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Opinion Serials crisis

The business of scientific communication

The advent of the internet has brought great changes to the practice of scientific research. In the last two issues of the *Nieuw Archief*, Krzysztof Apt and Michiel Kolman gave their views on the effects of the great rise in pricing of scientific journals, and on the role the internet will play in the future of scientific publishing. John Gilbert, director of the library services at the Universiteit Maastricht, argues that scientific communication has gone out of control, and proposes measures to regain it.

“Scientists demonstrate a poor sense of business in buying back their produce, namely scientific journal articles, at a high price from publishers. It is even more bizarre when academic libraries, the source of information for the scientists, look like being priced out of business.” [1]

What does this thesis of one of our young doctors tell us about the state of scientific publishing and the parties involved? Are scientists naive and are they to blame for what we call the serials crisis? Is there a future for ‘academic publishing’ and ‘free’ journals? Are the Internet and the World Wide Web cat-

alysts for the reformation of the publishing business chain?

Following the views aired in this journal by the scientist K. Apt and the publisher M. Kolman, I present a librarian’s viewpoint [2–3]. It derives from experience as both a university librarian and, more recently, chair of UKB (Association of Dutch University Libraries, Royal Library and the Library of the Royal Academy of Science).

Serials crisis

The opening thesis is hard to challenge in the wake of an era which saw the prices of most scientific journals rise dramatically and the larger commercial publishers strengthen their position in the market. The main vehicles for this ‘success’ have been journals recognised by the scientists themselves as key journals, i.e. those already attracting articles of prominent scientists and hence with a high impact factor and a good ‘brand name’.

Many scientists are still hardly aware of the serials crisis. As long as they can publish their papers in the key journals and as long as these journals are available to them, in the department or in the library, there is no cause

for concern. As long as library budgets are not a problem for faculty, and as long as the rising costs of serials and other information sources do not visibly threaten research funding, scientists consider the ‘serials crisis’ a problem for librarians.

At Universiteit Maastricht, however, faculties now have to pay for all the costs of the library and the high percentage increases in the costs of serials become more conspicuous. Integral costing increases awareness to the matters at stake. It also improves the climate for concerted activity in reforming the business of scientific communication. Let us first look at responses by libraries to the serials crisis.

Library initiatives

Initiatives by libraries to counteract the serials crisis gathered momentum with the onset of electronic journals. Budgetary problems caused by double-figure percentage increases in journal prices were aggravated by publishers seeking further surcharges for access to electronic versions of the print titles. According to the RABO bank, publishers had found a way of selling the same materi-

al twice at little extra cost; the bank encouraged investors to put their money on Elsevier, Wolters-Kluwer and the like [4]. Those who followed this advice have probably not been disappointed, but librarians were also spurred into action.

One of the more successful initiatives of libraries was the effort to ensure reasonable terms for access to the electronic products of publishers. In 1997 Dutch and German university libraries joined forces in publishing a policy statement on reasonable licensing principles. In 1998 European university libraries joined up with their North American counterparts to form the International Coalition of Library Consortia and the ICOLC subsequently published its statement on licensing principles. This statement, recently updated, set the tone for agreements between university libraries and publishers with regard to access to electronic journals [5]. It addressed matters which are now regarded as logical parts of licensing agreements (e.g. permanent access, campus-wide access, lower pricing for 'electronic only'), but which were not so then.

About the same time UKB libraries began to concert their efforts in negotiating terms with (commercial) publishers. Clearly, electronic journals call for other price models than their printed counterparts, as the distribution process can be radically simplified. However, there was a desire to avoid discontinuity. Publishers were keen to preserve turnover and profits; libraries have their own budgets and their own customers and prefer to operate independently. Nevertheless, UKB gradually evolved from an association to a consortium, as the benefits of collective bargaining became apparent. Early attempts to come to terms with publishers were less successful than in other countries, partly because of lack of subsidies for national licences in the Netherlands, but eventually agreement was reached between UKB and publishers such as SDU, Elsevier, and Kluwer Academic. With the aid of the SURF Foundation and of the Innovatie Wetenschappelijke Informatievoorziening (IWI) in particular, a central licensing office has now been set up and UKB is coming to terms with other publishers.

