

Comment

## Open access to the scientific journal literature

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### Abstract

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None of the advantages of traditional scientific journals need be sacrificed in order to provide free online access to scientific journal articles. Objections that open access to scientific journal literature requires the sacrifice of peer-review, revenue, copyright protection, or other strengths of traditional journals, are based on misunderstandings.

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Open access to scientific journal articles means online access without charge to readers or libraries. Committing to open access means dispensing with the financial, technical, and legal barriers that are designed to limit access to scientific research articles to paying customers. It means that, for the sake of accelerating research and sharing knowledge, publishers will recoup their costs from other sources.

Open access to the scientific journal literature would be hard to defend if its obvious advantages required sacrificing any of the obvious advantages of traditional journals. But it turns out that no sacrifice is necessary. Open access to scientific journal literature is compatible with all of the major advantages of traditional journals; here, I identify eight.

### Peer review

Researchers could put their own articles on their home pages and bypass peer review, but that is not the kind of open access advocated by the Public Library of Science [1], the Budapest Open Access Initiative [2] or BioMed Central (the publishers of *Journal of Biology*) [3]. All the major open-access initiatives agree that peer review is essential

to scientific journals, whether these journals are online or in print, free of charge or 'priced'. Open access removes the barrier of price, not the filter of quality control.

### Professional quality

The quality of a journal is a function of the quality of its editors, referees, and authors. All three variables are independent of the journal's cost (free of charge or priced) and delivery medium (electronic or print). Scientists of the highest caliber can edit, review, and write for open-access journals. Impact factor and other measures of quality are also price- and medium-independent. Whether a given open-access journal realizes the quality of which it is capable is not assured, of course, just as it is not assured for traditional journals.

### Prestige

Prestige is not the same thing as quality. If quality is real excellence, then prestige is reputed excellence. Put this way, it may seem that quality matters but prestige does not. But the incentive for authors to submit their work to a given journal is much more a function of the journal's prestige than its quality, at least when the two differ. By

providing this incentive to authors, prestige tends to boost quality, just as quality tends to boost prestige. The trouble is that most open-access journals are new. Although new journals can be excellent from birth, prestige takes time to cultivate. Hence, most of the prestigious journals today are traditional. But even today the number of prestigious open-access journals is growing; and in any case, all the factors that create prestige are price- and medium-independent. So, it is only a matter of time before the open-access journals have earned prestige roughly in proportion to their quality (or at least have the same disparity between these two that characterizes their well-established traditional counterparts).

### **Preservation**

So far, paper is the only commonly used medium that we know can preserve texts for hundreds of years. There are many creative methods emerging for storing digital texts electronically with at least the security of paper; the PADI project (Preserving Access to Digital Information) has assembled a good review of them [4]. The only problem is that it will take hundreds of years to monitor the outcome of present-day experiments. But we don't have to choose between insecure storage and retreat from the digital revolution: the short cut to preservation is to print digital texts on paper. Individual researchers can make printouts for their own use, and journal publishers can print entire issues, either for routine sale or specifically for deposit in long-term archives. Preservation in the digital era will be as good as paper, just as it was before the digital era.

### **Intellectual property**

Open access is compatible with copyright as long as the holder of the copyright consents to open access. The fact that most copyright holders want to restrict access to paying customers has created the illusion that all copyright holders want this, or that copyright requires payment. This is not the case. Copyright law gives the rights holder the authority to decide - but most rights holders are profit seekers whose interest lies in controlling access, distribution, and copying. But in their role as authors of journal articles, scientists are not profit seekers and their interest lies in dissemination to the widest possible audience. For this purpose, it doesn't matter whether scientists retain copyright of their own articles or transfer the copyright to an open-access journal or repository. Copyright assures authors that authorized copies will not mangle or misattribute their work. And the fact that the holder of the copyright consents to free access sharply separates this kind of open access from what might be called 'Napster for science'.

### **Profit**

Open-access publishing is compatible with revenue, and even profit, just as it is compatible with a non-profit business model. For example, BioMed Central is a for-profit publisher. Publishers adopt open access not to make a charitable donation or political statement, but to provide free online access to a body of literature, accelerate research in that field, create opportunities for sophisticated indexing and searching, help readers by making new work easier to find and retrieve, and help authors by enlarging their audience and increasing their impact. If these benefits were expensive to produce, they would nevertheless be worth paying for - but it turns out that open access can cost much less than traditional forms of dissemination. For journals that dispense with print, with subscription management, and with software to block online access to non-subscribers, open access can cost significantly less than traditional publication, creating the compelling combination of increased distribution and reduced cost. The revenue of an open-access publishing house cannot come from subscriptions or licenses: that would violate the barrier-free nature of open access. Instead of charging readers or their sponsors for access, BioMed Central charges authors or their sponsors a fee for dissemination; its revenue consists of these dissemination fees plus proceeds from the sale of add-ons and auxiliary services.

### **Priced add-ons**

An open-access journal gives readers access to the essential literature without charge. But this is compatible with selling an enhanced edition, or other products and services, to the same community of readers. A scientific journal might sell 'add-ons' and auxiliary services such as current awareness, reference linking, customization ('My Journal'), or a print edition. Revenue from these add-ons may offset, or even exceed, the cost of providing open access to the essential literature. One of BioMed Central's most alluring auxiliary services is Faculty of 1000 [5], a recommendation service harnessing a network of disciplinary experts to recommend the best new work in a large number of biomedical specializations.

### **Print**

Open access is free online access, and is perfectly compatible with other kinds of access to the same content. A publisher of an open-access journal might lose money by producing a print edition of the same content, and this is one reason why some publishers might elect not to create a print edition. But a publisher might decide to sell a print edition for cost to those who need it, or prefer it, while serving most constituents through an online open-access

edition. Since the open-access edition can generate at least as much revenue as is needed to cover its costs, and priced add-ons can generate even more, publishers need no longer see the print edition of a journal as the economic centerpiece of the enterprise. And of course, open access is compatible with printing copies for the purpose of long-term preservation, and compatible with users printing individual articles through their browsers.

I don't know why these eight desiderata of traditional journals all begin with the letter P (if we turn 'quality' into 'professional quality' and fudge with 'intellectual property'). But it does tend to make the virtues of open access easier to remember: if we adopt open access, we needn't sacrifice any of the eight Ps, and we get open access to boot.

## References

1. **Public Library of Science**  
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[<http://www.nla.gov.au/padi/topics/18.html>]
5. **Faculty of 1000** [<http://www.facultyof1000.com/>]

### Editor's note:

Peter Suber is Editor of The Free Online Scholarship Newsletter [<http://www.earlham.edu/~peters/fos/>] and has no commercial or other relationship with BioMed Central or *Journal of Biology*.