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## Learning to share

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By [Zoë Corbyn](#), **Matthew Reisz**

Free, immediate and permanently available research results for all - that's what the open-access campaigners want. Unsurprisingly, the subscription publishers disagree. Zoe Corbyn weighs up the ramifications for journals, while Matthew Reisz asks how books will fare

Stephen Hicks, a reader in health and social care at the University of Salford, has just uploaded nine of his journal articles to his university's online open-access repository of institutional papers, and has another ten in the pipeline. Doing so had not crossed his mind before, and it won't be compulsory until January 2010 (last month, Salford mandated so-called "self-archiving", becoming the 100th organisation worldwide to do so). But he was turned on to the idea after hearing Martin Hall, Salford's vice-chancellor and an open-access advocate, speak.

Hicks didn't make his decision for altruistic reasons or because Hall said it could increase his citations and impact. Rather, he chose to make the papers available because he receives a barrage of requests from other academics for access. Directing them to the repository seemed a logical way to save time and make his life easier. Uploading is straightforward, Hicks says, estimating that it takes about ten minutes per paper. He simply fills in an online form with the details of the peer-reviewed article and sends it, along with the final accepted version, to the repository. Staff there pick up the ball, working out whether the copyright policy of the journal that originally published the paper will allow it to be uploaded. "You don't have to worry about copyright because the repository staff do that," Hicks notes, while expressing disappointment that some of his articles haven't gone online because the journals do not grant permission.

About 90 miles south, Ed Rainger, a reader in chronic inflammation at the University of Birmingham, has also been experimenting with open access via the alternative "author-pays" model. At a cost of \$2,900 (£1,780), he has just published his first-ever paper in a purely open-access journal. His decision was not made for altruistic reasons, either: it is a condition of his UK research council funding. Publishing in *PLoS Biology* satisfied this requirement, while meeting Rainger's aim of being featured in a high-ranked general-interest journal. He has been impressed with the result - "it has had a phenomenal number of downloads".

Meanwhile, I receive an email from my sister, an engineering undergraduate studying in Germany. "I have just paid for a journal article I needed, in case you wondered how I have been spending my money," she writes. "I was so cross because I could not access it through any of the various library and database logins, so I got angry and paid for it. Do you have access to lots of databases for journals I can use, by any chance?"

Open access is, simply, the idea that research articles should be freely, immediately and permanently available online to anyone, rather than locked away in subscription journals as many currently are.

There are two main open-access routes - the "gold" and the "green" (names invented by an open-access advocate purely to aid differentiation). In the "gold" or "author-pays" route - as used by Rainger - authors (supported by their funders) pay the costs of publishing in an open-access journal so that peer-reviewed articles then appear online and can be accessed immediately by users for free.

The "green" route - as used by Hicks - sees researchers "self-archive" the final peer-reviewed versions of their articles in institutional or subject repositories, where they are available for anyone to view. The versions deposited are generally not the final PDFs produced by the publishers (which own the copyright on this "version of record"), but rather the "post-print" or final versions that scholars send to journals after the work has gone through the refereeing process and the authors have made any corrections (the "pre-print" is the article before it has been peer

reviewed). They are not formatted in the journals' style and do not have the in-house edits, but having been peer reviewed they have a stamp of quality and will do the job for those who need to access them.

Much to the chagrin of the subscription journals (see box, right), since open-access advocacy began in about 2001 on the back of the web's growing reach, it has come a long way. Although an evangelical group of academics may have led the charge, the movement has rapidly gained converts, including enlightened funders and cash-strapped libraries.

However, even its most fervent advocates would hesitate to claim that open access is anywhere near the tipping point. Given that there are an estimated 10,000 universities and 25,000 scholarly peer-reviewed journals to bring into the fold, the movement has a long way to go.

"We are still in the early days," says Michael Jubb, director of the Research Information Network, a policy unit funded by the UK's higher education funding councils, research councils and its three national libraries and which aims to represent researchers' interests by ensuring the maximum dissemination and impact of their work. "There's no doubt that the movement is gathering momentum, but it still has a long way to go. Access to most material still depends on subscriptions, so the amount available immediately on open access is relatively small."

To date, there are about 1,500 institutions around the world with repositories, and nearly all of Britain's research-intensive universities have one (although many have relatively little content). Research funders and institutions globally to have mandated open access number 105 (see box, page 36), requiring authors to deposit their articles in either a subject or institutional repository. The mandates effectively give authors a choice over their open-access route. They can go for gold and publish it, or go green and deposit a post-print version in the archive.

