Open Access and the Author-Pays Problem: Assuring Access for Readers and Authors in a Global Community of Scholars

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**INTRODUCTION**

Out of concern for its lifeblood—communication—academia is rushing to correct serious inequities in access and revenue distribution by embracing open access (OA) in a variety of ways: some journals provide access openly to all readers, some allow authors to pay for OA options, some share copyrights with authors to allow open sharing, etc. For publication in some fully OA journals, though, publication charges associated with an ‘author-pays’ business model can be substantial, reflecting costs involved in production and publication of quality scholarly articles and (sometimes) significant profit margins for publishers. Such charges may constitute significant barriers for potential authors, particularly those at institutions or in countries with fewer resources. Consequently, an OA journal for readers may in reality be a closed-access journal for authors.

The OA movement has improved accessibility of scholarship in recent years, with growing numbers of OA journals (>8500; DOAJ, 2012), increasing exploration of OA options by other journals, extensive global participation in a boycott of the most aggressively closed-access scholarly publisher, broad public support for bills under consideration (e.g., U.S. Federal Research and Public Access Act), and accelerating adoption of OA policies by universities and funding agencies. This broad spectrum of development in OA scholarly communication has helped academia advance toward a more mature, inclusive, and appropriate system.

Limited access to published scholarly communication is, in a broader perspective, one facet of global inequities that create bottlenecks for collaboration and advancement of knowledge. Former U.S. President Clinton noted, “[i]ntelligence and effort are evenly distributed throughout the world,” while opportunity and systems are not (Clinton, 2012). Globally, UNESCO, the World Bank, and other international organizations have taken steps to encourage the worldwide free flow of scholarship, which can have positive impacts if it reaches diverse readers and is open to diverse scholars. However, the ‘author-pays’ model poses a significant problem by creating a system in which access becomes more open to readers but simultaneously more closed to authors. The imbalances are not only between rich and poor countries: even within the United States, a third of colleges are on unsustainable fiscal paths, to which skyrocketing journal access costs are a contributing factor (Blumenstyk, 2012).

An important piece in this puzzle has been viable, respected, high-impact OA journals, creating acceptable options for researchers. (The traditional sense of academic ‘impact’ has become a problematic notion, but that is another story; see Olijhoek, 2012.) Numerous OA journals now have traditionally-calculated high impact-factor ratings and solid reputations, creating more options for...
publishing in access-friendly venues (Laakso et al., 2011, p. 6). A greater variety of access options critically advances the broader goal of completely opening the scholarly literature: such experimentation creates the environment for a rich ecosystem (i.e., interacting ‘species’ of authors, publishers, funders, public, and institutions) to develop in the context of innovative technology and contemporary social expectations. Effective OA experiments have been underway for over a decade: OA journals (funded and) published by individual scholars or institutions; authors paying fees to cover publication costs (e.g., the Public Library of Science or ‘PLoS’ journals); OA mandates by funders and universities requiring ‘green’ access to scholarship; institutional support for paying OA fees; and hybrid OA options in otherwise closed-access journals.

AIMS OF THIS COMMENTARY

By seeking ‘author-pays’ models as a main means of making OA journals viable, academia creates another problem: a scholarly communication world in which access is open to readers, but not to authors. Academia is globalizing rapidly, with a growing proportion of top researchers working in developing countries. If public monies are to be used to finance shifts to completely OA journals (‘Gold’ OA systems) via taxpayer subsidy (see, e.g., Finch, 2012), for example, business models will have to be examined carefully to assure that global wealth distribution does not translate into new imbalances in access to scholarly communication. That is, commercial gold OA journals will not necessarily solve this problem for less-prosperous individuals, institutions, or countries. As scholars struggle to open access globally, they must avoid the trap of assuming that all competent authors will have resources for publication charges (or the gumption to request fee waivers), such that some authors with important insights end up effectively excluded from this system.

The current scholarly communication system reflects ‘rich-country’ circumstances: for-profit publishers have inserted themselves deeply into research endeavors at North American and Western European institutions. Research institutions elsewhere, where scholarly publishing is more often based in the same institutions, may frequently be better-positioned to embrace OA simply by shifting from traditional print to electronic dissemination (see, e.g., SciELO, 2012). Nonetheless, in many countries, considerable priority is placed on publishing in western, high-impact, commercial journals, perceived as a sign of academic excellence, but which subjects the global community to the profit-driven measures that dominate the system.

