Political, cultural and technological dimensions of open access: an exploration

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- The issue of OA is technically, culturally and politically complex and deserves careful engagement by all scholars.
- Through RCUK, the UK has adopted a transitional policy that favours Gold OA but needs to remain alert to worldwide developments in OA.
- The concerns which have been expressed about predatory publishing in the wake of the move to OA are excessive.
- PLOS (Public Library of Science) has demonstrated that a sustainable OA model is consistent with effective peer review and high standards of publication.
- Questions of publication prestige may be different for science and HSS disciplines but need to be resolved by eliminating the culture of dependence on journal impact factors, which OA can facilitate.
- On balance OA encourages academic freedom.
- Concern about learned societies, although real, is unlikely to derail the OA project.

Introduction

The trouble with open access is that it is too much like quantum mechanics: the central idea has a beguiling simplicity but its ramifications are complicated and far-reaching. Feynman famously declared 'I think I can safely say that nobody understands quantum mechanics.' Were he alive today the Nobel prizewinning physicist might say the same of open access. Everyone has a grasp of the basic concept but its implementation penetrates every fibre of the body academic and no one has yet figured out exactly how it's going to work.

Partly because of the complexity of the topic – but also because it remains contentious – the literature on open access is expanding at a rate far greater than the rise of open access publishing itself. A Google search for the term 'open access' returns over 2 billion hits. No wonder people coming to it for the first time are baffled. For the majority of scholars who probably still class themselves as neophytes, I can recommend Tony Hey's recent series

of blog posts[1] and Peter Suber's book, *Open Access*[2] (which is due to be made freely available as an open access publication in June 2013).

I hesitate to add further here to the morass of words on open access. Although I have been thinking and writing about it for over a year, I still feel a relative newcomer. I am also a scientist; worse still in some eyes perhaps, I am based at Imperial College, a university noted both for the power of its Science, Technology and Medicine research, and for the fact that it does not teach degrees in the Arts, Humanities or Social Sciences (AHSS). Nevertheless, I want to use this article to continue my exploration of the issues surrounding open access. Having heard the growing rumble of discontent from the AHSS community at what they see as a science-driven initiative to reshape scholarly publishing, I am keen to learn more about that perspective and to foster dialogue.

Never mind the mess, keep your eyes on the prize

Most people agree that open access[3] – making the scholarly literature freely available on the Internet (to give the barest definition) – is a good idea. Open access is touted as a way of providing faster and freer exchange of information within the scholarly community and with the public; as an opportunity for the academy to prove its worth to the taxpayers who largely fund its activities; as a mechanism for bolstering democracy by enriching public discourse on the fruits of research and scholarship; as a solution to the serials crisis that has stretched library budgets to breaking point; as a route, through text and data mining, to richer yields from government investment in research; as the means to include scholars from poorer countries[4] in the global research effort (at least in the first instance as readers with access but ultimately also as authors and contributors); as a natural progression connecting scholarly publishing with the Internet zeitgeist.

But the noble ideals enshrined in this multi-dimensional vision are mired in reality as the various stakeholders grapple with implementation. The drift towards open access has been steady over the past decade but the

arguments over the rights and responsibilities of scholars have intensified in the past year, ignited by the boycott of Elsevier at the start of 2012.[5] In the UK, publication last summer of the government-sponsored Finch Report[6] prompted the announcement of a new open access policy by Research Councils UK (RCUK, the body that coordinates the seven UK research councils). These key developments have focused attention on the practicalities and problems of what is seen as a major perturbation of our system of scholarly publishing.

Policy in the UK

The new policy[7] has a clear preference that RCUK-funded researchers should opt for Gold open access (publication in a journal that permits immediate access) supported where required by funding to cover the article processing charge (APC) levied by the publisher. However, researchers can also comply by taking the Green route to open access: publishing in a journal that permits deposit of the author's final peer-reviewed manuscript in a repository. Commonly, but not necessarily, this entails a delay of several months before the manuscript is made available.

The policy, like the Finch Report before it, is a great British fudge and has attracted criticism from all sides – scholars, open access advocates and publishers. The speed of introduction also drew fire from the House of Lords.[8] In recent months RCUK has been trying to clarify its policy[9] and to consult on its revised guidelines for implementation.[10] The present plan is for an incremental roll-out of the policy over the next five years, subject to a review next year and probably also in 2016 and 2018.