Under the mandates, authors must publish in a journal that is willing to accommodate their funders' or institutions' policy. Keen to retain authors, many publishers have harmonised policies, although as a concession, funders' mandates usually build in a time lag before the work must become open access. Those using the green route also infringe copyright at their peril (see box, page 34).

There are about 3,500 wholly open-access journals, although only a tiny proportion of them are among the top-ranked publications. The three largest publishers are BioMed Central, Hindawi and the Public Library of Science (PLOS); the last is partially supported by philanthropy, although according to Mark Patterson, its director of publishing, it will shortly begin to break even (it is on target to recover 90 per cent of its costs this year). BioMed Central was bought by publishing house Springer last year shortly after it began turning a profit. "Open-access publishing is now firmly part of the publishing landscape," Patterson says.

Yet the concept is far less embedded in humanities and social science publishing than in scientific, technical and medical publishing, which is probably the result of a combination of fewer and smaller grants in the humanities (so there is less money to fund gold charges) and the fact that outputs in those fields retain their currency for longer (so subscription-based publishers are more strongly opposed to self-archiving).

The arguments for open access run something like this: the public funds research, so why shouldn't it have access to the results? Similarly, researchers, whether in resource-poor developing countries or the richest universities in the world, are at a disadvantage if the material they need (taxpayer-funded or not) is out of reach. Even Harvard University can't afford to buy every journal.

But there is another argument that is gaining support. If researchers' work can be accessed by more people - be they other academics, policymakers or businesses - there is a greater chance of it making an impact in either the field (as measured by increased citations) or the outside world.

This is a notion with immense appeal both to British universities and academics as they strive to increase citations and impact gains importance, buoyed by the new research excellence framework, which will use both to help determine funding.

"My hunch is that impact will start to become very important to open access," says Mark Brown, university librarian at the University of Southampton and chair of Research Libraries UK.

Yet it is worth noting that the REF proposals contain no push towards greater open access. Although the Government may be keener than ever to encourage impact, making the results publicly available appears not to be seen as something that might help achieve it.

"I find it very disappointing and I think we have missed a trick," says Malcolm Read, executive secretary of the Joint Information Systems Committee (Jisc), although he adds that it is not something the open-access movement has lobbied for yet. "If the REF were to say, 'We will only count a paper that is in the open-access domain,' it would be very powerful indeed. Certainly, it's not too late."

The argument that open access can bolster impact is challenged by subscription-based publishers. While the movement's advocates present data showing steep rises in citations for open-access work, publishers contentiously doubt whether it "greatly improves" citations at all.

"There has been only one properly conducted trial," says Bob Campbell, senior publisher at Wiley-Blackwell and chairman of the Publishing Research Consortium, citing a July 2008 British Medical Journal study of physiology journals, "Open access publishing, article downloads, and citations: randomised controlled trial". According to Campbell, the study "found significantly higher online usage of open-access articles but no significant difference in citation rates between the two groups in the first year after publication".

From university libraries' point of view, open access offers the tantalising possibility of lower costs. Many librarians say that the current subscription-based journal structure is bleeding them dry. Substantial profits have been made on the back of the sector for many decades, they argue, by a small handful of large, quasi-monopolistic publishers. Elsevier, Wiley-Blackwell, Springer, Taylor and Francis, Karger and Sage are the big six, followed by a long tail of smaller publishers. Users pay to access research results, with authors paying nothing to publish. Libraries, as the biggest users, are inevitably squeezed on both sides, sandwiched between academics who demand access to journals whatever the cost and publishers that continue to raise prices and add new titles.

"The argument is that better value can be driven into that system," says Alma Swan, a former publishing industry employee who now runs Key Perspectives, a pro-open-access consultancy. "Libraries are very angry about the profits made by Elsevier, for example. If Tesco is content with 5 per cent profit, you know you are being ripped off when you're paying a publisher that is making a profit of some 30 per cent (in its journals division)."

There is also debate about the claim that the gold route is cheaper, recently played out in the Jisc-funded report released in January, *Economic Implications of Alternative Scholarly Publishing Models: Exploring the Costs and Benefits*. The study, led by John Houghton, professorial fellow at Victoria University in Australia, argues that the sector could make substantial savings if it moved away from a subscription-based model, which it estimates costs British libraries £205 million a year. It puts the cost of the "author-pays" model at £150 million a year, and says a sector-wide network of university repositories could be maintained for £20 million.

Many publishers were apoplectic. "It doesn't answer the cost of what transition (to a world of total open access) might be," says Graham Taylor, director of educational, academic and professional publishing at the Publishers Association.

Of the two open-access routes, it is the green approach that is opposed most stridently by subscription publishers. They argue that it leads to the archiving of incomplete papers and manuscripts that contain errors, with the different versions available causing confusion.

