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Stevan Harnad – On Green Open Access and Open Access Mandates

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> Harnad, S. (1995) Universal FTP Archives for Esoteric Science and Scholarship: A Subversive Proposal. In: Ann Okerson & James O'Donnell (Eds.) *Scholarly Journals at the Crossroads; A Subversive Proposal for Electronic Publishing*. Washington, DC., Association of Research Libraries, June 1995.
> http://www.arl.org/scomm/subversive/toc.html

What is Open Access?

- *Refereed journal articles* are the primary target content of the Open Access (OA) movement -- not books, monographs, textbooks, software, audio, video or newspaper/magazine articles. The focus is very specifically on the 2.5 million refereed journal articles that are published in the 25,000 peer reviewed journals across all scientific and scholarly disciplines in all languages the world over. For those two and a half million articles a year, there are two "degrees" of Open Access:

- The first degree is 'gratis' Open Access, which means making the articles freely available on the internet and the second degree is 'libre' Open Access, which means making them freely available on the internet and also giving permission for certain re-use rights, sometimes including the right to change the text of the article and to republish it as a derivative work. I am speaking here only of gratis OA, which means free online access, not libre OA. Not all researchers want libre OA for their articles, but they all want gratis OA.

In addition there are two ways to provide OA: the green road and golden roads to OA.

Could you explain the concepts of golden and green Open Access?

- The golden road to OA is to publish the article in a peer-reviewed journal that makes its own articles Open Access (whether gratis or libre). That's called "gold open access publishing." Gold open access publishing, like all publishing, costs money. Many Gold OA journals still cover their publication costs out of either subscriptions to the print edition or out of subsidies, but the top Gold OA journals charge the author's institution a fee for the publication of each article. (This is called the Gold OA publishing cost-recovery model.) That extra money to pay for Gold OA publication is hard to find today, because the potential institutional funds to pay for it are still tied up in paying for journal subscriptions. Furthermore, offering Gold OA depends on publishers converting to Gold OA, whereas the green road to OA depends only on the research community itself.

- The green road to OA is to publish in *any* one of the 25,000 peer-reviewed journals and – besides submitting it to the journal so it can be peer-reviewed, revised, etc., and finally accepted and published online and/or on paper – over and above that, when the final peer-reviewed, revised

draft is accepted for publication, the author deposits it into his [institutional repository](#) to make it (gratis) open access; that's called Green Open Access [self-archiving](#).

Why do you favor green gratis Open Access?

- The reasons I favour Green Gratis Open Access (GGOA) are many. Reason number one is that (1) GGOA is the only *sure* way to provide OA, because we cannot guess in advance whether (and when) publishers will convert to Gold OA, and because (2) Gold OA costs money -- extra money; and because (3) that money is right now being spent on subscriptions: it is not available to researchers to pay the Gold OA fees for their articles. In contrast, the (4) option of providing Green OA to their articles is available to all researchers, for all their published articles, at no extra cost. (5) Virtually all research universities now have institutional repositories. (6) All that's needed is that the university and the research funder *[mandates](#)* (i.e., requires) that their researchers provide (Green, Gratis) open access by depositing all their papers in the institutional repository immediately upon acceptance for publication -- for if you don't require it then most researchers don't deposit.

- Globally, across all scientific and scholarly disciplines, only [about 15%](#) of researchers provide OA spontaneously. But if you mandate it, then 60 – 70% do so right away, and within a couple of years after mandate adoption the [compliance rate](#) is at or near 100%. So really, the only sure way to achieve 100% open access is by mandating gratis green open access. That's why I favor that option. (Libre OA cannot be mandated because it is more than most researchers wish to provide for their articles: Many authors do not wish to give permission for their writings to be "re-mixed"; they just want them to be freely accesible to all users. And Gold OA cannot be mandated, because *(i)* universities, research institutions and funders have no mandate over publishers, only over researchers, and because *(ii)* the funds to pay for Gold OA are tied up in subscriptions.)