This commentary is not a criticism of OA publishers with author-pays systems, such as PLoS, which has creatively faced a difficult challenge and stands as an example of a successful non-profit OA publishing endeavor. Nor is this commentary an attack on OA journals in general. On the contrary, this paper advocates developing a robust and vibrant variety of OA journals. Two of the authors are also publishers of OA journals that do not follow the ‘author-pays’ system, described briefly later in this commentary.

THE CRUX OF THE PROBLEM: THE AUTHOR-PAYS MODEL

The author-pays OA model has gained much attention, both as a model whereby publishers may prosper economically, and as a model for long-term sustainability of scholarly publishing. This system provides equitable, free, public access to readers (who, in the broadest sense, ultimately fund the entire research endeavor). However, lurking behind the joy of ‘the reader gets free access’ are subtle assumptions and ethical dilemmas that arise on the author side of the equation. Averting new inequities as the OA movement gathers momentum is critical. Such inequities begin to make their way into the policies, implementation plans of institutions, funding agencies, and governments, and in the global reach and impact of new publishing endeavors. This section examines briefly the evidence for such problems (what is being traded for what) along with new developments in the field.

Note first, however, that some semantic slippage in use of the term ‘Gold OA’ is taking place. Gold OA refers only to the openness of a journal’s contents—free to the reader; the economic and cost-recovery model of the journal can take any form. Yet, repeatedly (most glaringly in the Finch report, discussed below), references to Gold OA use the term as shorthand for author-pays OA journals. Only ~26% of gold OA journals use an author-pays model to sustain the journal financially (Solomon & Björk, 2012b, p. 1485). Although others have found that the number of author-pays articles published is closer to 50% (Solomon & Björk, 2012b, p. 1487), this paper focuses on decisions by publishers, and impacts of such policies on authors and readers. No detailed study has as yet examined closely the funding models and strategies
of the remaining Gold OA journals, the ones that do not use an author-pays approach. Although Crow (2009) and Suber (2012) enumerated types of funding used by such non-APC Gold OA journals, detailed studies of financial models employed by such journals would be valuable in identifying feasible paths of funding OA publishing that do not create new ethical dilemmas (see R. Crow, 2009; Suber, 2012).

It is doubtful that such a situation of authorship-access limited to wealthy institutions reflects the real distribution of scientific and scholarly talent and expertise worldwide. The PLoS leadership recognizes the problem, at least: Michael Eisen, a founder of PLoS, commented the following regarding the idea of a future where OA journals do not grant waivers to publication fees:

… if S[cientific] R[eports] wants to establish itself as a place where only well-funded scientists can publish their work it would be a sad commentary on their motives—and a huge mistake. PLoS will forever welcome papers from anyone who makes contributions to science—whether they can afford to pay or not. (Eisen, 2011)

The United Kingdom Example

Much recent interest has focused on developments in OA in the United Kingdom. The UK has been a leader both institutionally and governmentally in opening access to its scholarship: University of Southampton had one of the first institutional OA policies; and Wellcome Trust (the most influential funder of biomedical research in the UK) instituted an OA policy that includes paying author fees. Most recently, in July 2012, the Research Councils of the UK (RCUK) announced a new OA policy (RCUK, 2012).

However, these developments are cause for concern, particularly in view of reports from various UK working groups. These recommendations culminated in the ‘Finch Report,’ a report from a UK working group with members from the publishing industry, academia, higher education, scholarly societies, and libraries. These recommendations have been controversial within the OA movement. The report recommended use of additional public funds (~US$80–97 million annually) to pay article-processing fees (Finch, 2012, p. 11), which would be paid to any publisher (commercial or not) to allow the published version to be openly accessible (regardless of overall journal model). The RCUK OA policy aimed to ‘harmonize’ with new reports and findings, including the Finch Report.

The Finch Report is troubling for a number of reasons. Though space precludes assessing it in detail, for the purposes of this commentary, a revealing detail highlights the dilemma. The report claims that most OA journals charge author fees (Finch, 2012, p. 6), which is not actually true (Solomon & Björk, 2012b, p. 1485), and thus makes expensive allowances for what is in actuality a minority group of publishers that charge APCs. One might wonder how prominently the desires of publishers figured in recommending this public investment in private profit.