At the heart of the argument, however, is that while it is possible to see a business model for gold - a service that can be provided for a fee - this is not the case with the green route.

"Repositories are parasitic on the existing journal structure for their peer-review process," says Ian Russell, chief executive of the Association of Learned and Professional Society Publishers.

However, the open-access movement counters that the journal structure itself can be seen as parasitic, profiting from the free peer-review services that academics provide.

The "doomsday scenario" that publishers paint is that if the green route is mandated by universities, it will become so widespread that libraries will cancel their subscriptions. The existing industry would topple, and so would peer review. "If the subscription journals are unable to sustain themselves," Russell asks, "then what will provide that authority and badge of trustworthiness?"

Jubb acknowledges the problem: "The publishers are worried, and if I were in their shoes I would be, too. Will people still want to pay subscriptions to journals when and if we get to a position where the majority of their content is available through other routes?"

But while green open access may terrify publishers, gold is becoming more appealing. Whereas the claim used to be that it undermined peer review (since a business model dependent on taking money directly from researchers was an incentive for accepting junk), publishers are now adopting a "hybrid" model, in which subscriptions remain but researchers can pay for their articles to follow the open-access route online.

For example, Royal Society Publishing, the Royal Society's publishing arm, offers a hybrid option in all seven of its subscription journals. It has a 2 to 3 per cent take-up rate and charges authors £2,600 per paper, worked out by dividing its annual subscription income by the number of articles published.

Critics see the publishers laughing all the way to the bank, with journals effectively taking access fees twice over, first from authors and then from libraries paying subscriptions.

The matter was raised recently by the Wellcome Trust, which has led the way in mandating open access for its researchers. Along with a handful of universities, led first in the UK by the University of Nottingham, it has set aside a pot of money to help researchers publish via the gold route.

Last month, Sir Mark Walport, the Wellcome Trust's director, called on publishers both to "show the uptake of their open-access option" and "adjust their subscription rates to reflect increases in income from open-access fees". Whether prices will fall remains to be seen: so far, the only UK publisher thought to have reduced its subscription prices is Oxford University Press.

One of the open-access movement's leaders and arch-evangelists is Stevan Harnad, professor of cognitive science at the University of Southampton. He became interested in open access as early as 1994 and his enthusiasm has led his department and university to be among the first to roll out mandatory institutional deposits. He is also responsible for coining the "green" and "gold" terms. His aim is to see total and immediate open access as soon as possible in a system that retains the peer-review process.

But he also does not want to see universities paying over the odds for open access. If the sector wants to squander an opportunity to get a fairer deal out of the subscription journal-publishing industry, that is its business, he believes, but at least it should do so with its eyes open. He is driven by a personal motivation: he says he has given birth to enough "stillborn ideas" in his time and his "only revenge" now is to take an idea he knows to be "definitely right" and "ram it down everybody's throats".

He describes the hybrid model as a "ridiculous bargain" that is delaying progress.

"That you can pay and it will be open access or you can just publish and it won't is abominable, because it costs you nothing to self-archive," he says, adding that it also allows journals to lock in a "gold price" that is far higher than it should be.

Some journals allow green open access, he says, because they know "quite confidently" that unless institutions mandate it (which few have done to date), researchers won't act because they worry that doing so will infringe copyright or take up too much time.

He says green open access, not gold, is the greatest weapon in the movement's arsenal to achieve the prize of ubiquitous open access while ensuring - as the libraries hope - that the system functions without the crippling costs imposed by publishers.

Institutions mandating researchers to put their work in repositories could deliver open access tomorrow, regardless of whether they are sufficiently flush with money to cover researchers' gold charges, he says. Making journals convert from a user-pays to an author-pays model, and at a reasonable price, is, Harnad adds, a pipe dream without green open access first.

"I call it 'gold fever'," Harnad says. "Very quickly the notion of open access - which is about access to refereed journal articles - becomes only gold open access." But that is just one of two routes, and it's not the fastest and surest way, he adds.

He believes the reason that publishers are reluctant to adopt the gold model at present is price: "They are afraid they are not going to make as much money as they did before." Currently, subscription prices cover a package that includes a paper version, a PDF version, plus commentary and news that libraries would doubtless be happy to do without in return for a discount. However, they don't have the power to force the journals to remove them. But if academics hold the purse strings, as the gold model affords, all they will want to pay for is the cost of managing peer review, which everyone agrees comes at a price.

"No journal is ready to downsize," Harnad says. "But green open access is in a position to force them to."