> Harnad, S. (2008) Waking OA's "Slumbering Giant": The University's Mandate To Mandate Open Access. *New Review of Information Networking* 14(1): 51 - 68 and in Russian: // Nauch. i Tekhn. B-ki (Sci-Tech Lib). - 2009. – N 10. – P. 61 – 72. http://eprints.ecs.soton.ac.uk/17298/

You have said that universities and funders should on no account foreground or fund Gold OA if they have not yet mandated Green OA - why?

- I call this '[gold fever](#)'. Gold fever comes when you think that "Open Access" means primarily or exclusively "gold Open Access" and that somehow the only way we can have OA is if publishers convert to the gold OA model. Publishers may or may not eventually convert, someday, but meanwhile what's most important and urgent – and immediately reachable -- for research and researchers today is to provide Open Access itself, not to try to reform publishers' economic models.

- Right now universities are spending a great deal of money on subscriptions to journals -- as much as they can afford. That is a problem that will be made less urgent by green open access, because if institutions all mandate green open access, then even the articles in those journals to which your institution can't afford to subscribe, your users will nevertheless be able to access (online) for free;

and, of course, if your institution's researchers publish in any journal that some *other* institutions can't afford to subscribe to, those other institutions' users will likewise still have (online) access to your institution's research output, because of green open access. Now, as I said, gold open access -- especially for the top open access journals -- often costs extra money; it can cost anywhere from 1,500 dollars to 3,500 or even much more to publish a Gold OA article. Hence Gold open access, today, is affordable only for a small fraction of an institution's yearly research output. And that's money that -- well, if you have spare money to spend, then you can spend it, but you don't really get much OA for that money; so it's really absurd to spend money on gold open access (which you can only afford for a small part of your institution's yearly research output) without first mandating green open access for *all* of your institution's research output, at no extra cost at all. Once you have mandated green open access, I would say, you can do whatever you like in the name of OA with whatever extra money you have -- but certainly not before you have mandated green OA.

Could you elaborate on what is a good mandate?

- The best mandate is one that requires immediate deposit of the final, peer-reviewed draft in the researcher's institutional repository -- immediately upon acceptance for publication; no exceptions, no delays.

The reason we need mandates and the reason open access is needed so urgently is that open access increases (and non-open access decreases) both the speed and the degree to which research is accessed, taken up, used, applied and built upon -- and that's the purpose of research, and the measure of research progress. We currently make research accessible only to those potential users whose institutions can afford to subscribe to the journal in which it was published. With open access, research is immediately available to *any* user, whether or not their institution can afford to subscribe to the journal in which it's published. And that makes a great difference, Many studies, in field after field, have shown that not only does OA increase downloads early in the research cycle -- which means that OA articles are read much more – but later in the research cycle this also increases citations, which means that OA research is not just being read more, but it is also being used and built upon more, in further research.

- Now, with these advantages, all the research providers and users -- those of them who know about OA -- know that OA's good, and all want it. The reason that the target of OA is refereed journal articles is precisely because it is true of those 2.5 million articles a year, without exception, that their authors (unlike the authors of books, software or video) publish them solely for the purpose of research impact and not for the purpose of royalty income. So those authors all want their research findings to be accessible to as many users as possible; their careers depend on the uptake, the usage and the citations of their work. Hence there is nothing but advantage in open access for researchers.

- We must accordingly ask ourselves: given the advantages demonstrated repeatedly, how come only 15% of researchers are providing OA spontaneously? The answer is a combination of groundless worries about legality and a certain amount of inertia. And that's the reason we need mandates: because institutional and funder mandates raise OA to a hundred per cent, or close to a hundred per cent, within a few years, calming authors' groundless worries about legality as well as making it clear that providing OA is an official priority for their employers and funders.

