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Is Scholarly Publishing Going from Crisis to Crisis?

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In an open access world, will journal subscription inflation simply be replaced by APC inflation?

Librarians have long complained of a 'serials crisis'. That crisis they contend has been based on one thing: price. Year-on-year price hikes for journal subscriptions far exceeding consumer price inflation that have meant that, even in electronic form, academic journals easily become unaffordable for many and as a result the dissemination of scholarly research is impaired.

Open access was supposed to solve all that. And there is a very good chance that it will. Championed by funders, librarians and increasingly researchers themselves, open access (OA) clearly has the potential to improve the dissemination of research results, for the first time making publicly-funded research publicly available. Over the last decade, the potential benefits of OA have become clearer and the evidence for them stronger. A number of studies have shown that it significantly reduces the system-wide costs of publishing whilst at the same time increasing usage.^{1,2,3,4,5} Research progress can be accelerated, interdisciplinary connections identified and unnecessary duplication of work avoided.⁶ Usage can also be increased outside the research community, amongst practitioners, clinicians and policymakers.^{7,8} Knowledge transfer to the commercial sector can be improved.⁹ And OA does not just make content available to read, it also produces what Cameron Neylon has recently called a "network-enabled literature" that can be mined, analysed and reused in all sorts of ways.¹⁰

The arguments in favour of open access are now largely won. It is a question of *when* and precisely *how*, rather than *if*.

The recommendations of the Finch Review on improving access to research publications, published in June 2012, will certainly help to accelerate the move to OA in the UK and are likely to influence developments elsewhere.¹¹ Academic publishing is an international business and developments in one place can have a worldwide impact. OA initiatives led in the US by the National Institutes of Health have clearly shown that. Finch, with its recommendation for a 'measured acceleration' of the move towards open access has sparked global interest.

In the UK, Finch has certainly created momentum. The government accepted its recommendations, in July 2012, very soon after the report's publication.¹² At the same time, the main government-sponsored research funders in the UK (Research Councils UK) signalled their backing for Finch's

recommended approach and spent the autumn refining and explaining their position, and encouraging UK institutions to move ahead – encouragement which has included short-term funding and the promise of more to come.¹³ Once again, their approach has prompted interest well beyond the UK, although not without controversy.

Finch and RCUK clearly favour so-called ‘Gold’ OA, replacing post-publication journal subscriptions with pre-publication article processing charges (APCs). This means that authors (or in reality their funders and institutions) will increasingly pay for the management of the peer review processes, editing and publishing of a paper upfront in order for the article to be made OA, rather than libraries paying for post-publication subscriptions.

Gold OA is certainly a workable business model. That is now clear. A number of international OA publishers, such as the Public Library of Science and BioMed Central, have been using it for a decade or more, and their journals are now well established with very respectable impact factors. Of course, a few publishers were experimenting with OA business models before PLoS and BMC, but many others have more recently got in on the act either by launching new OA titles or by offering OA options on articles on existing subscription journals (‘hybrid OA journals’), or both. It is interesting that so many established publishers seem to be favouring the launch of new titles as well as the conversion of existing ones. The extent to which this continues will be worth monitoring.

But here we reach a problem. What is to stop a *new* serials crisis from developing? Does Gold OA mean that journal subscription price inflation simply gets replaced by APC inflation? APCs currently vary enormously, just as journal subscriptions do. Some APCs are as low as a couple of hundred dollars, others are as high as \$5000 per article.¹⁴ This almost certainly means that the price paid for APCs is already not directly linked to the costs of production, but rather to what the market will bear (even taking into account varying costs associated with the different article rejection rates of different journals). As authors still want to publish in the high-impact-factor journals, what is to stop those journals charging excessively high APCs knowing that authors will still pay up?

Some say that the market will sort itself out. It is observed that Gold OA does not reproduce many of the systemic weaknesses of the journal subscription market which have made it difficult to self-correct. Once a subscription journal is established in its field, it becomes a ‘must have’ title. The articles in the journal cannot be obtained from anywhere else and so the journal operates as its own mini-monopoly in the market. That means that when the price is raised, people will still buy it. There is a low price elasticity of demand because of non-substitutability.

Sensitivity to price is also low in the subscription journal market because of a disconnect between the consumers of the product (researchers) and the purchasers (librarians). Consumer behaviour is not sufficiently affected by price signals. Whenever librarians say ‘enough is enough’ and move to cancel a journal because of rising subscription costs, they rarely find support from their academic colleagues. The market clearly doesn’t work.

But Gold OA is not like that. It has the potential to reintroduce genuine competition into the journal market with authors sensitive to price making choices about where they place their articles. If journals put APCs up, authors can go elsewhere and the adjustments can happen quickly. This will be helped by the greater transparency that is likely to be a characteristic of the market, certainly compared with the subscription system. The complex pricing models and confidentiality clauses that

came to typify the subscription-based market meant that price rises were often disguised. Gold OA, on the other hand should make price changes clearer – and customers will be able to respond accordingly.

