The future of academic publishing

- **By Mike Taylor**
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These are the most uncertain times in living memory for academic publishing. After decades of bumping along with an antique publishing model, researchers have suddenly woken up and found that they are strong. More than 4700 have signed a pledge not to write, review or edit for Elsevier journals, in a movement that The Economist has called the Academic Spring. How did we get here? The immediate catalyst is the Research Works Act (RWA), an iniquitous piece of American legislation, currently a bill before Congress, that seeks to reclassify publicly funded research papers as "private-sector works" and block the US government from making them available to the taxpayers who paid for them. But the roots of discontent go far deeper.

Academic publishers like to position themselves as partners in the scientific enterprise, saying things like "we are committed to the broadest possible dissemination of published research". This was historically true, and its appearance in recent statements may be nostalgia more than misrepresentation. Not so long ago, publishing on paper was the only way for a author to get his work into the hands of colleagues around the world, and publishers played a vital role. Crucially, their interests were aligned with those of authors: every copy of a paper that reached the hands of a researcher represented both influence for the author and revenue for the publisher.

Happily, we now live in a world that has much better tools for research. It's a truism that the internet has changed everything, but the scale and pervasiveness of that change is not always recognised. It isn't just that papers can be sent instantaneously anywhere in the world, cutting out the need for publishers' distribution networks. It isn't just that entirely new groups now have access to research: patient groups, unaffiliated scholars working into their retirement, small businesses, GPs and dentists, enterprising schoolchildren, thinktanks. It isn't even just that access to research is literally a life-and-death matter for developing-world scientists.

It's more than this. When the barriers to access dissolve, mystique evaporates with them. Read an interesting newspaper article about a scientific discovery? Click the link, see the paper. Researching the evolution of dinosaurs and find yourself wondering about recent changes in how evolution is taught? Go look at some papers. Don't even stop to think about it: they're at your fingertips. Most importantly, as Cameron Neylon has outlined, modern science is increasingly about networks rather than individuals. Much important new research is based on synthesis and large-scale analysis – text-mining, induction across a huge corpus of data, and so on. This is the kind of work that computers can do with astonishing efficiency when they have free access to information. At the moment, we don't know what kinds of discoveries await this analysis. History teaches us that discovery is often serendipitous. In a world full of computers analysing massive data sets for patterns no-one has yet seen, the chances are very good we'll see breakthroughs. At web scale you can manufacture serendipity.

Well, so much for the dream. What about the reality? The sad truth is that we are hobbled by the tyranny of tradition. Researchers are used to publishing papers in traditional journals: this is what we are rewarded for and measured by. Publishers are used to being paid every time they deliver an article to a reader. The rational response to the internet would be for the whole community to transition to a service model: instead of charging for access, publishers would provide services like co-ordinating peer-review, formatting, web-hosting and archiving, and charge for those services. Indeed some publishers do work on that model, notably PLoS (created only in 2003) and BioMed Central (founded in 2000).

But the big, established publishers have overwhelmingly clung to the old pay-for-access model. Disastrously, this means that they invest time and money into building elaborate systems for *preventing* access, then charge for briefly taking those barriers down. It's a waste of everyone's time and effort.

What this means is that paradoxically publishers' interests are now directly opposed to those of everyone else. Researchers want their papers to be read, everyone else wants to read them; but the publishers' business model is to impose artificial scarcity on papers that could – that *want* to – replicate freely around the world. Publishers actively work to prevent the free spread of information that patient groups, small businesses and the rest need. They seemingly set themselves to inhibit automated analysis, to ensure that text-mining isn't possible – in short, to retard the progress of science. Because only when they have made it hard to get hold of papers can they make money by selling access.

This was the status quo as 2011 drew to an end: researchers uneasily accepting the world the publishers have imposed, and trying to get work done in a horribly suboptimal environment. And then into that status quo came the RWA: a bill of such wretchedly transparent self-interest that it catalysed researchers' discontent. In effect the RWA was a declaration of war from the publishers, an explicit confession that it's us against them, that talk of a partnership is just propaganda while their tanks roll down our streets.

What the publishers didn't expect was that researchers would fight back. But in the face of such flagrant hostility, we had to, and we have. The Elsevier boycott has been described in some quarters as a petition. But it's not. It's a declaration of independence.

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Pacificweather

A bit like Naptser was for the music industry, maybe? And although the music industry model did change it fought back in a similar way. The difference being, of course, is that academics want to give away their content and musicians don't. Let us hope the academic spring goes the way of Libya not way of Syria or the false spring of Egypt.

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cwaigl

Whatever one's opinion about Napster, there's a crucial difference: The raw material that academic publishers need to make profits, academic research, is carried out at no cost to the publishers by researchers. Editorial services are provided for free by the research community in the respective field. However, prices of the journal to libraries -- housed usually within the same institutions that employs the researchers -- have risen astonishingly. The feeling has been rising in some fields since the 90s that this business model is sucking sorely needed money out of the pockets of institutions, students (via tuition payments, depending on the funding model in a particular country), researchers themselves (via overhead on grants they attract that goes into funding libraries). It is an extortionary system.

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garrafa10

Excellent point. The prices charged to university libraries for certain academic journals with a relatively limited readership is astonishing.

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Good on you - go for freedom!

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