This begs the question: what 'terms'? The terms so far represent something of a truce, but also a 'win-win' situation: for publishers maintenance of turnover and for university libraries single-figure percentage price increases and electronic access to all titles of the publisher for the price of those print titles subscribed to beforehand. Such price models can however be only transient, and UKB, IWI

and some of the publishers are looking at new models for the pricing of electronic journals.

Academic publishing

These developments concern the transition of existing print journals to the electronic environment. UKB libraries are also involved in publishing innovation. Internet drastically alters the relation between the various parties in the business chain, their respective roles become less well defined. Publishers can compete with libraries (and indeed do), universities and their libraries can compete with publishers, scientists can 'publish' directly on the Web. Again with the help of IWI funding, the late 1990's have been characterized by increasing activity in the area of self-publishing. Several new 'niche' electronic journals have been launched and developed. Many of them survive, but only just, the main difficulty being to establish a reputation in a world dominated by traditional values. For a scientist keen to make his/her mark, an article in a journal with a high impact factor is a better (personal) proposition than one in a journal of which some have not yet heard.

Another approach is cooperation between universities and learned societies, where the university library acts as a production centre for electronic versions of printed journals published by the societies ('co-publishing'). At Stanford, USA, the university library has successfully developed HighWire Press as a platform for the production and distribution of learned society journals in the biosciences [6]. IWI is looking at the possibility of doing something similar in the Netherlands, but in other disciplines.

Most Dutch universities are actively exploring new publishing opportunities offered by the Internet, be it in the area of self-publishing or of co-publishing. Some of these initiatives have received the support of IWI, such as the Roquade and ARNO projects. The former is a multifunctional digital publishing platform, whereas the latter focuses on the digital publication of 'domestic' scientific production. ARNO is related to the international Open Archives Initiative (OAI). The ultimate goal of OAI is for each institute to make its own scientific production available through servers compliant with international standards and interconnected via the Web [7]. In this way the whole of the world's production becomes accessible through a single search!

The viability of the OAI model of interconnected e-print archives is doubted by scientists of a traditional vein. What about peer review, they ask? OAI supporters argue the

case for open peer reviewing, claiming that the OAI could be complemented by 'supersections' of openly peer-reviewed material. The OAI has probably received less publicity than the Public Library of Science initiative [2], but the respective goals are remarkably similar. The PLS statement reads: "We support the establishment of an online public library that would provide the full contents of the published record and scholarly discourse [...] in a freely accessible, fully searchable, interlinked form". [8]

Of the OAI it has been said: "The initiative's ultimate aim is to allow readers to locate articles on different servers as if the articles were all in one virtual public library". [9]

Regaining control

Will OAI and/or PLS ever be seen as ultimate solutions for scientific communication in the future? If so, how do we migrate there from where we are now? Reformation of the scientific communication and publication business will depend on several things, not in the least in the ability to get (the future of) scientific communication and publication on the university agenda! The driving force here should be the desire to improve the 'knowledge management' and hence the knowledge economy of the parent institution. The World Wide Web and OAI offer all sorts of interesting perspectives in this respect but, in the current situation, publications of scientists are often inaccessible to colleagues and students of the same university! Moreover, universities tend to pay more attention to the management of administrative information than to the management of their scientific information or 'content', but there are signs that 'better' times are on their way.

The ultimate goal should be for universities and research institutes to regain control of the process of publishing and (peer) reviewing the results of scientific research. Whether or not there is a role to be played by commercial publishers, surely the terms should be dictated by the academic community. At the moment, this is far from the case. Much of the peer reviewing is done primarily as a service to publishers, the prices of journals are still determined by the publishers, impact factors of journals from commercial sources are taken at face value for certification purposes, and universities often pay double (or more) for journal articles used in student readers and courseware. Apt put it quite simply: "The issue is: who is to govern the access to the scientific literature?" [2] The answer must be: the scientific community

itself, with the lead being taken at an institutional and a national level.