The review process is sensible but has inevitably generated a degree of uncertainty, into which has poured a plethora of reaction and opinion. While some commentators have raised valid concerns,[11] others have generated more heat than light.[12] All sides can agree on the scale and significance of the changes that are in train but no one is served by arguments that are selective or muddied. We scholars should at least be scholarly in our approach to the subject.

One source of confusion is the use of the term 'government policy', which, some publishers have argued,[13] places clear obligations on authors. But where is government policy on open access defined? Certainly, the present coalition has tried to set the overall policy direction for publicly-funded scholars in the UK, articulating its vision in speeches by David Willetts, Minister for Universities and Science, and in the response of his department to the Finch Report. However, it is important to remember that the Royal Charters under which the research councils operate put them at arm's length from government. They therefore occupy a space between government and the scholarly community. In part this arrangement is designed to preserve a measure of academic freedom but it also explicitly recognises that the government does not reserve for itself the power to configure scholarly activity. I am not party to the conversations between ministers and the Chief Executives of research councils but it seems to me this arrangement gives them, and RCUK, valuable wriggle room.

The details of open access policy in the UK are therefore determined by RCUK; at present it favours Gold open access but remains somewhat fuzzy around the edges. To my mind this fuzziness derives from an experimental pragmatism that I hope might be exploited creatively to influence the review process.

A sanguine view – though it is probably only shared by a minority of scholars – might be that the RCUK open access policy is helpfully disruptive; it enshrines a realistic acknowledgement of the facts that publication is an intrinsic component of scholarship, and that its costs are non-zero and should be met from research budgets. Although Green open access is sometimes seen as a 'free' route to open access, this is only from the perspective of the individual scholar and ignores the fact that the actual costs are largely paid for by institutional subscriptions, effectively from another component of the public funds made available to researchers.

The policy is more incremental than some realise. Research councils have supported open access since 2005, making funds for APCs available to grant holders; the present scheme should be more effective in raising open access output since the funds will be allocated as block grants to research

institutions and will now support payment of APCs for work published beyond the end of the grant that paid for the research. (This reorganisation nevertheless raises important concerns about how funds should be allocated within universities, a point I address below.)

That said, the overall policy environment remains complex. Although RCUK policy applies only to researchers in receipt of grants from the research councils, the Higher Education Funding Council for England (HEFCE) has announced that it is likely to only consider open access publications in the Research Excellence Framework post-2014. Though HEFCE is unconcerned whether publication is via Gold or Green open access routes, this move obliges all research-active staff in universities and research institutions to consider their publishing options and obligations, a development that raises particular challenges for scholars who are not supported by RCUK grants. Seismic shifts in university funding caused by the hike in student tuition fees add further uncertainty: to what extent now should university-based scholars consider themselves to be publicly funded?

A zone of transition

The only thing that seems clearer these days is that the UK has entered a zone of transition, beset by currents that are technological, cultural and political. Unfortunately, the far shore remains out of sight and there are questions to be asked about the sustainability of the UK's Gold-favouring approach to open access, especially given that most other countries appear to be hitching their stars to Green open access.[14] This approach has scored some notable successes. In the US, for example, the mandate operated since 2006 by the National Institutes of Health (NIH), which requires deposition in the National Library of Medicine within 12 months of publication, has achieved a compliance rate of around 75%.[15] The NIH is now aiming to achieve full compliance[16] and the White House recently announced[17] that similar mandates should be put in place by all federal agencies spending more than $100m annually on R&D. Policy developments in the UK have to remain alert to developments worldwide.

The Global Research Council met in May 2013[18] to 'agree on an action plan for implementing Open Access to Publications as the main paradigm of scientific communication' but it remains to be seen if this will achieve effective coordination or what impact any agreement will have on other disciplines.

If open access appears to be spreading primarily though the adoption of Green open access mandates, this seems likely eventually to generate instability in the scholarly publishing market. Extensive free access should lead to cancellation of the subscriptions that currently support the publishing process; although there is presently no evidence that Green open access mandates have led to subscription cancellations, this is probably due to the relatively low *overall* uptake of open access. Nevertheless strong advocates of Green open access, such as Stevan Harnad, foresee[19] that the global impact of mandates will create irresistible pressure for publishers to flip their payment models, thereby releasing subscription funds to pay APCs. He may well be right but there is as yet no consensus on that vision of the transition process.

