Let's make sure the future of scientific publishing is fair as well as transparent

October 19 2015, by Graham Kendall

Credit: AI-generated image (disclaimer)

Scientific publishing has undergone a revolution in recent years – largely due to the internet. And it shows no sign of letting up as a growing number of countries attempt to ensure that research papers are made freely available. Publishers are struggling to adapt their business models to the new challenges. But it is not just the publishers who struggle.

Peer-reviewed publications are extremely important for academics, who use them to communicate their latest research findings.When it comes to making decisions about hiring and promotion, universities often use an academic's publication record. However, the use of publication consultants and increasingly long lists of authors in certain disciplines are changing the game.

So where will it all end?

Publication consultants

When a scientific paper is published, the authors have an obligation to report who has contributed. This recognition can take the form of authorship, acknowledgements or by citing the work of others. Most publishers will provide details about how to recognise various types of contribution. For example, the Institute of Electrical and Electronics Engineers (see page 14, section 6) says that a statistician helping with analysis, a graphic artist creating images or a colleague reviewing an article before submission should all be recognised in the acknowledgements section of an article.

However, recent years have seen a growing industry where publication consultants offer to help authors, or even institutions, to get their work published. The consultants charge a fee for this service. The type of help that is available ranges from proof reading, data collection, statistical analysis, helping with the literature review and identifying suitable journals to approach for publication.

We should ask why academics need these kind of services. Surely, institutions already provide this type of support to its less experienced researchers – and more experienced researchers, especially those with a PhD, should be qualified to carry out these activities themselves. After all, carrying out research and writing scientific papers is an essential part

of PhD training.

If researchers do feel the need to use the services of a consultant, it should be made transparent either including the consultant as an author on the paper, or at least acknowledging their services – otherwise a prospective employer, a promotion panel or future collaborators can never be sure if there was somebody else helping with the paper. It might also be appropriate for publication consultants to provide an annual return detailing the papers on which they have consulted.

Growing author lists

The academic publishing system. Credit: Wikimedia Commons

To increase the transparency of academic publishing it may therefore seem that adding more people on a paper is the way forward. But there's also another way of looking at it. Earlier this year, *Physical Review Letters* set a record when it published a paper with 5,154 authors. Such huge author lists are becoming increasingly common. In most disciplines this would seem excessive and we might ask whether all these authors did contribute to the paper?

Some have argued that this development is threatening the entire system in which academic work is rewarded. So what should we do about it? A radical suggestion could be to remove authors on papers completely and replace them with project names. Another suggestion, already practised by journals such as Plos One, is to list the contribution of each author. Whatever your view, there can be little doubt that some disciplines use different metrics to measure contribution.

Open Access

The traditional way to publish a scientific article is to submit it to a journal and, if accepted, you sign over the copyright to the publisher. Your article is then sold via institutional subscriptions or individual payment when it is downloaded.

There are problems with this model: a common objection is that the people who do all the work – the authors and reviewers – get no payment and yet the copyright is assigned to a publisher. Worse, the authors, reviewers and taxpayer (who funded the research to start with) then have to pay to read the article. Of course, the publishers do have costs, such as staff, printing, web site maintenance, registering DOI's etc –and they are typically companies that need to make a profit.

Open Access publishing is a different model, where the copyright remains with authors, who pay the journal to publish their articles which

are then freely available. Launching this model in the UK, former science minister David Willetts argued it would boost the transparency of research institutions. Giving individuals, as well as industry, the "right-to-roam" academic journals would help people make better-informed choices (for example about their education) and could unleash the UK's entrepreneurial spirit, he argued.

When open access was first introduced it initially had a reputation for vanity publishing – but as funding councils have embraced the idea it is becoming more mainstream. The UK funding agencies (Research Councils UK) have a policy that states that any outputs from research that it funds should be available via open access. Many other countries now also follow this model.

So, all the problems are resolved right? Well, no: There are concerns that institutions are still paying subscriptions and also are having to pay open-access charges.

Open access has a few variants. Gold open access is the model described above, where the paper is freely available on the journal's website. There is also a Green option where you do not pay for open access but you are allowed to archive a version of your paper – typically the last version you submit before it is typeset – on your web site, or in an institutional repository, usually after some time. Institutions have to decide whether to adopt a Gold or a Green open access policy. The Romeo Sherpa is a very useful, enabling you to find out a journal's position on open access.

Open access still struggles with its reputation. Only recently there was a report in the journal Science that: "Predatory publishers earned $75 million last year".

The future

The internet and open access, combined with the publish-or-perish culture is changing the industry, arguably, faster than at any other time in history. What will it look like in ten years time?

I suspect that open access will be the norm, forcing universities to think about how to manage this and how they divert library funds from journal subscriptions to researchers to enable them to pay the open access charges. There is also the challenge of what to fund; all journals, only journals with an impact factor, or consider each discipline individually?

The contribution of the authors may also need to become more transparent, not only in reporting the use of publication consultants but also noting how each author has contributed. Perhaps it is a radical idea but the percentage contribution of each author could be given, which would also remove the problem of the order the authors.

The underpinning idea behind scientific publishing is peer review, in which research is forensically scrutinised by experts in the field before it's published. But the process should also be transparent and fair. At the moment, there could be room for improvement.

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