additionally we examine the issue of political support.

### *The reward system*

Most universities intend to use an objective process for evaluating teaching staff. The easiest way is to apply mechanical processes in which publication in peer-reviewed journals is central and base promotions on these (Arms, 2002).

Obviously, there are more sophisticated instruments of quantitative assessment in the form of citation indexes. These indexes, first of all the *Science Citation Index* and to a lesser degree The *Social Sciences Citation Index* as well as the *Arts and Humanities Citation Index* had different goals at their origin, nonetheless they also became “counting devices” for measuring scholars’ output and prestige. Academic appointment and grant committees rank the output of academics following the indicators of these indexes. As Björk (2004) indicates it, this generates high rewards for publishing in journals that are regarded to be the most important ones by the fact that citation indexes regularly monitor them. In contrast to this, primary publishing in relatively unknown open access journals is a very low priority. He also points out, that the use of citation indexes by university administrations as a decision support tool has become one of the strongest barriers to the success of open access journals, since this practice “tends to strongly favour old, established journals”. All this produces a kind of a vicious circle. It is namely very difficult to get new journals accepted in citation indexes before they have established a reputation, and being outside the “core literature” of these indexes makes it very difficult to get good submissions and establish a reputation.

This is despite the fact that citation studies have shown that open access materials often have high citation impact. A direct causal link between being open access and receiving more citations is however difficult to establish. Even if some articles currently receive more citations it is not sure that this trend would continue (Ginsparg, 2007).

### *The resistance of scholarly societies*

Many learned societies are under-capitalised and regard journal publishing as an internal profit centre that allows financing other activities or a particular activity (Buckholtz, 2001). From this perspective there is no fundamental problem with author charges. A further problem, however, is that many societies offer journal subscriptions that are tied to membership fees. Societies consequently fear that adopting open access would threaten their income from such fees (Björk, 2004).

One of the possible solutions for societies is offered by SPARC (Scholarly Publishing and Academic Resources Coalition, an alliance of approximately, 200 research institutions, libraries, and organizations worldwide, <http://www.arl.org/sparc/>). SPARC supports high-quality, non-profit journals launched as alternatives to commercial titles.

### *Quality control*

Throughout in this paper and almost everywhere, where questions of open access journals publishing are mentioned peer review is also continuously referred to. This is because any scholarly publishing requires quality control and this control comes mainly in the form

of peer review. Peer review doesn't fall into the background with the use of the Internet and with open access. On the contrary, peer review remains important also in the digital era because of the vast scale of learned research (Harnad 1999) and all kinds of material available today on the Internet, many of which lack quality control.

### *The efforts to disseminate open access*

General awareness of the advantages of open access publishing is a prerequisite for a broader dissemination of the idea. Much remains to be done to achieve this.

We already mentioned SPARC. There are also a number of different initiatives that help to move towards open access with different means. They are the following:

BioMed Central <http://www.biomedcentral.com>

BioOne <http://www.bioone.org/>

Public Library of Science <http://www.plos.org/>

PubMedCentral <http://www.pubmedcentral.nih.gov>

It is especially important to mention the Directory of Open Access Journals (DOAJ, <http://www.doaj.org>). The DOAJ aims to increase the visibility and ease of use of open access scientific journals. It aims to be comprehensive by covering all fields of knowledge in all languages if open access journals use a quality control system (either through an editor, editorial board and/or a peer-review system).

Resources are catalogued on journal title level, there is however a possibility to search article level content if provided by the publishers.

As of 8 September 2008 there were 3622 journals in the directory from which 1251 journals were searchable at article level. The number of articles was 208832.

DOAJ is important for its potentially everyday use to find high quality literature.

Convincing researchers to support open access is very much like trying to get people to behave in a more ecological way. While most people recognise the need to save energy and recycle waste it takes much more than just awareness to get them to change their habits on a large scale. It is undoubtedly true that business models will play decisive role in shaping the future of open access journals. The currently dominating, volunteer work model is hardly suitable for large-scale operations, especially if we want them to be sustainable (Björk, 2004).

To promote open access in Hungary the and it is teaching staff of the Department of Information and Library Studies at Szent István University Faculty of Applied and Professional Arts edits and hosts the Bibliography of Open Access in Hungary at <http://moodle.abk.szie.hu/file.php/99/IKT/szabadbibl/szabadbibl.htm>.

### *ConclusionS*

The world of researchers is a slow-moving one, where the majority of the community has no incentive to support any move towards change. We have to count with that. Nonetheless, we can believe, that open access scholarly journals are able to prevail, to build a prestige, even if it takes longer time.

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