

Opinião

Maximizing research progress through Open Access mandates and metrics

Maximizando o avanço da pesquisa pelos mandatos e métricas sobre o Acesso Livre

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Introduction

Research is done (mostly at universities) and funded (publicly and privately) in order to advance scientific and scholarly knowledge as well as to produce public benefits (technological and biomedical applications as well as educational and cultural ones). Research and researchers are accordingly funded not only to conduct their research, but to make their findings public, by publishing them. Their employment, salaries, careers and research funding depend on publishing their findings. This is what is often called "publish or perish."

Research is not solitary but collaborative, collective, self-corrective and cumulative. The reason research is published is not because it can immediately be applied (only a small portion of research leads to actual applications) but so that other researchers can check whether it is correct, and use and build on it in their own research.

Even before it is published, research is checked by qualified specialists to ensure that it is correct. This is called peer review; the research that is published is not just raw research findings, but validated, peer-reviewed research findings. The peers are the researchers themselves. It is they who conduct the research, review the research, and use and apply the research. The results are published in peer-reviewed journals. There are about 25,000 such journals, across all scientific and scholarly fields, across all languages, and all nations, publishing about 2.5 million journal (and peer-reviewed conference-proceedings) articles per year.¹

The peer-reviewed journals vary in the rigor and selectivity of their peer review, and hence the quality of their articles. Some journals maintain very high standards, and accept only the very best research; others are less selective, and a few at the bottom of the quality hierarchy are virtually vanity presses. These differences are well-known in the research community, based on

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¹ <http://www.ulrichsweb.com/ulrichsweb/>

the journal's name and past track record for quality.

Access to these peer-reviewed journals is based largely on institutional subscriptions, paper and online. Some of the journals are very expensive. And there are so many journals that not even the richest of institutions can afford to subscribe to all, most, or even many of the 25,000 journals.² As a consequence of the number of peer-reviewed journals and the fact it is unaffordable for institutions to subscribe to most of them, access is denied to many would-be users (perhaps the majority of potential users, if considered on a planetary scale).

Yet the research itself is given away by its authors for free – both to their journals, for publication, without the payment of royalties, and to any would-be user who writes to the author to request a reprint. The peers also review for the journals for free. The reason researchers give away their research for free is that that is the way they contribute to research progress, which is what they are paid and funded to do, according to the publish-or-perish rule: their salaries, funding and prestige depend in large part on the degree to which their research findings prove to be important and useful to researchers worldwide, and to the progress of the research itself. This is called "research impact."

Research impact is becoming increasingly measurable; the growing number of rich and diverse research impact metrics include citation counts, download counts, co-citations, hub/authority metrics, growth and longevity metrics, interdisciplinarity metrics, and semantic metrics.³ These metrics will be increasingly monitored and used in research assessment for funding and performance review.⁴ Research impact metrics are minimized by access-denial, and maximized if the research is made openly accessible online to all potential users.⁵ This is the rationale for the Open Access (OA) movement.⁶

Open Access Strategies

There are two ways for researchers to provide OA (free online access) to their peer-reviewed research publications, the 'Green' and 'Gold' way.⁷ 'Gold OA' is provided by publishing in OA journals, which make all their articles accessible free online.⁸ 'Green OA' is provided by publishing in conventional non-OA journals, but also self-archiving the author's final, peer-reviewed draft in the author's Institutional Repository (IR), making it freely accessible online.⁹

About 15% of journals today are Gold OA journals (including Brazil's SciELO journals) this includes few of the highest quality international journals, and those few high quality OA journals charge an author-institution fee for publication. This fee is not affordable to most institutions while their potential funds to pay for it are still committed to subscribing to non-OA journals (90%), so Gold OA fees usually have to be taken from scarce research funds.¹⁰

Articles published in non-OA journals, however, can likewise be made OA, through Green OA

² <http://fisher.lib.virginia.edu/cgi-local/arlbin/arl.cgi?task=setupstats>

³ <http://eprints.ecs.soton.ac.uk/12453/>

⁴ <http://eprints.ecs.soton.ac.uk/14778/>

⁵ <http://opcit.eprints.org/oacitation-biblio.html>

⁶ <http://www.soros.org/openaccess/>

⁷ <http://www.nature.com/nature/focus/accessdebate/21.html>

⁸ <http://www.doaj.org/>

⁹ <http://roar.eprints.org/>

¹⁰ <http://www.publications.parliament.uk/pa/cm200304/cmsselect/cmsctech/399/399we152.htm>

self-archiving by their authors. Over 90% of non-OA journals already endorse some form of self-archiving, with 62% of them already endorsing immediate self-archiving of the author's peer-reviewed final draft.¹¹ For articles where the publisher has not yet endorsed immediate Green OA self-archiving, the peer-reviewed final draft can still be deposited in the IR immediately upon acceptance for publication, and the IR's semi-automatic "email eprint request" button then allows would-be users to request and authors to provide access to the eprint with one click : this is not OA, but it is almost OA and provides for research needs during any access embargo by the publisher.¹²

But although Green OA self-archiving can immediately provide 62% OA plus 38% almost-OA, only about 15% of researchers are actually self-archiving their research today. The reasons for this inaction are many and include (groundless) worries about copyright, peer review, and the time and effort authors imagine is involved in self-archiving.¹³ Researchers themselves have already indicated exactly what would liberate them from their worries about self-archiving. International, pandisciplinary surveys have shown that 95% of researchers report that they would self-archive if self-archiving were mandated by their institutions and/or their funders (14% reluctantly, 81% willingly).¹⁴

