

Is Open Access the Future for Scientific Publishing?

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Once attended a lecture by a French professor who started by stating that the future predicts the past. The established publishing models largely stem from developments in printing and paper technology two hundred years ago, followed by copyright. An insight into this period of change is given in the French novel, *Lost Illusions*, by Balzac. The backdrop to Lucien's rise and fall as an author in Paris is the emergence of magazines and newspapers enabled by the dramatic reduction in unit cost.

There was, unlike now, no established business model. Important sources of revenue were bribes from publishers and theatre managers to ensure good reviews of books and plays, or bad reviews of rival works. The business model eventually settled down to a cover price paid by readers and clearly demarked advertising thus enabling reasonably independent editorial policy.

This brings me to the three major concerns over the author-pays or pay-to-publish open access model: the potential reduction in standards; barrier to authorship which could favour the better funded; and sustainability.

Lower Standards

Some critics of the current publishing system don't seem even to acknowledge that there is a cost involved and believe in the internet environment everything can be free. Mark Walport is clear on this. Publishers do a job and there is a cost. The Wellcome Trust is prepared to pay for this.

The problem with charging authors or their employers is the potential

distortion of the editorial process. I refer back to *Lost Illusions*. If the author pays then the publishing system is likely to evolve to suit the author rather than the reader. Standards could fall.

Barrier to Authors

Adopting the author-pays business model may achieve open access for readers but it creates a barrier to authorship. The Wellcome Trust might be able to divert research funds to cover author-pays charges but most institutions are showing no appetite for a new charge and the administrative burden that would go with it. Again we could see a distortion of the system with only the larger institutions in the Northern Hemisphere being able to publish in the most selective prestigious titles; rejecting the majority of the papers submitted is an expensive business.

A complete switch to author pays would result in a net cost for the more productive universities and countries and a reduced cost to the less productive, and no cost to, for example, the pharmaceutical industry (the so-called free rider problem).

Sustainability

Is the author-pays model sustainable? A survey commissioned by ALPSP (the Association of Learned and Professional Society Publishers) indicated that most open access journals are making a loss while most subscription based journals are financially viable.

I quote from the Royal Society's position statement issued last December:

"Funders may be forcing scientific researchers to change the way they publish papers so quickly that disastrous consequences could



result." The statement added that peer review journals could be forced to close, "The worst case scenario is the introduction of new journals, archives and institutional repositories that cannot be sustainable in the long run."

When the House of Commons Select Committee on Science & Technology conducted a study of scientific publishing in 2004 it interviewed the Nobel prize winner Harold Varmus as one of the parents of the open access movement and founder of PLoS (the Public Library of Science) which produces author-pays journals. PLoS should be financially viable by now according to his evidence and so it should be with at least \$13M of donations. A recent report in *Nature*, however, suggests PLoS is still some way short of financial viability and last month PLoS raised its basic charge to authors from \$1500 to \$2500. This may still not be enough and one of the PLoS managers admitted that they may always depend on some philanthropy. We could never get away with such price rises. The PLoS team is top class and producing fine publications but they are also proving what any publisher (as opposed to distinguished scientist) could have told them: with quality comes cost.

The Future for Author-pays Open Access

To sum up this first part: author-pays open access will be part of the future of scientific publishing as long as some well-funded organisations are prepared to pay for it. Publishers such as Blackwell, Springer and OUP offer this option with conventional journals. The limited take up, however, suggests that it will only be a small part and sustained by riding

on the back of the more robust and proven subscription based model.

Are Other Means of Achieving Open Access Sustainable?

There are many other important aspects of open access which will make our debate more complex. There is already a great deal of material made available by subscription based publishers free of charge. So called delayed open access is one element: many STM (science, technology, medicine) articles can be accessed 12 months, some 6 months, after publication. Organisations such as HINARI, AGORA and INASP make available material at little or no charge in developing countries.

And in any case the "journal crisis" that seemed to drive the House of Commons Select Committee's study does not stand up to scrutiny. The Committee had no sense of history and were too ready to be influenced by librarians who have always complained about the cost of publications. Access to titles in British universities has approximately doubled over the last five years at a cost increase of around 50%. Surveys have shown that this improvement in access has been appreciated by researchers if not by the Select Committee.