As to the future, Harnad too points to the doomsday scenario. If universities mandate green open access, making all papers accessible, libraries will begin to cancel journal subscriptions "catastrophically", he says. But the cancelled subscriptions would begin to have a positive effect, putting cost pressures on prices. The journals would throw out the "inessential" things, and would be stripped back to their essential role as peer-review service providers.

But downsized journals would save libraries money, Harnad argues, and that could go to funding open-access charges in the gold journals, rather than the present situation where there is precious little money to pay the fees.

As Harnad sees it, green open access in the form of 10,000 institutional mandates is the linchpin in transferring the system from a user-pays to an author-pays model; it is the answer to the problem of how to force the subscription journals to adopt cheap open access.

How much do subscription journals get in revenue per paper at the moment? Harnad estimates it is about \$3,000 to \$8,000 per paper. After downsizing, he adds, publishing in gold open-access journals should cost authors about \$500 per paper.

The Houghton report makes a similar argument, although it suggests that the potential savings would be somewhat less than Harnad's figures. It estimates that subscription journals currently see revenues per paper of £3,250 (for paper and e-copies) and expects that the cost to publish in gold journals would be £1,520 (e-copies only).

Harnad's view is that "the only tipping point worth waiting and looking for" is the advent of green open access - "and that means the point at which all 10,000 universities worldwide mandate open access. We are not there yet, but once we are, the rest of the dominoes are simply going to fall. We are going to convert to gold open access very quickly at a very reasonable price. Universities should act now to mandate green open access."

Yet some consider Harnad's position extreme. There are other equally committed open-access advocates, among them Jisc and SPARC Europe, the continent's main open-access advocacy group, which believe that the green and gold routes need parallel support.

"There are many reasons to give green open access high priority - it will move more quickly than gold, costs less and potentially covers a larger body of literature. But my only point is that green open access does not stand alone and therefore we should support it alongside gold open access," argues Peter Suber, research professor of philosophy at Earlham College and a fellow at Harvard University's Berkman Center.

"By cultivating gold now, as we develop green, we can be assured that we will have a full array of financially healthy peer-reviewed open-access journals in the future. I want to support gold open access as the peer-review alternative in case green does contain a threat to subscription journals," says Suber, a leader of the open-access movement.

But he adds a reality check: the fears that peer review is being jeopardised by repositories are "groundless" at present. Even in physics, the only subject with green levels high enough today to pose a threat, subscription journals have not suffered cancellations, he observes. "My point is that it is premature to predict disaster for subscription journals, but I want to be prepared in case."

But what if the subscription-based journals don't adapt? Here the debate becomes even more heated: some argue that universities, funders, other businesses or even the learned societies could step up and offer a no-frills service. Others see this as anathema, predicting a downward spiral into vanity publishing. But, Suber says, "the question of who organises peer review in the future doesn't have to be decided today".

Perhaps the subscription-based journals are closer to clinching a deal that will ensure their futures anyway. This September, five leading US universities announced their joint commitment to a Compact for Open-Access Publishing Equity (COPE), which says they will find ways to pay "reasonable publication charges" for academics who want to publish via the gold route and who have not attracted funding elsewhere. They are also seeking more institutions to join them.

Harnad has concerns. First, given that only two of the five signatories, Harvard and the Massachusetts Institute of Technology, have mandated green open access, it may further delay progress. It also risks locking in a gold price which, Harnad believes, will be far too high.

Meanwhile, experiments are progressing with another kind of model, in which consortiums of universities buy unlimited open access in subscription-based journals.

In a two-year trial deal brokered in February 2008 between Springer and Germany's Max Planck Society, all researchers at the 78 Max Planck Institutes are allowed access to all Springer's subscriber content and can publish open-access papers for free in its hybrid journals. How much the Society paid has not been revealed.

A similar experiment is being attempted by SCOAP3 (Sponsoring Consortium for Open-Access Publishing in Particle Physics). Led by Cern, the European particle physics laboratory, it aims to gather enough high-energy physics funding agencies, laboratories and universities globally to approach the subscription-journal publishers with a deal to get access to important journals and gold publishing for free.

In return, the consortium would pool individual library subscriptions and pay a fee of about EUR10 million (£9.2 million) a year. So far the idea has gathered about 65 per cent of the support it needs to begin formal negotiations.

When predictions are made about the future of open access, the most common view is that subscription and open-access models will coexist for a while yet.

Jubb believes that the next ten years will see open access become the norm in some areas of science (for example, physics and biomedicine), but expects subscription journals to continue in the humanities. He also does not foresee the dominance of high-status journals being broken any time soon.

Beyond that, whether advocates are able to effect a transition to a total open-access world cannot yet be known. What is certain is that they are not about to take their eyes off the prize.