Considering a spectrum of possible paths toward sweeping OA implementation, the US National Institutes of Health’s (NIH) public policy would be on one end where readers gain the most for the least cost. Its policy simply requires all those receiving a portion of its US$30B annual research budget make a copy of the final accepted manuscript of published articles (i.e., ‘Green OA,’ public sharing of the peer-reviewed version of an article, based on the rights negotiated or shared between publisher and author) available in its public repository, PubMed Central, after a 12-month embargo, whether or not the journal is OA. Public access to the intellectual content of the peer-reviewed published results of research is the primary goal. The Finch Report’s recommendations are at the other end of the spectrum: publishers are paid in full for all OA article charges, and regardless of whether a commercial publisher charges exorbitant fees, the published version is made publicly available and the public ultimately pays (again). RCUK’s new OA policy, on the other hand, offers a second implementation method much more similar to the NIH policy (RCUK, 2012, p. 1).

Any sweeping changes in the academic publishing world will require a transition period, moving away from the annual subscription model, under which universities presently pay millions per year, toward a model in which publishers use other economic models to sustain themselves. During this transition, Swan and Houghton (2012, p. i) found that green OA offers the “greatest economic benefits to the individual institutions.” Quite simply, the economic burden of paying both subscriptions and Gold OA author fees would be heavy indeed.
Harnad (2012) argued that, if the UK follows the Finch Report plan, "the UK would lose both its lead in OA and a great deal of public money—and worldwide OA would be set back at least a decade." That is, if >70% of OA journals currently use other means of support, what incentives lead new journals to seek alternative support mechanisms if they see that journal profits can be funded by a wealthy nation’s public? Is it the public’s responsibility to support commercial scholarly publishing enterprises? The Finch Report recommends that “the Research Councils and other public sector bodies funding research should… meet the costs of publishing in open access and hybrid journals” (Finch, 2012, p. 7). If such public funds exist, why are they not put toward establishment and support of genuinely OA journals that do not have to meet stockholder demands for ever-higher profits?

The Rest of the World

Until recently scholars worldwide have focused their energy on producing and publishing the knowledge that they have, leaving financing of the publication system to institutions and, more fundamentally, the public. The growth of open access publishing has shifted financing publication to the author. Given PLoS’ leadership in developing OA publication options, PLoS serves as a focal example of the author-pays model. The PLoS model centers on author charges; the question, however, is the magnitude of the charges. Publication costs in PLoS journals are substantial: PLoS Biology and PLoS Medicine at US$2900; PLoS Computational Biology, PLoS Genetics, PLoS Pathogens, and PLoS Neglected Tropical Diseases at US$2250, and PLoS ONE a bargain at US$1350. PLoS offers tiered pricing depending on the country of the author with the majority funding. Authors may also request fee waivers:

Our fee waiver policy, whereby PLOS offers to waive or further reduce the payment required of authors who cannot pay the full amount charged for publication, remains in effect. Editors and reviewers have no access to whether authors are able to pay; decisions to publish are only based on editorial criteria. (PLoS, 2011–2012)

Offering fee waivers is seen by publishers as a means by which charging publication fees can be accomplished equitably, while still supporting the publishing enterprise. However, a recent blog post from PLoS indicated that fee waivers (full and partial) in PLoS journals have remained more or less constant (Patterson, 2011)—that is, only ~10% of author publication fees end up being excused. (This statistic accounts only for those contributors who follow through on submission to and publication with PLoS. What of those who, because of real or perceived economic barriers, opt not to participate?) Conversations with scientists and scholars in developing countries indicate that these charges represent a significant barrier to submission, even with a waiver: in a nutshell, ‘everyone knows’ that the PLoS journals are expensive, and that one should submit papers there only to the extent that one has resources with which to pay. Solomon and Björk (2012a, p. 103) presented a survey of authors’ attitudes regarding choice of journal: authors from countries with a per-capita GNP below $25,000 were more likely to use (39%) personal funds to pay APCs; only 3% of authors from such countries reported being granted waivers by journals from which their articles were published.

Clear indications of these barriers are easy to find. For example, between multiple co-authors in a developing country, this conversation occurred over email when considering publishing research results:

Co-author #1: Could you please help us to choose the Journal?

Co-author #2: Facing this information we could go back to consider “PLoS Neglected Tropical Diseases.” Even though I think this journal charges too much: “For PLoS Neglected Tropical Diseases the publication fee is US$2250.”

