

STM US Annual Conference Goes Virtual 28-30 April 2020 Day 2 Open Science and the Future of research communication

Open Science as a theme did not entirely come through in all the sessions but this is partly because so much of openness is in the science(scholarly) process which is the domain of the researcher. They were represented in the first keynote and in the final session where you could see the difference. The Chair of the conference was Jayne Marks of Wolters Kluwer. She was assisted by Alison Denby of OUP and Dean Sanderson from Springer Nature.

The registrants were welcomed by Ian Moss, the new CEO of STM, who drew attention to the fact that the speed at which publishers made available the COVID related content was due to past investment in the infrastructure. It is not costless and not scalable. There are dangers from research that has not been reviewed which he hopes will be realised.

The first keynote was from Dr Arthur Lupia. He represented the National Science Foundation as Assistant Director. He is on secondment from the University of Michigan and there he used to chair the Center for Open Science and thanked the industry for all it has done as far as Open Science is concerned. Some things look better like outreach and diversity but there are still questions for publishers. Why should we pay for what you do? Why should we trust what you do?

For him Open Science is access to research products including data and code and perhaps lab notebooks and workflows. It is trust in the scientific method which is why you need the access. Credibility comes from following the scientific method. The stakes are really high.

What NSF want from publishers follows from the Holdren memo (the executive mandate): it is an Open Access requirement.

The Office of Science and Technology policy (OSTP) tries to co-ordinate the federal funders. He chairs the Open Science committee. The second edition of the repository is making discovery easier and also concerned with data management plans.

A question for many was about the ambiguity of science. Why different views? There is no single public and with some part of it you can explain that science is not a theology but is a process. Other people will not understand this: it is important that we explain that we are all working on this to get to a consensus.

Another question was is what publishers do worth paying for (in a digital era)? Anyone can put a blog post up. Publishers curate and that is what is value added.

A third question was whether green OA with a twelve-month embargo is to be preferred to gold (APC). This is not part of his remit. They can do data management plans but embargo policies are handed down to NSF from the Executive.

Ian Moss moderated an executive debate: **What is the future of preprints?** He pointed out this was not about whether to use preprints but rather how. It is a matter of context. Their limitation is that they have not been through the validation of peer review. The two speakers were Jennifer Polka of ASAPBio and Kent Anderson the founder of Scholarly Kitchen. There was not much of a meeting of minds.

Polka went first. Recently she has been much involved in ASAP Bio's project to draw attention to Covid materials in preprints but she recognises that, though peer review is not perfect in traditional journals, the preprint question is how to maximise benefits and minimise dangers. The job must be

to enable broad early feedback while there is still plenty of time to correct before submission to a journal. A lot of the comment is outside the preprint server. We need more tools for collating distributed commentary.

Anderson is worried about preprints. They bypass journals and this is a “permissioning” posture. Preprints were originally drafts which were privately exchanged among trusted friends. Now they are often put up at the same time or even after they are sent in for submission. They are not necessarily quicker – his proof of this is in The Geysler, his subscription newsletter - preprint servers do not clean up stuff which is rejected. They undermine peer review: they get a DOI and they are cited without peer review. He sees preprints morphing into journals, journals which do not take responsibility and neither do the authors. A more hopeful analysis is here:

<https://thegeysler.substack.com/p/5-ways-preprint-servers-could-improve>.

Niko Pfund Academic Publisher at OUP moderated a session on **the evolution of the book**. What is the impact of COVID? It is different for scientific books compared with trade book.

First was Lisa McAllister VP Medical Books at Wolters Kluwer. Market research shows medical students do read books but in bits. They are short of money. Institutions buy content which is often digital based on books and libraries will buy these books if they are used. Online only now is to be expected. It is going to continue after COVID and there will be a decline in print books. There is going to be more of a push for course packs (word not used) which may be produced by a separate company bringing content together on a license basis.

Henning Schoenenberger, who directs product data and metadata management at Springer Nature, contends that reading will be different. Books are sometimes including virtual reality or in abridged forms or in other ways that help memory retention. He spoke about his first machine generation book on Lithium batteries. Not all of this is new but there is now a massive acceleration in the rate of change and behind that there are user needs. Publishers will have to respond. There is a contrary view to be found at <https://lithium-news.com/2019/04/09/want-to-learn-about-lithium-ion-batteries-an-ai-has-written-a-tedious-book-on-the-subject/>. In answer to a question Schoenenberger suggested that there was a wide spectrum of types of books possible. Pfund considered that not all new models work – he instanced the pivot concept

Simone Taylor of AIP Publishing is launching a new books programme. They talked to librarians and end users. Librarians do not want any digital rights management and want lots of functionality. Users are more interested in print still. They had decided on a whole range of different types of content. In all cases print on demand is available but what was a book is now a database. Some of this information is available at <https://products.aip.org/books/>

Howard Ratner updated the conference on **CHORUS**. For what is new see: <https://www.chorusaccess.org/>.