### **OPEN-ACCESS WARFARE: THE KEY BATTLEFIELDS**

Whether it is a battle or a series of ongoing skirmishes, the war being fought between the open access and subscription camps is fiercer than ever, with each side pushing its case via a bewildering array of studies, reports and initiatives.

All of this is perfectly understandable when a highly profitable business model clashes with an ideology that threatens it.

The publishers have the Publishing Research Consortium to inject "evidence-based discussion" into their arguments; the open-access campaigners have just launched the Enabling Open Scholarship organisation for vice-chancellors to work out strategy (no publishers allowed); and Elsevier has launched projects such as Patient Research and Research4Life to try to counter the argument that it is a big, bad corporation that won't allow access to research results to patients who want to understand their conditions, or poor academics in the developing world.

The debate pits the institutional libraries, which have the power to cancel subscriptions, against large subscription publishers; the latter are also locked in a battle with funders and governments over their pushes to achieve open-access mandates.

And academics occupy the uneasy middle ground, many profoundly distrustful of what open access may mean for peer review and terrified of breaching copyright agreements.

They have received little encouragement to embrace open access from learned societies, which have a vested interest in maintaining the status quo, as many rely on revenue from their own subscription-based journals to fund their activities.

"We are not against open access," argues Graham Taylor, director of educational, academic and professional publishing at the Publishers Association. Instead, he says, publishers want the "widest possible dissemination within a sustainable business model".

Alma Swan, director of the pro-open-access consultancy Key Perspectives, says: "The moral argument isn't on the publishers' side, so whichever argument they drag out gets shot down in flames."

Businesses that "lit gas lamps in the streets of London in the 1920s" went through a similarly worrying time, she notes, when people wanted electric lights.

Better access is needed, so something has to give.

"I don't want to portray it as a battle, but equally I don't want to toe the line that we have to keep working with the publishers, because actually they don't want to work with us. They want to keep talking because it delays change," she says.

Taylor evokes an Olympic metaphor to make the point that publishers add value. The public have paid for the primary research, he says, but not for the "value-added, published article".

"We are all paying for the Olympic Park, but people will still pay to go and sit in a seat. They don't say: 'Because my taxes paid for the park, we should all be able to go along for free.' Isn't there a similar sort of argument here?"

But the Olympics will be televised for free to the British public, Swan retorts. "The Olympics is the perfect analogy for open access. In fact, since technology (ie, television) made it possible, the masses have been able to benefit from what was once only available to the privileged few who could afford seats and travel to the Games.

"In a parallel way, since technology (the web) has made it possible to access research articles, all interested parties should be able to benefit (via open access)."

Inevitably, compromises result. Peter Suber, research professor of philosophy at Earlham College and an open-access campaigner, cites a significant recent US development - the National Institutes of Health's open-access mandate - as a victory for open access, but publishers won too when the time lag before open access kicks in was watered down from six months to 12 months.

In Britain, the next major point of contention may be the research excellence framework, although its power to force open access appears not to have been utilised.

In the US, the Federal Research Public Access Act 2009 is shaping up to be the next major battleground. If enacted, it would require 11 of the Government's largest funding agencies to ensure the manuscripts from the scientific research they fund are made freely available within six months of publication.

"That would be a really jumbo mandate and it is being strongly lobbied against now (by publishers)," notes Stevan Harnad, professor of cognitive science at the University of Southampton.

Ultimately, all agree that the key factor is the academy: get the sector to change and the war is won. It is scholars and institutions that must be convinced of the merits of open access.

"And the publishers' strength is that the journal system is the measure of esteem for researchers. It's where you publish and how many citations you get that counts," Swan says.

### **COPYRIGHT: MAKE SURE YOU UNDERSTAND WHO OWNS WHAT**

A separate but related issue in the open-access debate is copyright.

"It is not and should not be a barrier to open access, but it is the issue that confuses and worries academics the most," says Alma Swan, director of the pro-open-access consultancy, Key Perspectives.

The worry comes not from the "author-pays" model - in which papers generally come under a Creative Commons licence allowing free reproduction with proper attribution - but rather depositing articles.

Repository managers should ensure that no rules are broken, but it is important that authors understand the basics, and the opportunities to ensure the final refereed and corrected "post-print" of their articles can be made available as soon as possible, she says.

Copyright is best thought of as a bundle of rights. At the very least, the publisher will always hold the copyright of the "version of record" that appears in the journal; similarly, the author will always hold the moral rights over the ideas.

But within the standard copyright agreement that authors and publishers sign in order for papers to appear, publishers will ask authors to hand over what is in effect the copyright to the post-print version. About one third of journals and half of publishers ask authors to forfeit their rights to disseminate their post-prints in open-access archives. As a result, many repositories contain only brief details.