Similarly, in a recent conversation with colleagues in Brazil, a young researcher was asked why s/he had not yet published in PLoS journals—the answer was a laugh and two fingers pressed together, a Brazilian expression for ‘money.’ The message is clear: no resources, no PLoS submission. Indeed, psychological barriers to participation created by fees—even when waivable—are well known and documented in many fields (see, e.g., Kreppel, 1972–1973).

The financially successful for-profit OA publisher, BioMed Central (‘BMC’), the first publisher to test the author-pays OA model, simply waives fees for authors originating from 90 developing countries in a list of coun-
tries with a GDP in 2010 of less than US$200B (http://www.biomedcentral.com/authors/oawaiverfund/). This classification does not account for other sorts of financial complications that potential authors might experience, e.g., (1) somewhat-less-wealthy nations that do not fit in the ultra-poor 90, but that do not yet have rich research funding; (2) venerable institutions struggling in post-Soviet economic imbalances; (3) poorly-funded institutions within otherwise rich countries; and (4) currently unfunded research by researchers at well-to-do institutions in rich countries. For these multiple, and complex social/psychological issues, black-and-white, across-the-board waiver plans are unlikely to remove barriers to publication. Further, it is not clear that waiver programs are stable, as they may diminish or disappear in the future during economic downturns (Davis, 2011). Nature’s new, rapid-review OA journal Scientific Reports, which charges ca. US$1300 per article published, makes no mention of fee waivers, although a representative recently commented in a blog that they would consider waiver requests on a “case by case basis” (Baynes, 2011). “Case by case basis” will create an even higher psychological barrier as it sets up a dynamic whereby the researcher from the disadvantaged position must plead her/his case.

Although publication charges are substantial for researchers at relatively prosperous universities in North America and Europe, they are prohibitively high for researchers elsewhere. A recent analysis of faculty salaries worldwide (Pacheco & Rumbley, 2008, p. 6–7) puts their magnitude in perspective: salaries in the top-ranking ‘developing’ country in the analysis (South Africa) are about half those in the United States, and emerging economic giant China has entry-level salaries of one-sixth of those in the United States. The higher-tier PLoS journals’ publication charges represent the equivalent of about half of a month of salary for an entry-level professor in the United States, but about four months of salary for a researcher in China (Jaschik, 2008). What is more, most countries around the world fall (in economic terms) well below the 15 countries analyzed, so that one can only imagine the magnitude of those publication charges for researchers there.

PATHS TOWARD A SOLUTION

Although author-pays journals may play a role in the interim, a key medium-to-long-term solution is to subsidize non-commercial academic publishing more fundamentally to ensure effective global communication. Experiments along these lines, some very successful, are already underway: libraries and universities are developing robust digital publishing support units (Mullins et al., 2012), including the newly announced all-OA university press at Amherst College (https://www.amherst.edu/library/press/news); institutions are offering funding support to OA journals (see, e.g., COPE, http://www.oacompact.org); institutions and research funders are exploring means of opening access to scholarship regardless of journal policies (e.g., NIH and Wellcome Trust, as discussed above); funders are sponsoring OA journals (e.g., eLife); as well as more controversial programs to support OA as recommended in the Finch Report (see below).

A longer-term solution would involve redirecting the massive funds currently dedicated to pay-for-access fees to subsidize academic publishing directly, without profiteering intermediaries. Over 50% of academic libraries surveyed in the US indicated either having or planning a scholarly publishing service (Mullins et al., 2012, p. 6). For example, 50 US university libraries are collaborating with Educopia Institute, http://www.educopia.org/programs/lpc, to establish the Library Publishing Coalition.

More personally, two of the authors of this article have developed Gold OA journals for scholarly communication in particular fields, which illustrate but two of numerous possibilities. Peterson is involved in Biodiversity Informatics (https://journals.ku.edu/index.php/jbil), an electronic OA journal is hosted on Open Journal Systems technology from the Public Knowledge Project (http://pkp.sfu.ca/?q=ojs); the journal site is hosted and provided technical support by the University of Kansas’ (KU) Center for Digital Scholarship. The journal was established in 2004 by three academics (two KU professors and one from the University of Colorado), and the journal now serves a small but important scientific community. The journal thus survives on in-kind (i.e., time) subsidies from three academics with salary support from their respective institutions.