- So open access mandates can require that 100% of refereed journal articles, without exception, all need to be deposited immediately upon acceptance for publication. Of those deposits, over 60%

can already be made open access immediately upon deposit with the official blessing of their publishers (because the majority of journals – including almost all the top journals – have already endorsed immediate green OA). For the remaining deposits, if any author wishes to observe a publisher-requested OA-embargo period, they can make their deposit "closed access". During the embargo period, only the metadata of closed-access deposits are accessible directly to users; but the repositories have an automated button on which any user can click to request an electronic copy of a closed-access deposit for research purposes. The author receives the eprint request by automated email and can fulfill it, again with just one click. (This is not OA: It is "Almost-OA". But it is sufficient to tide over researcher needs during any OA-embargo period; and it will help hasten the inevitable and well-deserved death of the remaining minority of OA-embargoes.)

- It is also important to understand that the right way to mandate deposit is for *both institutions and funders to mandate deposit in the researcher's institutional repository*. Then central repositories can harvest from the institutional repositories. The institutions are the universal provider of all of this OA content. The central repositories harvest their contents and then one searched via the central repositories -- *not* by searching individually in the institutional repositories.

-The optimal mandate is an immediate deposit, no-exceptions mandate, with the semi-automatic eprint request button providing Almost OA as an option for any closed-access deposits. In addition, the mandate should be linked to performance evaluation by the university, with researchers informed that from now on the only way to submit your publications for annual performance review is to deposit them in the institutional repository. That is the best mandate of all. An immediate-deposit mandate linked to performance review. If you want a model for that mandate, there are plenty of universities that now have it, but the first was the Université de Liège.

It is well known that the researchers themselves are often reluctant towards OA - can you explain why this is the case, and how we can overcome this reluctance?

- I have dubbed this reluctance "Zeno's Paralysis": There are no REAL obstacles to providing Green OA, but there are 38 imagined obstacles (see the BOAI self archiving FAQ).

> Harnad, S. (2006) Opening Access by Overcoming Zeno's Paralysis, in Jacobs, N., Eds. *Open Access: Key Strategic*, *Technical and Economic Aspects*, chapter 8. Chandos.
> http://eprints.ecs.soton.ac.uk/12094/

I've already mentioned the two most common ones:

- Even if we put copyright worries aside, authors worry that the journals will be prejudiced against them if they make their articles open access and they won't accept their next article. That's not true and it's nonsense. In fact journals are, on the contrary, bending over backwards to try to be -- or at least to appear to be -- friendly to open access. So that's not a problem.

- Another thing that authors sometimes worry about is that it's very difficult and time consuming to deposit a paper. That too is not true at all: it usually takes less than six minutes. Let's say the first paper may take 10 minutes to fill out the metadata; then with the metadata entered once, from then on, for any further papers, the software already knows the author, the institution, etc. and you just have to deposit the paper, the title of the paper, the name of the journal, and any co-author permutations. Considering how many papers researchers publish a year and how much time

it takes to prepare the paper itself, the extra six minutes to make it open access in exchange for all the benefits is really negligible.

The university and research libraries have over the last 10 years been active in the field of OA - where do you see the role of the library in a future world of green OA?

- It is indisputable that librarians are the most dedicated supporters and activists for open access -- although sometimes, I have to say, many also make the mistake of focussing on gold open access and publishing reform instead of green open access and research progress, because they're preoccupied with the serials crisis and how to bring journal prices down and that is not a good thing for open access, because, as I said, Green Open Access (mandated) is the sure, direct way to get us to 100% OA. Gold open access can come afterwards, whereas trying to reach gold open access directly right now is over-reaching and in the end yields next to no OA. So when librarians become gold feverish, it is not so good; but when they understand, promote and support green open access, then they're tremendous.