That of course is true, at least to some extent. Although it needs to be recognised that journal title brands will undoubtedly still continue to be an important part of an author's thinking in choice of publication venue. But there is a danger with many of the processes now being established by universities to pay for APCs on behalf of authors. These systems, which will allow payment to be made centrally often with block pre-payments to publishers, will certainly save the time of authors and therefore ought to be pursued, but they do run the risk of once again separating researchers from the realities of price in a way that could recreate some of the systemic failures of the subscription market. They need to be handled with caution.

Despite that, it remains probable that the operation of the market will be improved by OA, not only because of APC competition and greater transparency but also because barriers to entry in the market are lowered. This has been demonstrated recently by the launch a whole raft of new titles and also other innovative research communication initiatives. Existing publishers are experimenting with new journals and business models, and new publishers are being set up. Projects like the community-based PeerJ,¹⁵ with its innovative membership model for OA publishing, will be interesting to follow.

Projects like these are given impetus partly because the OA APC business model is one where costs and income tend to stay in sync. For universities, the costs of publication scale with research income. For publishers, the costs of publishing scale with APC income. One consequence of this is that the inflation-cancellation spiral (where publishers raise their prices, subscribers cancel in response, and publishers raise their prices again to maintain their income) should be broken.

All of this means that the inflationary pressures that seem to be inherent in the subscription business model are dampened down by the OA APC model.

Nevertheless, universities as institutions need to retain an acute sensitivity to price. Rather than just leaving the market to individual authors, there is a strong case for institutions or groups of them leveraging their bargaining power to ensure that APC inflation does not get out of control. In many countries, negotiations for e-journal subscriptions are carried out by consortia. It makes sense for these negotiations now to incorporate APC levels. This will help to avoid 'double dipping', where publishers of hybrid subscription/OA journals continue to raise subscription prices but at the same time get a new income stream from APCs. Consortial negotiations with publishers need to take account of the total amounts handed over to publishers, subscriptions *and* APCs. In particular, it will be important to ensure that as APC income increases for publishers, subscriptions are reduced commensurately. Experience seems to show that it may take a tough stance from universities to achieve this.

More innovative models that can exploit the collective bargaining power of the academic community should also be investigated. The approach taken by the international SCOAP3 initiative, where a particular subject community (high-energy physics) is asking publishers to tender competitively for publishing services, is a good example of what can be done.¹⁶ This turns the relationship with publishers on its head. Rather than them being the monopolistic providers of a

'must-have' product, they become deliverers of a commissioned service. This radical approach clearly has potential but needs testing.

In addition, how universities internally manage funds for APC payments will be crucial. The UK Research Councils will now be providing funds at institutional level to pay for APCs. Other funders, such as Wellcome and other medical charities, already do, and still other funders are likely to follow suit. Institutions need to create clear processes for authors to access such funds. It is likely that for the foreseeable future funds will be managed at a central level in institutions in order to ensure equitable distribution and appropriate monitoring. In order to encourage OA publishing across the institution, it will be important that the allocation of funds is not hypothecated against the research income of particular researchers or groups. Rather, a level playing field within the institution should be created based on publishing output. Just as funding in other parts of the institution derived from research income are made available to all (for example, funds paying for periodical subscriptions), so these OA funds need to be available across the board.

However, as all this goes on, it is important to remember that Gold is not the only colour. Green OA, the depositing of research papers in OA repositories, remains a way of moving ahead rapidly on the OA agenda without delay. In a few disciplines, Green OA is already well-established.

Of course, Green OA is not a business model. Even its most vociferous advocates recognise that if it were to become mainstream it would almost certainly prompt a change in business models that would result in something like APCs. But Green can proceed in the short term, allowing the question of business models to be worked through as part of the transition process.¹⁷ Also, by providing an alternative OA dissemination method to Gold OA, some Green OA advocates argue that it is likely to have the effect of keeping a lid on publisher price rises (subscriptions or APCs). Partly for this reason, it is important that research funders design their OA policies to make it difficult for publishers to squeeze out Green options. Green OA perhaps needs more policy-based support than it has received of late, at least in the UK.

Green and Gold are, however, not alternatives, still less rivals. In fact they have the potential to work together to form a single open-access research communication system. In most of the current successful OA initiatives, both journals *and* repositories play a role at the same time.¹⁸ For example, PubMed Central is an OA repository which houses papers originally submitted to journals most of which charge APCs. In a very different but no less successful OA model, the arXiv e-print server for high-energy physics still relies on journals for peer review and other services, but improves the speed of circulation of research results through self-archiving in an OA repository. It is interesting to note that high-energy physicists have not ditched journals just because they have an e-print archive. Quite the opposite in fact. SCOAP3 shows that they want to transition their journals to OA as well.

Open access is now moving into the mainstream. At last, research communication can fully take advantage of the power and ubiquity of the web. But as the shift happens, it will be important to make sure that the OA models which are now beginning to solidify work for the benefit of the research community in particular and society more generally. This will need careful and sustained monitoring.

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