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David Prosser was appointed the first director of SPARC Europe (an alliance of 110 research-led university libraries from 14 European countries) in October 2002. Previously, he spent ten years in science, technical, and medical journal publishing for both Oxford University Press and Elsevier Science. During this time he was involved in all aspects of publishing from production through to editorial and financial management of journals. Before becoming a publisher he received a PhD and BSc in Physics from Leeds University, UK.

GRL2020 Position Paper

Negotiating access to the scholarly literature should not be the primary concern of either researchers or librarians. Researchers need to see all of the work of their peers to be effective. A disservice is done to both them and society as a whole if we limit what they can access. Open access (the removal of financial barriers between the online research and interested readers) offers the promise of ensuring that researchers have access to all literature, not just what their institutions can afford.

For libraries, the traditional role of selection and purchase of research journals will become less and less important. As more of the literature is open access, libraries will no longer 'compete' on the size of their collections, but on the services they offer to researchers. Increasingly, two services will be offered simultaneously: the traditional 'importing' of content from outside the institution to the local researchers, and perhaps even more importantly, the 'exporting' of local research results to the wider academic community and beyond. An example of this changing role can be seen in the expanding use of institutional repositories to showcase the intellectual wealth of institutions. The repository (often based within and managed by the library) makes widely available research papers, theses, working papers, data-sets, etc.

Once open access becomes widespread and the normal mode for all scholarly communication, the interesting work can begin. Increasingly sophisticated software will mine the literature, scanning tens of thousands of papers to discover connections undreamt of by the original authors. This may well prove to be especially important in cross- and multi-disciplinary work where researchers are unaware of advances outside their own areas of expertise. Research papers, data-sets, wikis, blogs, etc will all be interlinked – allowing researchers to follow paths between ideas without hitting dead-ends or financial barriers. The research paper itself will evolve from the current static object to a more dynamic, living entity where authors can update the paper with more data, add new references, etc. (Obviously, this raises technical and good-practice issues around version identification that will need to be resolved.)

A great deal of the infrastructure needed to allow this vision of an open research environment to become a reality already exists. Institutional and discipline-based repositories are becoming well-established worldwide (with over 1000 academic repositories listed in the openDOAR database - <http://www.opendoar.org/>). However, the repositories are not filling as quickly as they could. There are numerous reasons for this, but perhaps the most important is that the deposit of research papers in a repository is not currently part of the everyday workflow of researchers. This is despite the fact that most researchers believe depositing research papers to be a good thing which takes a very short time to do (less than ten minutes per paper). Low deposit rates have led to a number of research funding bodies developing deposit mandates.

The Wellcome Trust was one of the first funders to develop an open access strategy when in 2006 it made one of the conditions of funding that a copy of any original research paper published in a peer-reviewed journal must be deposited into an open access repository. This was followed by the UK Research Council putting in place similar conditions and, more recently by the US National Institutes of Health (NIH) that, at the prompting of the US Congress, has an open access deposit mandate in place. The NIH is the world's largest non-military research funder, with an annual budget of over \$28 billion. Their new policy could result in almost 80,000 biomedical researcher papers being made open access each year.

An ever-growing list of research funders (at both the international and national level) are developing open access policies as they realise that their '...mission of disseminating knowledge is only half complete if the information is not made widely and readily available to society.' In addition, individual institutions are putting in place policies to ensure the widespread dissemination of their research, with the most recent being Harvard in the US.

A number of further steps need to be taken to create a true open research environment:

- All publicly-funded research should be made freely available to all interested readers. Research funding bodies should follow the lead of the Wellcome Trust, NIH, and others in making it a condition of grant that researchers deposit a copy of their final, peer-reviewed papers in suitable open access and interoperable repositories.
- More action should be taken to ensure that all research data from publicly-funded research is publicly accessible.
- The Intellectual Property Rights (IPR) regime surrounding research information should be reviewed. It is not necessarily the case that current restrictions enshrined in IPR/copyright legislation are in the best interests of researchers. It may be that a new model for scholarly communication needs to be developed - one which looks at ways in which the rights of rights holders can be managed, whilst still maintaining a balance which allows researchers and users access to research outputs.
- The creation and development of interoperability standards and repository infrastructure need to continue.
- Strategies need to be developed to ensure the long-term preservation of digital objects.

The combination of mandates and excellent open access platforms and resources – many of which will be hosted and managed by libraries – will help to create a new scholarly communications environment in which all have access to the fruits of publicly-funded research and we can bring all of the world's brains to bear on the pressing research problems we face today.

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