- So the most important thing librarians are doing is to lobby both their researchers and their administration to provide green OA: they're lobbying their administrations to adopt a mandate and lobbying their researchers to comply with the mandate, telling them all of the benefits and helping them etc.. Librarians are quintessential to this. Whether or not they are officially hosting and handling the institutional repository software (sometimes it is computing services that are doing that), librarians are extremely important in this whole process.

On the other hand, it's a mistake, for example, for librarians to consider that their institutional repositories are something like a library collection and catalogue; that's a big [misunderstanding](#). You don't need local search facilities at the university level – the kinds that you have for searching and retrieving the holdings in the library catalogue (books, multimedia, rare documents, etc.) -- because locally is not where users (whether institutional or external) search the peer-reviewed research article literature. *They search at the level of [global harvesters](#)*.

And another important thing is about funders, who are also in a position to mandate open access: It is extremely important that they should [mandate institutional deposit](#), in the institutional repository, and not institution-external deposit, in a central repository. Hence it's important that librarians should be supporting convergent institutional deposit (followed by central harvest and search) rather than multiple, divergent, institution-external deposit, as that's the way that global green OA will all work, and that's the way to get institutional and funder mandates to [reinforce](#) one another, rather than compete. It's shortsighted and mistaken to see the contents of an institutional OA repository as a local collection for local users; it isn't. It is a local host for local research output that is then harvested centrally and searched globally.

The Green OA agenda should also not be confused with the [digital preservation](#) agenda: Yes, all digital content must be preserved, but OA is first and foremost about *access-provision*, not digital preservation. Moreover, the version of an article that most needs permanent preservation is the publisher's version of record, not the author's final refereed draft, which is deposited as a supplement for those users who cannot afford to access the publisher's version-of-record. (To repeat, though: this does not mean that the Green OA version should not be [preserved](#) too; eventually it may even be the Green OA version that becomes the version of record; but that will evolve naturally in the future, whereas access-provision is urgent now.)

A Committee under The Ministry of Science, Technology and Innovation is right now drafting a report on a national strategy for OA in Denmark - how do you see the value of such a national strategy, and what are the potentials?

- I think it's an excellent idea! The reason the Danish public is paying its taxes to support research and to support research institutions, is because Danish citizens want the benefits of the research they are funding. And the way to maximize the benefits of research is to maximize access to the research findings, by making them OA. The Danish public's interest (as well as the global public's interest) is in the *fruits* of the research, scientific and scholarly, that their taxes support through their public grants and institutions. And to maximize those fruits, you have to make sure that the scientists and the scholars – the specialist users for whom all this (often technical and specialized) peer-reviewed research is intended (and they are located all over the world) -- are able to access, use, apply and build upon it, to generate the research progress and applications that benefit the public that is funding it, and for whom the research is being conducted.

- It's been shown repeatedly that open access maximizes research impact: it maximizes downloads, it maximizes research citations and many other new metrics of research impact that have been developed. That's why Government should be interested in mandating open access.

> Gargouri, Y., Hajjem, C., Lariviere, V., Gingras, Y., Brody, T., Carr, L. and Harnad, S. (2010) Self-Selected or Mandated, Open Access Increases Citation Impact for Higher Quality Research. *PLOS ONE* 5 (10). e13636 http://eprints.ecs.soton.ac.uk/18493/

And, in addition, OA saves money, it's a terrific investment. The Houghton Report on the economics of OA has shown that amongst the many ways OA is going to save money, the biggest benefit/cost ratio (sometimes as high as 40/1) comes from mandating Green OA: Relative to the cost, Green OA saves much more money than Gold OA does.

> Harnad, S. (2010) The Immediate Practical Implication of the Houghton Report: Provide Green Open Access Now. *Prometheus*, 28 (1). pp. 55-59. http://eprints.ecs.soton.ac.uk/18514/

Denmark is a small country and one of the challenges to handle in a future OA policy is the research literature published in Danish. Publishers and editors who publísh mainly in Danish are worried about their future business - should they be or do you have any suggestion for a way of handling this specific problem, like funding etc.?