For some, it is simply a matter of letting a free market play out. But policymakers at RCUK are betting on a more orderly transition. The UK has opted to pump prime the transition by allocating funds to cover the excess costs for that period during which APCs and journal subscriptions will have to be paid. If I have interpreted David Willetts' recent pronouncements correctly, there is a curious note of pragmatic altruism[20] in his strategy. However, it has yet to win the hearts and minds of the scholarly community in this country, and whether the UK has the will to see it through or the clout to make other nations follow remains to be seen.

Questions of culture

International policy matters aside, there are cultural and technical questions that open access also has to overcome within both the scientific and the AHSS communities of scholars. It is commonly asserted, for example, that the payment of APCs undermines quality by placing the

rigour of peer review in conflict with the commercial interests of open access publishers. Certainly there are concerns about the standards operated by some so-called predatory open access journals that have emerged to take advantage of the willingness or capacity to pay APCs. However, I sense these concerns are overstated, particularly since policing measures are already in place and becoming more widely known.[21] Moreover, as the culture of assessment shifts – as it desperately needs to do – from the pernicious influence of journal impact factors[22] to focus more on article-level judgments of quality, significance or utility, those guilty of exploiting open access publishing for the sake of their own vanity will be easier to detect.

Another concern for some[23] is the PLOS ONE model of peer review, which eschews any pre-publication assessment of significance and seeks only to determine if the research reported is novel and has been performed competently. This approach, which results in an acceptance rate of around 70%, has made the PLOS stable of journals commercially sustainable but again raised questions about quality. However, it is far from clear the effect has been detrimental. Indeed the opposite seems to be the case given that PLOS ONE has emerged as the largest biomedical journal in the world, with an impact factor of 4.4, far higher than a slew of subscription-based journals.

The PLOS model, in which the profits from one mega-journal can support more selective journals (such as PLOS Pathogens or PLOS Medicine) also shows how the introduction of open access doesn't have to be at the expense of 'prestige' journals. This potentially addresses the fear expressed in some quarters that the RCUK policy may inhibit the freedom to publish in the most high profile titles, for example, in cases where publication in a particular journal requires an APC for which no funds are available (RCUK allocations being cash limited). Such concerns are not trivial but they too often overlook the point that the most important goal for scholars is to publish high quality work. The problem arises because we lack the confidence that good work will be noticed unless we chase after high impact factors – and because decisions on grant and promotion applications remain so dependent on them. This is a deep-

seated and largely self-inflicted cultural problem[24] within the scholarly community and one that will take a concerted effort from leading scholars, universities, funders and even publishers to eliminate.

The lure of high prestige journals is commonly seen as a positive attribute, enhancing the quality of the literature by giving the most ambitious scholars something to aim for. There is a measure of truth in that – scholars are no strangers to competition – but it remains problematic because the title or impact factor of the journal where one publishes is the wrong measure of achievement: the significance of papers within even the best journals varies by orders of magnitude. A more honest approach would be to let the community of scholars make their assessment of each paper by citation, reuse and commentary – processes that can only be enhanced by making the work available to the widest possible readership through open access publication.

I am bound to concede that the prestige problem is some way from being resolved. The fact of the matter is that scholars have to deal with the situation as they find it, and it has become increasingly evident that scientists and AHSS scholars do not necessarily see the same things in our current predicament. Concerns that the RCUK policy might affect the choice of publication venue have been interpreted in the AHSS community as an infringement of academic freedom, something I have not heard expressed by my scientific colleagues. In part this reaction stems from the fear that universities might seek to manage their open access funds by controlling *who* will have access to APC monies or *where* their faculty members may publish. Although some are worried that administrators might be party to such decisions, I detect no enthusiasm at universities for such an arrangement. Perhaps it is still too early to judge and scholars need to be on their guard but, given their obsession with the REF, universities are more likely to want to maximise the publication output by their staff.