As a second example, Greenberg co-founded a journal in the 1990s for the study of linguistics pertaining to the Slovene language, Slovenski jezik / Slovene Linguistic Studies (http://www2.ku.edu/~slavic/sj-sls/). Here, a key partner, the Scientific Research Center of the Slovenian Academy of Arts and Sciences (SRC SASA) initially subsidized costs through subvention by the Slovenian Ministry of Educa-
tion, Science, Culture, and Sports. At the outset, labor inputs were subsidized by KU and SRC SASA as the editors performed both editorial and typesetting duties, and KU’s Hall Center for the Humanities underwrote minor start-up costs and provided distribution service for print copies in the Americas (mailing expenses being offset by a nominal subscription fee). As KU developed an effective digital repository, in the mid-2000s the journal moved to retrospective archiving (two-year delay); finally, in 2009 the journal moved to simultaneous open electronic and print dissemination. By the mid-2000s, the journal began taking advantage of typesetting and editing services provided by KU. An author-pays solution has never been considered: in a humanities/social-sciences framework, the structure of research funding in these fields precludes this possibility, suggesting yet another imbalance that may be created by broad implementation of author-pays OA solutions.

An important further example is the Open Access in Linguistics Initiative (OALI, http://hpsg.fu-berlin.de/OALI/), initiated by a group of German academics who noted the prohibitive cost of specialized linguistics publications. OALI calls for taking the quality-control and publishing operations wholly into the academic sphere, with the option of using Amazon’s CreateSpace print-on-demand service. OALI formed the Open Access Science Editors and Authors Society, which is currently working to find institutional backing to eliminate author-pays models from OALI. Many other examples could be cited.

With these examples in hand, the question is how to fund Gold OA journals, but in ways equitable to all scholars whose work merits dissemination. During initial years of OA publishing (1993–1999; Laakso et al., 2011, p. 8), individual scholars and scholarly societies created OA journals with a business model that was often precarious. During a second phase of OA evolution (Laakso et al., 2011, p. 9), commercial publishers adapted to an OA-conscious world in ways preserved profits, within a backdrop of the larger (OA and non-OA publishing) system where for-profit publishers control >60% of the market (Raym Crow, 2006). Perhaps a new phase is beginning, in which stakeholders are seeking ways to implement sweeping changes to how OA scholarly communication is funded. If so (the UK is a good example), they will be anxious to find ‘easy,’ across-the-board, methods for such policy implementations. Going ‘Gold via-author-pays’ OA is easier in some ways for policy makers than seeking new publishing efforts that can fund not-for-profit publishing collaborations. Authors simply writing a check to a publisher seems cleaner, and yet ultimately becomes a barrier to full global scholarly participation.

In the short run, the question is why the scholarly publishing industry, worth tens of billions of dollars (Simba Information, 2010a, 2010b) should sacrifice massive profits and move the enterprise to a not-for-profit, low-cost, state/institution-funded model? The commercial path is not a better solution for access, quality, or cost-efficiency: average cost per article for articles published by for-profit publishers is nearly fivefold higher than for articles published by non-profits (Clarke, 2007). Indeed, of the most expensive journals in terms of cost-per-citation (considering the top 10% of >9400; Bergstrom & McAfee, 2011, p. 183), 81% were commercial publishers. Clearly, the academic world (or the funding public) should not wait for the commercial sector to solve this problem, as the latter has no motivation to solve it; rather, the solution must come from within academia.

CONCLUSIONS

The academy in the broadest sense must make hard choices: universities, institutions, and funding agencies have a critical interest in scholarly communication, research production, and appropriate and objective quality measures for tenure and promotion. The academy must therefore initiate difficult negotiations across campus communities and across communities of stakeholders regarding the massive public funds spent every year by every academic institution on pay-to-read access fees for commercially profitable closed-access journals. As an illustration, KU alone, through its libraries budget, sends ca. 72% of its journal-content funds to commercial publishers and vendors (L. Currie, Head of Collection Development, KU, pers. comm., 30 July 2012); the remaining 28% (ca. US$1.3M) goes to non-commercial publishers and content producers. In the medium term, with increasing OA journal options, it should be possible to recover substantial portions of those funds to support academic publishing from within academia. Such choices are difficult, presenting universities and libraries with potentially conflicting missions: on one side to assure access to the scholarly content that academics and students require (while surrendering millions of dollars to commercial publishers annually), and on the other side to innovate (for, with, or against publishers, as is necessary) in the systematic
and ethical reinvention of the scholarly communication system. Resolving these conflicts is crucial to removing barriers to scholarly communication globally.

REFERENCES


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