- First of all, there is no principled difference whatsoever between the global (international) OA story and the local (national) OA story, for either OA itself or for the future evolution of research journal publishing. The only apparent difference is that local (national language) journals are a little microcosm of their own. With international journals, it's going to take a while till all mandates are adopted universally, hence till all international content becomes universally open access. So, globally, open access will grow gradually and anarchically, article by article, institutional-mandate by instititutional-mandate – not journal by journal. No journal will be cancelled by a library because 15%, 20%, 30%, 40% of its content is accessible. It's only at or near 100% that any librarian could even *consider* cancelling a subscribed journal, and that will happen to *all* journals at around the same time, globally, once Green OA reaches 100%. To repeat: It won't be happening journal by journal, because green open access doesn't grow journal by journal, but article by article,

author by author, institution by institution, funder by funder. Green OA grows universally and anarchically across all journals and *so far*, even in the very small number of fields where, exceptionally, OA has already reached 100% (e.g., in high energy physics since 1991, where researchers had been sharing their research in the form of pre-refereeing preprints even before the electronic era), the publishers (APS and IOP) have reported that they have detected *no* cancellations despite 100% Green OA having been reached years ago.

> Swan, A. (2005) Open access self-archiving: An Introduction. *JiSC Technical Report.*
> http://eprints.ecs.soton.ac.uk/11006/

-if you mandate a Green OA in Denmark and all of the articles that are published in the Danish open access journals must be deposited in repositories, then, first, according to the worldwide results this does not necessarily result in cancellations. Institutions and users that can afford them still want their subscriptions to the print version and to the online official version, the version of record. The only ones who use the Green OA version are the ones whose institutions can't afford to subscribe to that journal.

But keep in mind that it is publication that is done in the service of research, and not vice versa. If and when it should happen that globally mandated gratis green OA does cause subscription cancellation, making subscription unsustainable as the means of covering the costs of peer-reviewed journal publication, then there will be a quite natural evolutionary change in cost-recovery model: Journals will adapt by phasing out their print editions (for which there is no longer a market if subscriptions are being usustainably cancelled), and the Green OA version in the worldwide network of mandated Green OA institutional repositories will become the version of record; journals will downsize to just providing peer review alone, and they will recover those much reduced costs on the Gold OA cost-recovery model, with institutions paying them out of a fraction of their windfall savings from the global subscription cancellations (on which this hypothetical scenario is predicated).

How long will it be before green OA is an integrated and accepted part of the academic society?

- OA will happen within about two years after the time that OA is universally mandated by institutions, and it will happen institution by institution. For the 180 or so institutions and funders that have already mandated Green OA (see ROARMAP), they already *have* open access for their own research output today. Now it's time for the rest of the 3,000 top research institutions and the rest of the 10,000 institutions worldwide to mandate Green OA, and then everyone will have OA to all 2.5 million articles published annually in the planet's 25,000 peer-reviewed journals. I cannot second-guess how long it will take for administrators to have the good sense to do what's best for their institutions, for their researchers, for research itself and for the public that funds the research; it's already long overdue, but they will do it, sooner or later.

> Harnad, S. (2009) The PostGutenberg Open Access Journal. In: Cope, B. & Phillips, A (Eds.) *The Future of the Academic Journal*. Chandos.
> http://eprints.ecs.soton.ac.uk/15617/
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> **Which Green OA Mandate Is Optimal?**
> http://openaccess.eprints.org/index.php?/archives/494-guid.html

How to Integrate University and Funder Open Access Mandates
http://openaccess.eprints.org/index.php?/archives/369-guid.html

Optimizing OA Self-Archiving Mandates: What? Where? When? Why? How? http://openaccess.eprints.org/index.php?/archives/136-guid.html

On Not Putting The Gold OA-Payment Cart Before The Green OA-Provision Horse http://openaccess.eprints.org/index.php?/archives/630-guid.html