Yet there is a demand now for public access, that is that the tax payer who has ultimately funded research should have free access to the published results. This is of course a politically attractive idea and publishers are less well organised lobbyists than, say, farmers. I keep 12 bullocks on our meadow and receive two grants for this but I am not expected to hand out free steaks. Villagers are free to roam the meadow which they do without damaging my limited efforts in animal husbandry. This seems a reasonable compromise.

A reasonable compromise seems less likely in scholarly communication. The RCUK (Research Councils UK) has picked up on the public access issue and added "dissemination" to its mission statement. Until recently it has assured publishers, including the many societies that publish, that although it would like to see RCUK-funded researchers post their articles for free access over the net as soon as possible after publication the copyright and licensing arrangements of each journal should be honoured; further policy development would be shaped by independent scientific study of the whole process of

scholarly communication. This would include looking at the impact of posting articles on journal publishing. The concern, of course, is that if articles are available over the net soon after publication from an institutional repository then there will be no need for a library to subscribe.

Last month, however, the MRC (Medical Research Council) announced its own policy which included mandated posting of articles within six months of publication. Some of the other councils are taking a more measured approach and they should get the benefit of an extremely well organised programme of research into scholarly communication being conducted by RIN (Research Information Network). In marked contrast to the recently published study of the European scientific publications market commissioned by the EU and the two flawed reports from the Wellcome Trust all the evidence is being assessed rigorously with the help of an advisory group drawn from all spheres of interest; each step is in effect being peer reviewed. I cannot see why the MRC could not wait until RIN's programme is completed.

We do already have the results of a study commissioned by ALPSP which indicates some potential risk of cancellations resulting from widespread posting. An initial analysis of the results from an international survey of the impact of posting on journals carried out by Scholarly Information Strategies on behalf of the Publishing Research Consortium (PRC) also suggests such a risk. Librarians are likely to continue to acquire high quality content but with lower status journals the version posted on an institutional repository might be deemed good enough. Respondents saw little difference between having a publication available upon publication or waiting six months. Librarians are prepared to compromise between the "Final Published Article" and the "Author's copy of the copy-edited accepted article" but there is little interest in the "un-refereed manuscript". Librarians do value the publishing process, even beyond the function of refereeing, but welcomed the challenge that open access poses to publishers.

The PRC will be publishing the full report next month. There is some indication at this stage, however, that posting at six months could damage

smaller journals and many of these come from societies. This was the very reason that the NIH (National Institutes for Health) gave for keeping to mandated posting within 12 months. The MRC does not seem to appreciate the vital role societies play in the dissemination and development of information, indeed knowledge.

The attack on the publishing system at this time is ill-judged. It has evolved radically in the last decade and has the capacity to deliver on the enormous challenge ahead. Currently we publish about 1.5M peer-reviewed articles per annum and say 2.5M in total including proceedings of meetings etc. Increased investment in R&D has become fashionable worldwide and there is a direct relationship between the number of researchers and articles produced. In the last two months for example significant increases in R&D funding have been announced from Australia and Singapore. India and China are well known stories. In the EU we have all signed up to taking the R&D spend up to 3% of GDP. If we all achieved this it would result in 700,000 more researchers which equates to say an extra 600,000 articles per annum.

Linked to the public access to articles lobby there is also the demand for open access to the original research data. Publishers are working on ways of linking journals not just to each other (already achieved through its own co-operative venture CrossRef) but to databases. Our efforts to develop new functionality and handle, say, 2.5M peer-reviewed articles per annum in ten years' time should not be undermined by politically motivated publisher bashing.

Ill-thought-out public policy could seriously disrupt the development of journal publishing where British companies and indeed societies have dominated the international market. If our aim is to be a successful knowledge based economy the lack of support from some quarters is unhelpful. Achieving universal access, which includes many of the elements of open access, to a much greater amount and range of information is our future. Britain leads in this at present and can go further if we work together.

Open access riding on the subscription-based model by forcing researchers to post articles and thus undermine the system is not sustainable and cannot therefore be the future.