Alicia Wise provided a description of the transparency programme which was commissioned from Plan S and is as such mainly European but it will of course impact on US publishers of journals that accept European articles from those funded by the S group. For more information see <https://www.informationpower.co.uk/price-and-service-transparency-presentation/>.

The next session was on **Content Marketing 2.0 : Get your articles read** moderated by Erik-Jan van Cleef from SciencePOD. Van Cleef introduced the theme: OA is not enough. Wider society as well as funders are thinking in terms of wider access. Questions came up about who will pay for this outreach. How does content marketing relate to author services? The panel consisted of a publishing marketer Melissa Blaney of ACS, a Communications Manager from de Gruyter, Pablo Dominguez Anderson and Marianne Calihanna, who has an impressive history marketing the services of suppliers

The final session was on **Delivering open science – challenges faced by key stakeholders**

The moderator was Dean Sanderson the Managing Director of Magazines and Partner Services at Springer Nature. He took an active role in questioning his panel. He did include a Researcher in the shape of the Chief Science Officer (Dennis Brown) of the American Physiological Society with publishing represented by Alison Mudditt CEO of PLOS and Michael Stebbins from Science Advisers the funding bodies.

This is where we come to the hard stuff. Sanderson says everyone nearly agrees to Open Science (good, compelling and probably necessary) but what stops it moving forward more quickly?

Each speaker explained their position first.

Sanderson asked Mudditt from her publisher perspective what does open science mean? Her answer was that It is both research outputs including data, code and methods as well as publications and there is the process that goes on before the publications. How to collaborate earlier in the scientific workflow is the big question for her. We have made some progress but three key ones holding us back is that researchers do not see the advantages over for example over preprints leading to loss of your work to thieves, the assessment and awards system giving wrong signals, and tendency for a one side fits all solution. What can publishers do asks Sanderson? Mudditt says a strong data policy is a good example along with the “scooping” policy over all PLOS journals (see <https://journals.plos.org/plosntds/s/complementary-research>). This is complemented by new type of research articles uncovering the process including preregistration option. The data policy was a stick but it did them (PLOS) no harm.

Brown says that in his view researchers recognise the utility of Open Science more than Open Access but where is the individual benefit - the incentive? He agrees that the competitive culture is a problem. It may be changing. No-one asks whether you are open with your data – yet. But (asks Sanderson) do researchers see any actual problems? At a virtual meeting, said Brown, researchers are worried about putting their posters online but this will change. He gave an example of another problem. Data in cell biology often is video? Who is going to pay or curate this? Even cost of storage is a problem. Over open data we do need incentives – shift in attitude is needed. It is scientists who judge other scientists and must give them credit for sharing. Differing views of postdocs and PIs and in various different ways. We have a fear of regulatory burdens in labs.

Stebbins said that policy makers and funders are very interested in open science but have different views of it depending on their political views. Overall, they see that if government pays it should be open. Can collective action result in a better system which opens up the ecosystem and gives more bang for their bucks? Not everyone understands that there are currently perverse incentives. Universities will not solve this and nor will publishers but what about policy makers? There is the

question of more burdens which worries many. If requirements for data being properly held were followed (everyone has to do it) because demanded at publication we shall get somewhere. He was partly responsible for the Holdren memo which set current open policies (<https://obamawhitehouse.archives.gov/administration/cabinet/exit-memos/office-science-and-technology-policy>) but it needs following up now.

There were more questions from the audience demonstrating the quality of the session: here are some of them and some answers.

Is Open Science helped or hindered by current administration? Not helped by negative relations between policy makers and industry says Stebbins. There are differences across disciplines with physics not worried about openness. Is this changing? Mudditt says data review coming in and that is the key to reproducibility but too much work for the publisher. PLOS datasets are being downloaded from Figshare which is good news. As he said before Brown sees the small bits of data like images is a big problem. What formats is a question? Shrinking of methods sections by top journals is a problem .

A final question from the chair was who should pay for Open Science?

Mudditt sees this is as an ongoing problem at PLOS. Stebbins says that if you are funding the research you should provide funding for openness. Standards are crucial. Brown gets his money from research grants and anything that goes to publications comes away from benchwork. What he gets from the government does not cover publication costs.

Marks wrapped up. A poll taken online confirmed that 100% think Open Science is going to impact us all.