The survey results have been confirmed by comparing the self-archiving rates for institutions (1) that merely provide the Institutional Repository (IR) (self-archiving reaches 15%), (2) that provide the IR as well as incentives and help (self-archiving reaches 30%) to authors, and (3) that provide the IR, incentives and help, as well as a Green OA self-archiving mandate, requiring deposit (self-archiving approaches 100% within two years of adoption of the mandate).¹⁵ Forty-eight institutions and funders worldwide have already adopted Green OA self-archiving mandates, including Southampton, Harvard and Stanford among universities and National Institutes of Health (NIH), Research Council – United Kingdom (RCUK) and European Research Council (ERC) among funders; 12 more have proposed mandates (including Brazil's proposed Law n° 1120/2007) under consideration today.¹⁶

Among the incentives to self-archive are the usage and citation impact metrics that OA IRs provide to authors – as well as to research evaluators. Software also exists to track and compare changes in different versions of the same article, validating content.¹⁷ IRs also preserve a record of an institution's research output and provide visibility to the institution for attracting researchers, students and funding.

The only thing still needed in order to achieve universal Green OA is universal adoption of Green OA self-archiving mandates by research institutions worldwide, complemented and reinforced by research funder Green OA mandates. Here is a draft institutional mandate policy, applying the points made above:

- (a) In the print on paper era it was the policy of all universities to publish in peer-reviewed journals so that their research output could be accessed, used, applied, cited and built upon. (This policy has often been referred to as "publish or perish.")

¹¹ <http://romeo.eprints.org/stats.php>

¹² <http://openaccess.eprints.org/index.php?archives/274-guid.html>

¹³ <http://www.eprints.org/openaccess/self-faq/#32-worries>; <http://eprints.ecs.soton.ac.uk/10688/>;
<http://eprints.ecs.soton.ac.uk/12094/>

¹⁴ <http://eprints.ecs.soton.ac.uk/11006/>

¹⁵ <http://fcms.its.utas.edu.au/scieng/comp/project.asp?ProjectId=1830>

¹⁶ <http://www.eprints.org/openaccess/policysignup/>

¹⁷ <http://trac.eprints.org/projects/irstats>

<http://www.citebase.org/>

<http://valrec.eprints.org/>

(b) In the online era it is no longer sufficient to publish in a peer-reviewed journal: the published article's impact has to be maximized, so not only those users whose institutions can afford access to the journal in which it was published can access it, but all would-be users worldwide can do so.

(c) Our University is hence joining the ranks of a growing number of universities worldwide (including Harvard, Stanford, Southampton, Stirling, QUT, U. Tasmania, Charles Sturt, Liege, Zurich) as well as a growing number of funding councils (including ARC, NIH, ERC, and RCUK) to mandate that our refereed research output must be deposited ("self-archived") in our University's Institutional Repository (IR).¹⁸

(d) The mandate is merely to deposit the author's refereed, revised, final draft in our IR, immediately upon acceptance for publication; it will then be used for internal record-keeping and performance evaluation purposes.

(e) However, it is strongly recommended that access to the deposit should be made Open Access, so that any would-be user on the web can access the full text.

(f) The majority of journals already endorse making the author's self-archived draft Open Access immediately.¹⁹ Authors are encouraged to negotiate with their journals to obtain this endorsement, if they do not have it already.

(g) For articles published in journals that do not yet endorse Open Access self-archiving, or who impose an access embargo, access to the deposit can be set as Closed Access during the embargo. This means only the author has access to the full text. The metadata (author, title, date, journalname, etc.) are visible to all users worldwide.

(h) To fulfill user needs during the Closed Access embargo period, the IR has an "Email Eprint Request" Button. Any would-be user worldwide can press the button to send an automatic eprint request to the author, who instantly receives an email with a URL on which the author can click to send one individual eprint to the requester. (This is Fair Use, and has been in practice by researchers for a half century, originally with paper reprints, today with electronic eprints. The Button and the Repository software make eprint requests much easier to make and easier to fulfill.)²⁰

(i) Scientometric studies have demonstrated repeatedly that Open Access significantly increases the citation metrics of articles, as well as enhancing other metrics of research usage and impact, in all disciplines.²¹

(j) Our IR will be used as the source of submissions for research performance assesment, as well as to generate CV publication lists for grant applications and other forms of evaluation and assesment.

There is a sample policy in the OSI Eprints Handbook.²²

¹⁸ <http://www.eprints.org/openaccess/policysignup/>

¹⁹ See <http://romeo.eprints.org>

²⁰ <http://openaccess.eprints.org/index.php?archives/274-guid.html>

²¹ <http://opcit.eprints.org/oacitation-biblio.html>

²² <http://www.eprints.org/documentation/handbook/universities.php>; See also :
<http://openaccess.eprints.org/index.php?archives/71-guid.html>;
<http://openaccess.eprints.org/index.php?archives/136-guid.html>

To conclude

Brazil is in the forefront of the worldwide movement for Open Access, thanks to IBICT, SciELO, proposed Law nº 1120/2007, and the dedicated and tireless efforts of Sely Costa and Hélio Kuramoto, Brazil's two prominent OA advocates. What Brazil needs now is for all of its universities to adopt Green OA self-archiving mandates, setting a national and international example for the rest of the world to emulate.

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