

The politics of scientific visibility: from excellence to elitism (and back)

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Abstract:

Recent analyses have revealed some of the roots of the serial pricing crisis. Core science and site licensing have transformed scientific publishing twice. A third, negative, revolution is in the offing; it has to do with the evaluation of scientific work beyond peer review. However, this threat also offers new hopes for all concerned with building a less elitist communication system. Open archives, attempts to extend the science citation index and 'faculties of 1,000' all point to the possibility of reforming the evaluation system of science. It will require, however, stronger alliances with administrators and those scientists that are working for a more equitable system of communicating scientific results.

The communication of science research presents itself as a process of selection based on the quality of the work submitted and done by scientific peers. The point of the operation is to stake intellectual ground by giving away the results and thus ensure their intellectual ownership. All this is possible, of course, because we are dealing here with fundamental research that is largely funded by public funds. Most of these research results are stored and made accessible by other publicly funded institutions - namely research libraries.

This process of communication that started in the 17th century with the **Philosophical Transactions** in the Royal Society of London was really an extension of the epistolary practices of the Republic of letters. It profited from print and soon relied on printed periodicals. Many scientific institutions vetted their own work and then published the best part to exchange it against the best work from other institutions. And thus it went well into the 19th century, although learned societies started to get involved into publishing. So did a few commercial publishers, but they remained marginal.

After the Second World war, commercial publishers moved into scientific publishing with renewed vigour, especially after the Science Citation Index (in the 60's) generated an artificial construct - that of core science. The journals most used began appearing as a potentially lucrative market to commercial publishers because they had become unavoidable. This amounted to the creation of an inelastic market (i.e. a market where demand is little affected by price increases) and the spiral of cost increases began in earnest.

More recently, the digital context teamed with the Internet has brought about a second revolution that has transformed the economic conditions of scientific publishing even more : site licences have transformed the sale of actual artefacts (journal issues) into the right of access to databases of articles. Libraries, as a result, have seen their traditional role subverted; instead of preserving knowledge commons, they are patrolling the access routes to these databases.

The power of the publishers has rested on a number of factors, among which the following are particularly important:

1. Considerable financial resources that have led to greater and greater concentration of publishers;
2. The ability to create journals so as to offer a number of scientists the envied role of gatekeeper;
3. The ability to play with various variables so as to make the evaluation of the journals go up the 'impact factor' scale and thus turn a risky investment into a profitable venture.

At the same time, the creation of large databases of articles has brought into light the problematic nature of journals in the new context. It turns out that journals do little more than provide branding to their authors, while readers really go after articles and follow trails that are largely directed by other tools, such as citations, references from colleagues, etc. This is bringing up a new situation where publishers must already envision how to move beyond the journal branding system to a system of evaluation that is both more general and less dependent on the journal entity to work itself out.

Several recent events seem to show that experiments are going on in this regard. Most interesting, perhaps, is the Chemistry Preprint server of Elsevier that allows this company to test various ways in which to draw attention to particular articles (number of downloads, number of references, intensity of discussions around it, etc.). In effect, publishers want to extend to the article level what they manage to do through the branding effect of journals - namely the marketing of scientific authors in the form of greater visibility and prestige (and authority, etc.). Of course, this marketing is done through peer-review tools, but these are subtly embodied within dissemination strategies that make them converge with the economic objectives of the publishers in subtle (yet real) ways.

The movement in this direction is made more urgent by parallel developments that could bring about difficult competition for the commercial publishers. Let us briefly mention the Open Archive Initiative and the peculiar mixture of commercial interest and public service displayed in the alliance between PubMed Central and Biomed Central. In both of these cases, the article level is emphasized above that of the journal title and new modes of evaluation can be imagined to emerge out of these ventures. In a subtle way, the ability to influence access to the gatekeeping role embodied in the peer-review process is being shifted to post hoc evaluation procedures allowing to measure the impact or importance of an article **once it has been admitted to the publication stage**.

This situation suggests that the battle to contain the price increases of scholarly journals will be waged around the accepted modalities of science evaluation in the coming years. In particular, it will gradually appear that peer review is but the beginning of the evaluation phase, and that the evaluation of the perceived importance of a paper, once it has been published, will begin to supersede the simple peer review process which only supports the right to access the publication level. In this regard, we must not forget:

1. That the science citation journals refer to works which, in a proportion exceeding 50%, do not appear in journals covered by the SCI;
2. That Third World countries are finding it very difficult to be included into the SCI;
3. That many scientists see their career affected not by the impact factor of their works, but by the impact factor of the journals where they publish.

This means that scientists and research administrators must begin to pay attention to the skewing effect of present evaluation modes in sciences. These effects amount to nothing less than substituting principles of elitism in lieu of principles of excellence. Elitism, let us remember, is (some degree of) excellence plus something else, generally a price barrier. The present evaluation system of scientists in many world-class scientific centres amounts to an elitist system, rather than a system based purely on excellence. As a result, it acts as a barrier against weaker institutions, in particular in poorer countries and it maintains a bias in the hierarchization of scientific achievements that systematically advantage those who already have at the detriment of those who have not.

Interestingly enough, this process has come to light not because of concerns for global scientific justice, so to speak, but because of the serials pricing crisis that has agitated the library communities for the last quarter of a century. It is time now to link both processes together so as to solve this economic crisis, while redressing a way of globalizing scientific communication that distinctly works to disadvantage most institutions outside a small circle of rich, elite research centres.

In order to do this, a number of steps must be developed in parallel and coordinated between themselves:

1. Extend the Science Citation Index so as to dilute the core science effect and to redress the imbalance between citations internal to the core set and citations to journals outside the core set;
2. Work for the largest possible liberation of past publications (in the spirit of the Public Library of Science and that of OAI). Not only will this ease access to recent scientific literature for poorer countries, but it will also allow working on these liberated archives to build better evaluation tools of published articles (i.e. evaluation after the peer-review process has taken place);
3. Create new categories of gatekeepers who would work outside any reference to journal titles and yet would hold unquestioned legitimacy and authority. Precedents for this role exist already, for example in juries awarding scientific prizes, including the Nobel prizes.

Other ideas will also be presented in the full paper. They will try and demonstrate that librarians must begin to forge an alliance with administrators so as to bring about new and better evaluation tools, and team up with scientists who are working for a freer circulation of scientific research results, again to develop better evaluation tools.

Librarians will have to remain aware that scientists presently in a gatekeeping role with a commercial scientific journal may resist such developments as it would tend to dilute their power and influence. Such debates will tend to be very specific with journals, disciplines, institutions and countries, but exchanges of information could easily be coordinated.

Finally, librarians must be aware that certain NGO's (for example the Soros Foundation) and several multilateral bodies (for example UNESCO) can become potential allies in this effort. In any case, librarians must remain aware that:

1. Site licences are extremely dangerous (especially in the big deal format, and are temporary defensive moves at best);
2. Commercial publishers are actively exploring ways to maintain and reinforce their hold on a significant proportion of scientific publishing so as to preserve a very important source of revenues and profits.

In short, not doing anything will certainly lead to an intensification of the trends that, together, form the so-called 'serial pricing crisis'.