Most authors faced with electronic copyright agreements simply click away this right without realising it, meaning post-print versions can be added to institutional repositories only if publishers allow it (generally only after a certain amount of time has elapsed).

This presents a problem for immediate free open access, says Swan, but there are ways to circumvent it.

Although authors can be loath to do so for fear of upsetting publishers, they can ask for another agreement that ensures they retain the rights to the post-print version. Pro-open-access organisations such as SPARC Europe provide a so-called "author addendum" that can help.

Some universities are also making it a condition that academics who publish in subscription journals cannot sign away post-print rights.

The RoMEO service, run out of the University of Nottingham, provides a summary of publishers' policies and is used by repository managers to work out what they can make available ([www.sherpa.ac.uk/romeo](http://www.sherpa.ac.uk/romeo)).

"I've never understood why novelists and poets retain copyright, but your average biochemist is meant to relinquish it," Swan says.

### **MAKING A COMMITMENT: MANDATE SIGNATORIES**

- Worldwide to date, 42 funders, 49 institutions and 14 departments have put in place mandates demanding that the work they fund be made open access.
- Since April 2008, the US National Institutes of Health has required researchers to deposit their final peer-reviewed manuscripts in its PubMed Central repository within 12 months of publication. Involving some 65,000 papers a year, this is thought to be the most significant open-access mandate so far.
- Among the US institutions to introduce mandates are the Massachusetts Institute of Technology and a number of Harvard faculties, encouraging institutions around the world to follow suit. The Harvard policy is slightly watered down, containing an opt-out for any faculty member who requests it. This worries some open-access advocates, who fear the spread of the Harvard model could dilute the power of the mandate as a tool for forcing change.
- In the UK, the Wellcome Trust requires manuscripts of papers generated by the research it funds to be deposited within six months of publication in UK PubMed Central, but it reports that only 43 per cent of its funded researchers are currently complying. The UK research councils also require the work they fund to be made open access.
- A total of 11 UK universities have adopted institution-wide mandates. The universities of Southampton and Stirling were the first to do so in 2008. Both University College London and the University of Salford adopted mandates this year.
- The question of whether repositories can affect impact is raised by Southampton's performance in the G-Factor International University Ranking, produced by University Metrics.com. It measures institutions' web visibility based on the number of times other universities link to their website. Attributed to other institutions linking to the papers in its repository, Southampton comes 25th worldwide in the ranking, eclipsed in the UK only by the universities of Cambridge and Oxford. However, only 25 per cent of its records offer access to articles owing to copyright restrictions.
- In Europe, 20 per cent of the work funded under the Framework 7 programme has been made open access under a pilot scheme.
- A registry of the world's open-access mandates, the Registry of Open Access Repository Material Archiving Policies (ROARMAP), is maintained by the EPrints repository service: [www.eprints.org/openaccess/policysignup](http://www.eprints.org/openaccess/policysignup).

The figures here are derived from this registry.

Source :

Zoe Corbyn and Matthew Reisz

## Readers' comments

- **Stevan Harnad** 12 November, 2009

Zoe Corbyn & Matthew Reisz's THES article on Open Access is among the better informed ones, though there is still one important point that never quite comes into focus: Open Access is not about journal economics: it is about research access, for the sake of research uptake, usage, applications, impact, productivity and progress. Even in the portions of the THES article that are devoted to my own views, one gets the impression that the ultimate objective is to lower journal costs and convert to Gold OA. That will almost certainly be an eventual outcome, but the immediate and urgent objective is not that. The immediate objective is Open Access itself, which is fulfilled completely by Green OA self-archiving, even if most journals never convert to Gold OA, subscriptions remain sustainable, and costs never fall, let alone shrink to the minimum that they could (and should) be, namely, the price of the service of peer review alone. The goal of the Open Access movement is Open Access, because it is only through Open Access that research can be used, applied and built upon by all its potential users, rather than only those whose institutions can afford to subscribe to the journal in which it happens to be published. You don't need to wait for publishers to convert to Gold OA publishing for that. All that's needed is for the providers of all the research that is published in journals -- i.e., the world's universities and research institutions, reinforced also by their research funders -- to mandate Green OA self-archiving. Stevan Harnad Université du Québec à Montréal & University of Southampton

- **Michael Pyshnov** 12 November, 2009

Why is the cost of Gold publishing for the author is so high? You can find on the Net free depositories with huge free traffic allowance. Is the Gold option trying to make the poor, formerly exploited people into



exploitators? Or I don't understand something here? It should cost very little to convert an article into a standard format and upload it into institutional repository and then upload an abstract into the classified reference/index repository and live happily ever after.

