

WHO WILL BUY MY BELLS AND WHISTLES? THE TRUE NEEDS OF USERS OF ELECTRONIC JOURNALS

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Two different debates about electronic journals have been going on more or less independently, one assuming continuation of commercial publishing and the other advocating various free or inexpensive models. The provision of sophisticated facilities in commercial electronic journals is a major reason for the cost differences between the two models. Do users want these bells and whistles? Authors, not the readers or the buyers, are the key users of the scholarly literature, and authors want eyes, not pennies. If authors mount all their papers on their own web sites, commercial publication of specialised scholarly journals will be difficult to maintain.

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Fee or free?

For some time now, two parallel universes have existed in the world of electronic scholarly journals. In one universe, the established publishers, both for-profit and not-for-profit, have developed electronic versions of their existing journals, assuming that the new electronic era will resemble the old print era: scholarly journals will still be distributed on a commercial basis by publishers to libraries. In the other universe, various scholars have been thinking about models that do not require payment, or at least are a lot less expensive than the commercial model. The leading advocate of the second approach in the UK is Professor Stevan Harnad of the University of Southampton^{1,2}. These two communities have largely not communicated with each other. Each has concentrated on solving the problems inherent to its own model and has substantially ignored the other.

Many people, including me, have puzzled over these questions: how can it be that the advocates of a free system can arrive at such low estimates of costs? Similarly, how is it that established publishers, even not-for-profit ones, maintain that the conversion of their journals to electronic form will lead to fairly small reductions in costs, even if, at some future time, they cease altogether to print them?

Do users want electronic journals?

Another unanswered question is this: do the users of scholarly journals actually want the journals converted into electronic form or, given a free choice, would they like to keep the printed ones indefinitely? Early user studies conducted by our group at Loughborough^{3,4} and more recent ones in other places^{5,6} seem to show relatively low usage of electronic journals and some dissatisfaction with them. On the other hand, however, established

free electronic journals such as *Psychology*⁷ edited by Stevan Harnad, claim impressively high figure for visits to their websites.

The questions that I have posed may seem unconnected. Below, I attempt to connect them, but meanwhile I pose another question.

Who are the users of electronic journals?

It is a well-established conclusion that the scholarly literature has several functions⁸ dissemination of information; archiving of information; quality control, and assignment of credit and priority to the authors.

Understandably, librarians have concentrated their attention on the first two of these, while authors have regarded the last two as the key functions, but who are the most important users of the scholarly literature?

I have argued before⁹ that the scholarly journals market is a very odd one, because it is driven by its authors and not its readers, and the buyers are neither authors nor readers, but librarians, who nevertheless have to pay for the system. The convention, in discussions of free-market economics, is to assume that the buyer is sovereign. Markets are driven by people who purchase products, and companies prosper, if they produce products that the market wants at prices that it can afford. If the product is unwanted or the price is too high, the producer does not flourish.

But the scholarly journal market does not work like that. It is author driven. Scholarly communities launch journals because authors want to publish papers. The key to success for a journal is to attract the best authors. The journals in which the best authors publish will be the last to be cancelled when library budgets are tight. The titles cancelled are not necessarily the ones with the highest prices or the highest rates of increase of price. Exorbitant price increases by one publisher may lead to cancellation of another publisher's titles.

The decision of an academic library to cancel a particular title is based on the view of the academics in the field in question as to which are the less essential journals of their field. That view, in turn, will largely be based on their thinking as authors, not as readers. It is often said that the authors and readers of any particular scholarly

journal are the same people, but this is only partly true. The authors are a subset of the readers. Many people who read scholarly articles rarely, if ever, write one. These include practitioners (doctors or engineers, say), school or further education teachers, students, and interested lay people. The publishers of scholarly journals rarely give these readers a thought, though medical journals like the *BMJ* would be an obvious exception.

Thus I answer my own question, Who are the users?, by saying that the authors are the key users of a journal, while the readers come a poor second, and the buyers (librarians) a distant third.

What do users want?

Moving along to the next question, What do users want?, Harnad often points out that the authors want eyes not pennies. Unlike the authors of most other kinds of literature, the authors are not paid. Their main desire is that people should read their papers, so that some notice is taken of the results of their research. Readers want to obtain papers easily and without personal expense. What both authors and readers want is that the content of the articles should be made readily available.

They want people to be able to get hold of the text, tables and diagrams of a scholarly article without charge, with reasonable ease, and on their own desktop, wherever in the world that desktop might be.

Electronic publishing offers many exciting new possibilities: multimedia content; rich hypertext linking both within and between documents; full-text searchability; asynchronous interaction between authors and readers; continuous evolution of documents; tailoring of them by readers to suit their own needs, and so on. Because these things can be done in an electronic environment, there is a temptation for publishers to think that they must be tried.

In other parts of the publishing industry this approach would be fine. The market will decide whether interactive books, or multimedia books, for example, will prosper or not but the scholarly market is different. The buyers are not the readers. The readers are not the most important users. In addition, it is not clear that the key users, the authors, want all these extra facilities.