It is nevertheless reasonable for funders and universities to seek value for money in disbursing funds for APCs and healthy for scholars to participate in discussions of the costs and benefits of open access. That should create the transparency needed to foster a functioning market in APCs, so as

to apply downward pressure on costs. It may not resolve the problem of academic freedom – to which there is no easy solution – but surely scholars need to balance their rights as academics with their responsibilities as spenders of public money? In any case the question of a scholar's right to publish in a venue of their choosing is less acute in an interconnected world where online publishing enables instantaneous dissemination. Curt Rice's perceptive analysis[25] is that, on balance, open access enhances academic freedom. The primary concern of academic freedom after all is that scholars should be able to publish what they like; publishing where they like, especially when publicly-funded, is a secondary consideration. Even so, some of these fears might be allayed if RCUK were to offer explicit reassurance to scholars on the value they place on academic freedom and to exercise flexibility in their assessment of how universities manage their compliance with the new open access policy.

The AHSS community has also been more vocal in its concerns over the Creative Commons licences embedded in the RCUK policy, which demands CC-BY for Gold open access publications. This allows liberal access and re-use of the content of papers, even by commercial organisations, as long as proper attribution to the original authors is made. According to RCUK, under Green open access papers should be published under a CC-BY-NC licence, which restricts re-use to non-commercial (NC) organisations. This is seen in some quarters as a possible infringement of the 'moral'[26] or 'intellectual property'[27] rights of the author – and has sometimes been stated in rather strident terms.[28] I have not heard similar concerns within the scientific community (although there is some evidence of a preference for more restrictive licences[29]) and wonder if the divergent views reflect differences in the nature of their primary scholarly activities. While scientists are generally reporting observations from the field or the laboratory, often writing as a member of a large team of researchers, AHSS scholars may be more personally invested in their research, writing alone or in small groups to produce a synthesis and interpretation of other sources. No doubt that is an over-simplification of what happens in practice but the cultural differences would be interesting to explore in more depth as the policy is reviewed. The topic of licensing deserves cool, precise consideration, of the type recently provided by Heather Morrison[30] and Jon Wilbanks.[31]

Learned societies and innovation

All scholars can agree on the serious challenge posed to learned societies by a shift to open access publishing since many of them rely on journal subscriptions, often sourced from overseas, to support the work they do to protect and promote their disciplines and researchers. I cannot offer very deep insights into this problem – it is a question that deserves an article of its own – but suspect grimly that it is not one that the flow of history is likely to permit to derail the open access project. In the long term the worldwide flipping of funds from subscriptions to APCs offers an escape, but no one knows how long that will take and the pressing question for societies is whether they can survive through the transition. It will take imaginative thinking, and time to experiment.

This should come as no surprise since transitions in modes of communication, especially those driven by technological changes, always appear also to require revolutions in thought. As art historian Kenneth Clark observed in his excellent television series 'Civilisation' humankind is often slow on the uptake. In particular he noted that following the invention of the printing press in the 15th century:

> the first printed books were large, sumptuous and expensive. The printers still thought of themselves as competing with the scribes of manuscripts. Many of them were printed on vellum and had illuminations, like manuscripts. It took preachers and persuaders almost thirty years to recognise what a formidable new instrument had come into their hands, just as it took politicians twenty years to recognise the value of television.

We find ourselves in the midst of a similar technological transition. As Michael Eisen, a founder of PLOS, has recently pointed out,[32] we have so far been largely preoccupied with migrating a 350 year old journal-based publishing system to the online world but have yet to fully realise the transformative power of the web, for example, by enabling new forms of peer review or developing richer connections between the paper (or monograph) and the information or data from which it is derived.

The technology makes change inevitable and we are already seeing its first fruits, not only in the sciences with ground breaking journals like PLOS ONE (www.plosone.org), PeerJ (peerj.com) and F1000Research (f1000research.com), but also in the launch of the Open Library of Humanities (www.openlibhums.org/, deliberately modelled on PLOS), the Social Sciences Directory (www.socialsciencesdirectory.com) and moves to develop affordable models[33] of open access monographs.[34]

The uncertainly of change remains a concern but across all domains of academia impressive efforts are being made to face the future of scholarly publishing with open minds. No one can be sure what it will look like but I hope the community of scholars might be able to work together to build something of which we can be proud.

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A founder member and now vice-chair of the Science is Vital Campaign, Curry is also a member of the board of directors of the Campaign for Science and Engineering. He is an advocate of open access scholarly publishing and has taken a keen interest in recent, successful moves to reform the libel law of England and Wales. He can be found on twitter as @Stephen_Curry.

Notes

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