- **Eberhard R. Hilf** 12 November, 2009

A brave and well-informed article. Michael asks, why even Gold costs are so high. That is, because (again here in this article) the pyramid is looked at upside down: the present publishing market and how to have a smooth transition to the future without losing revenue. But long term stable structure will be achieved only if the pyramid is put on its base: 1. start from the necessities of research and science: that is here: Open Access to all scientific documents relevant to be read by anyone to help the process of research. 2. look for a rational technical structure to implement this: that has been already found: Institutional Repositories with a worldwide agreed upon metadata set to allow their networking. 3. Mandate, make it a must, that authors post their documents in an IR. 4. Have all necessary services as add-on in a then emerging competitive market as are: refereeing; overlay journals (which referee articles, deposited, published somewhere else, there refereed or not); print on demand; long term archiving; etc. Only by competitive services the quality of a service will be at the upper technical possible limit, and the prices will be down where they belong. Open Access is a *precondition* of the emerging scientific publication structure, not one of its features. Thus it should come first (Open Access first, publish then).

- **Stevan Harnad** 12 November, 2009

I am sorry to have to disagree with my comrade-at-arms, Ebs Hilf, but, no, it is not "Open Access first, publish after"! Physicists (like Ebs) have indeed found it useful for two decades to first post their unrefereed drafts publicly online, and then to submit them for refereeing in publication in journals. That's fine. But it definitely is not the target or meaning of the Open Access (OA) movement. The target of the movement and the primary meaning of OA is free online access to refereed research (already published, or accepted for publication). Unlike in physics, researchers in most other disciplines do not in general wish to make their unrefereed drafts public (and in biomedicine there may even be some public health risk in this). No, what must come first is Open Access to already refereed research. That is what OA seeks and that is all that institutions and funders can mandate. Decisions about making unrefereed drafts public must remain entirely a matter of author choice. It follows also that the futuristic notion of refereeing being "overlaid" on institutional repositories that contain unrefereed research (whether Open Access or Closed Access) is premature. Refereed, published research first needs to be made OA, now; then, possibly, the system will evolve toward more efficient implementation of refereeing and publication. (All these misunderstandings and premature over-reaching are symptoms of yet again putting the emphasis, wrongly, on publication reform [Gold OA] instead of where it needs to be put: access-provision -- to refereed, published research, today, such as it is [Green OA], and not such as it might perhaps some day eventually become...) -- STEVAN HARNAD

- **mia** 12 November, 2009

Hello: Just want to spread the news about another OA option that has made much headway in the OA movement. It is the Simon Fraser University's Public Knowledge Project's software application called the OJS. It is an open source software system that facilitates the publication of (OA) electronic journals. For those interested please see the PKP web site: <http://pkp.sfu.ca/?q=ojs>

- **Jean-Claude Gu  don** 12 November, 2009

The gold road is not equivalent to "author pays". The gold road simply means that journals are freely accessible and the content can be reused. The gold road does not prescribe any particular business plan, and most open access journals do not require an "author-pay" scheme. Just look at SciELO if you want to see a large-scale example of this point. Jean-Claude Gu  don

- **Stevan Harnad** 13 November, 2009

[1] "Hicks didn't make his decision [to self-archive] for altruistic reasons or because ... it could increase his citations and impact... [but] because he receives a barrage of requests from other academics for access. Directing them to the repository seemed a logical way to save time and make his life easier... [though Hicks is disappointed] that some of his articles haven't gone online because the journals do not grant permission." MANDATES SHOULD STIPULATE THAT THE FINAL, PEER-REVIEWED DRAFTS OF ALL ARTICLES CAN AND MUST BE DEPOSITED IMMEDIATELY UPON ACCEPTANCE FOR PUBLICATION. IF AN AUTHOR ELECTS TO HONOUR A PUBLISHER'S ACCESS EMBARGO, THE DEPOSIT CAN BE "CLOSED ACCESS" INSTEAD OF OPEN ACCESS. INSTITUTIONAL REPOSITORIES HAVE A SEMI-AUTOMATIC "EMAIL EPRINT REQUEST" BUTTON THAT A REQUESTER CAN USE FOR ANY CLOSED