Awareness

A necessary condition for the reform of the 'business chain' of scientific communication is a common awareness of the issues at stake and the problems involved. If public institutes are to re-establish control of scientific communication, the message and the goal have to be communicated clearly to all individuals concerned. Every scientist must be aware of his/her role and responsibility in the process of scientific communication whether it be as author, reviewer, editor, library user, or reader, and of the importance of sustained, affordable access to relevant literature. The same holds for board members of faculties, for librarians, for vice-chancellors and everyone else involved.

One of the ways to improve awareness is to confront faculties, departments, even individuals with the integral costs of library services, as we do at Maastricht. In fact, one should go further by considering the whole economy of scientific publication and communication (including writing of papers, peer reviewing, editing). It should not be hard to show that universities receive little reward for the time their scientists spend helping the cause of publishers.

Orchestration

Once awareness has been aroused, there is a need for 'orchestration'. Initiatives so far to combat the serials crisis and particularly excessive commercial exploitation of scientific publications have been fragmentary. What is lacking is the coordination of activities in different areas and different disciplines. Coordination should be done at an institutional level, and at a national level, and preferably also at a disciplinary level by learned societies, as this will promote international coordination of initiatives. What does 'orchestration' involve?

I propose that each university or research institute should develop a policy on scientific communication and 'knowledge manage-

ment', in which goals and good practices and the roles and responsibilities of the various parties (scientists, faculties, library etcetera) are laid down. This will involve cooperation of persons and groups not accustomed to working in close harmony. The ultimate responsibility lies with governing boards but others, including librarians, should be prepared to take the lead.[10] Some universities have policies on certain aspects of communication and publication but few have elucidated a comprehensive policy. Elements of such a policy should be:

- support for self-publishing initiatives — development of an OAI server for at least preprints and theses and ultimately for all 'domestic' scientific production,
- revision of copyright policy and management, with particular attention being paid to the interests of the institute and its scientists and students,
- decentralisation of the costs of scientific information,
- stipulation of good publishing practices; rewards for good practice.

At a national level there must be more cooperation between parties such as SURF-IWI, VSNU, KNAW and more involvement of government, particularly the Ministry of Education and Science and the Ministry of Economic Affairs. The aim should be to develop and implement policy for regaining public control of scientific communication and publication. The policy should comprise:

- continuing support for new self-publishing and co-publishing initiatives within the academic community,
- agreements on (inter)national standards for self-publishing, in order to promote interlinking and cross searching,
- promotion of open e-print archives and of initiatives in the area of open peer reviewing,
- development of and agreement on new methods of journal ranking (other than ISI impact factors) and employment of such in

quality assessments

- reappraisal of copyright policies in the interest of research and education
- fiscal reform (zero-rate or low-rate tax on electronic media).

The second point deserves explanation. Elsevier has taken the lead on CrossRef [3], while one of the most attractive aspects of HighWire is the 'toll-free' linking. A click on a reference to an article in another HighWire journal gives full-text access to the article concerned, irrespective of whether the journal concerned is subscribed to. This principle should be embraced worldwide. There should be an international code for academic or not-for-profit electronic scientific journals, which prescribes how all such journals provide toll-free linking to each other's articles. Perhaps commercial publishers could be persuaded to make CrossRef 'toll-free' as well. In a digital environment, toll-free access to all referenced literature would be a breakthrough.

Institutional and national initiatives should be accompanied by actions at a disciplinary level; learned societies are best placed to give such initiatives international esteem.

Conclusion

Interlinking and fair ranking of all not-for-profit electronic journals will help determine the extent to which these become a viable alternative to established commercial journals and, ultimately, whether public institutions can exercise control over scientific communication.

Transition, however, is likely to be gradual: in the meantime librarians must seek and acquire the support of scientists in their continuing negotiations with publishers. Our common mission as representatives of the academic community should prevail over individual interests or differences of opinion. ◀

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