Non-commercial models

There are a number of non-commercial models for the publication of scholarly articles, and I have recently reviewed them¹⁰. The one currently favoured by Harnad looks like this. An author writes a scholarly article and mounts it on a web site, perhaps a personal one, but more likely one belonging to the institution that employs the author. It is clearly labelled as a preprint. The article is then submitted to an editorial board and refereed. The label changes to "submitted for publication". The journal accepts the paper. The label changes to "accepted for publication". Finally the paper is published in the journal. The label changes to "published" and gives the bibliographic reference and a link to the publisher's web site for the electronically published version. However, the paper remains on the author's web site and continues to be available (as it has been throughout) free of charge to anyone via the Internet. The publisher sells the printed version and may also offer an electronic version for sale to libraries. Disciplinary preprint servers, like the high-energy physics one established at Los Alamos by Paul Ginsparg¹¹, list both pre-publication and published papers; they may carry actual copies of the papers or links to the author's server. From the reader's viewpoint it does not matter which. The key principle is that the world's scholarly literature is available free of charge to the world's scholars.

Publishers are understandably not enamoured of this model. It sees a role for them while print survives, but when printing ceases, what will the publishers have to offer? Presumably, the bells and whistles: the professional presentation; the multimedia content (difficult for the amateur to produce); the hypertext linking, especially the linking to other publications such as *CrossRef*¹² will provide. If the actual, new intellectual content of the articles is available free of charge, will enough libraries subscribe to the commercial electronic version, just to get access to the extra facilities? Perhaps.

Should the author pay?

There is another way. Given that the users that matter most are the authors, maybe they should

pay, or rather their institutions or grant-giving bodies should pay. The Florida Entomological Society (FES) has been experimenting with this idea¹³. Papers are accepted for their journal. If the author does not pay anything, the paper appears in the printed journal, after all, the subscribers carry the costs of that, but not on the web site. After two years, all the papers are put on to the web site to ensure that it parallels the printed version archivally. If the fee is paid, the article appears on the web site immediately, and anyone can look at it without payment. When printing ceases at some future date, of course, all authors will have to pay for their papers to go on the web site. But that will not be too onerous since the FES charges only \$50 per article.

What is the author getting for that \$50? If the publishers ceased to exist, in Harnad's model, the papers would not get refereed. It also helps the visibility of papers, if they are grouped under a recognisable journal name. Not only does this indicate the subject matter, but it also carries an assurance of quality – people working in a field know how good each journal is. It is in the interests of authors (the most important users) that the quality control and assignment of priority functions continue, and so the publisher must remain viable. The Institute of Physics has launched the *New Journal of Physics*, an electronic-only journal paid for by author payments and thus free to readers, to test out this model. But to make it pay they have to charge a fee of \$500, ten times the FES figure. Furthermore, recent modelling work by Halliday and Oppenheim in my own department^{14,15} suggests that even the I.o.P. figure may be too low for commercial viability of the author-pays model. So we return to one of my initial questions. Why the huge differences in costs? Presumably the answer lies in the "bells and whistles", the multimedia, hypertext links, interactivity, and so on, that electronic journals can provide.

So our two parallel universes come down to two parallel publishing systems. One provides the basic information free of charge from the author's server. The other provides a professional-looking presentation, with the bells and whistles, available for a fee, surviving because users are willing to pay, through either library subscriptions, high author payments or a combination of the two.

Can commercial journals be viable?

Suppose that too few customers are willing to pay, by either route, to make the professional version viable. The FES has one answer, a very low fee; but \$50 buys few bells and whistles, so why have the plain version in two places, the author's server and the journal's? There is a more radical proposal that has been developed as a thought experiment over the last few years by John W.T. Smith at the University of Kent¹⁶. In his model, the refereeing of the paper, the creation of a "journal", and the provision of access to the full text would all be separate. Reputable refereeing agencies (possibly but not necessarily learned societies) would referee papers for a fee, quite low because all it needs to cover is the administrative cost of the refereeing system. A "journal" would be a web site providing links to all the papers (passed by a refereeing agency) that are deemed appropriate to the subject field. Thus the "journal" would be like a subject gateway or a Ginsparg server. An interdisciplinary article could appear on two "journal" sites, so as to be visible to workers in both disciplines, and the full text of the articles would also be on the author's site, as in the Harnad model.

It must be reiterated that refereeing is not a "bell" or a "whistle". Many surveys of scholarly opinion¹⁷ have shown that it is an absolute requirement of any publication system that quality control by peer review should continue. Harnad is insistent that in his model the distinction between preprints and published papers would always be very clearly indicated. Some radicals have suggested that in a future electronic system there should be no refereeing as this constitutes censorship, but most scholars – especially those in the sciences – believe that quality control of published information continues to be essential. Publishers regularly quote the refereeing system as an argument for their own continued existence, but this argument is not valid. Publishers may or may not administer the refereeing system – the pattern varies between journals – but the actual refereeing is done by scholars themselves. Hence one of the non-commercial models could and would provide for the continuation of peer review.

It does need to be remembered, however, that what has been suggested here applies to scholarly

publishing of the kind that Harnad used to call "esoteric" – that is, specialised journals, the content of which is really only of interest to other academic scholars in the same specialism. Many kinds of periodical fall outside this definition and would naturally remain commercial in almost any scenario. These would include medical journals like the BMJ and the Lancet, general journals like Science and Nature, and science magazines like New Scientist or Scientific American, as well as general trade publications of all kinds. These may become electronic-only at some point but they will continue to be legitimately products of commerce.

Tentative conclusion

So I tentatively arrive at the conclusion that the reason for the widely differing costs estimates that prevail in the two universes is that one community is costing a plain presentation and the other a sophisticated one. I also conclude that there is little evidence that users really want or need the fancy version. Thus, it seems likely that commercial publishers, including the not-for-profit ones, may have difficulty staying in the traditional scholarly journals business, if scholars in general take up Harnad's proposals.

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