ACCESS DEPOSIT. THE AUTHOR GETS AN INSTANT EMAIL REQUEST, AND ONE CLICK IS NEEDED TO SEND AN EMAIL VERSION TO THE REQUESTER. THIS WOULD STILL SAVE HICKS MOST OF THE REDIUM OF FULFILLING REPRINT REQUESTS THE OLD WAY: <http://bit.ly/2FVU7C> ---- [2] "Under the mandates, authors must publish in a journal that is willing to accommodate their funders' or institutions' policy. Keen to retain authors, many publishers have harmonised policies, although as a concession, funders' mandates usually build in a time lag before the work must become open access. Those using the green route also infringe copyright at their peril." NO PERIL WHATSOEVER. 63% OF JOURNALS (INCLUDING MOST OF THE TOP JOURNALS) ALREADY FORMALLY ENDORSE IMMEDIATE DEPOSIT WITH IMMEDIATE OPEN ACCESS. <http://romeo.eprints.org/stats.php> FOR THE REMAINING 37%, AUTHORS CAN STILL DEPOSIT IMMEDIATELY, AND RELY ON THE BUTTON DURING THE EMBARGO. 63% OA AND 37% ALMOST-OA IS INFINITELY BETTER FOR RESEARCH USAGE, PROGRESS AND IMPACT THAN 37% DELAYED OA: <http://bit.ly/OATT2> ---- [3] "...we have missed a trick," says Malcolm Read, executive secretary of the Joint Information Systems Committee ... "If the REF [Research Excellence Framework] were to say, 'We will only count a paper that is in the open-access domain,' it would be very powerful indeed. Certainly, it's not too late... [though this] is not something the open-access movement has lobbied for yet." IT'S CERTAINLY NOT TOO LATE; SOME INDIVIDUAL UNIVERSITIES (E.G. LIEGE <http://bit.ly/3m2A93>) ARE DOING IT ALREADY; AND THE "OPEN-ACCESS MOVEMENT" CERTAINLY HAS LOBBIED FOR IT, AND STILL IS: <http://bit.ly/3Odyo0>

- **Repository Manager** 13 November, 2009

One point that this paper and the rest of the discussion doesn't cover so well is that many authors are reluctant to share their early drafts of their papers: some don't even keep them. That's one reason why authors might favour the gold route. There are plenty of authors who just don't have early versions of their articles which they value enough to want to share online. Their scholarly reputations and the future advancement of knowledge in their field depend upon the accuracy of the work that they make publicly available. Early versions might contain inaccuracies. Such authors would have to prepare a version for the repository especially. Also, if an author is depositing in order to comply with the Wellcome Trust's mandate then the deposit is expected to be in PubMed and that's not something simple or easy for the author to do under green access. But if they go for gold then the publisher will do it on their behalf. So there are powerful incentives for authors to favour the gold route. However, authors choosing this route should be careful because not all open access publishing agreements will also allow repository deposits of the final version. Just because an article is published on open access does not automatically mean that it is also available to be copied into repositories or onto authors' websites. There are issues for libraries in providing links to open access content in hybrid journals. If open access is about unlocking the content so that it is available for all to read then the discoverability of that content is also important. The role of the institutional repository in the discovery of an author's work is an important one, whether the author has chosen green or gold open access. So if you're an author and you choose gold, don't neglect to deposit in your IR as well!

- **David Prosser** 13 November, 2009

One point to note about the number of open access journals. The Director of Open Access Journals (<http://www.doaj.org/>) lists over 4400 peer-reviewed fully open access titles, rather than the 3500 mentioned by Zoe. This total increases by about two titles per day.

- **Trish Weisman** 13 November, 2009

I do not wish to defend the journal publisher behemoths and their profits, but as a copyeditor of journal articles in several fields over many years, I have seen plenty of substantive changes made between acceptance of the peer-reviewed article and the end of the editing process. These arise from questions asked by the copyeditor and from errors or lack of clarity an author only notices while reading the copyedited draft and answering queries. Two versions of an article--the accepted paper in a repository (or published online ahead of print) and the edited version the journal publishes--will sometimes differ in important ways, but the differences may not be apparent to the reader of the earlier version. Already, many journals published in-house by societies are in financial trouble; some outsource copyediting to large companies that provide only cursory editing. In the future, perhaps authors and their institutions will take responsibility for presubmission editing and journals will no longer provide this service. I know many authors believe that they and their colleagues, having read their papers carefully and repeatedly, do not need the services of a copyeditor. My experience leads me to disagree. In an open-access world, payment for editing and a system to ensure that circulating copies of a paper do not substantively differ should be important components.

- **Barbara Kirsop** 13 November, 2009

Readers of this article may also like to be reminded of the needs of the developing countries' research communities and research users in these regions. There is a short posting on 'OA priorities' on this aspect of OA at <http://epublishingtrust.blogspot.com/2009/11/oa-priority.html>. For researchers in deprived areas (and for their countries' economies) the need for establishing OA is urgent.