Canadian Universities Need to Self-Archive Their Research Articles Online To Maximize Their Research Impact

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The research community fills about 24,000 peer-reviewed research journals across all fields and languages worldwide, publishing about 2.5 million articles per year. The output of one research-active university might be from 1000 to 10,000 or more articles per year depending on size and productivity. Researchers are employed, promoted and salaried -- and their research projects are funded -- to a large extent on the basis of the usefulness and impact of their research. Research that is used more tends to be cited more. So citations are counted as a measure of usage and impact.

The dollar value (in salary and grant income) of one citation varies from field to field, depending on the average number of authors, papers and citations in the field; the marginal value of one citation also varies with the citation range (0 to 1 being a bigger increment than 30 to 31, since 60% of articles are not cited at all, 90% have 0-5 citations, and very few have more than 30 citations: http://www.crs.c.uqam.ca/lab/chawki/classement_citations.htm ). A much-cited study estimated the “worth” of one citation (depending on field and range) in 1986 at $50-$1300: http://www.garfield.library.upenn.edu/essays/v11p354y1988.pdf

One of the ways researchers try to maximize the usage and impact of their research is by submitting them to journals with high “impact factors” (i.e., average citation counts per article). Journal impact factors vary as citations do: Most journals hover just below and above 1 (excluding author self-citations); journals with impact factors above 30 are rare. Success in getting a paper accepted by a high impact journal depends on the paper’s quality and the rigor of the standards of the journal’s peer review system. In general, higher impact journals (in the same field) tend to have higher rejection rates: http://www.ecs.soton.ac.uk/~harnad/Temp/BMJ.html

But now there is a new way to increase every article’s research impact, over and above publishing it in the highest quality journal whose peer review standards it can meet: The online medium has now made it possible for authors to supplement the usage and impact that their research receives from those users whose institutions can afford to subscribe to the journal in which the article is published with the usage and impact of all potential users whose institutions cannot afford to subscribe to the journal in which it is published -- by self-archiving an online version of the article in their own institutional web archive, openly accessible to all would-be users webwide: http://www.eprints.org/self-faq/
There is now a growing number of studies on research impact for articles across all fields, in each case comparing the citation counts (always within the same journal and year) for articles that have and have not been self-archived by their authors. With virtually no exceptions the articles that have self-archived supplements are turning out to have 50% to over 300% greater research impact than those that do not: http://opcit.eprints.org/oacitation-biblio.html. Considering that 90% of research articles today have 5 or fewer citations, this is a dramatic result for research progress itself, even before we try to translate it into its financial “worth” to researchers and their institutions in terms of prestige and research income in 2005.

Yet, despite its substantial benefits, self-archiving -- now at 10-20% across fields -- is still growing far too slowly: http://www.isinet.com/isihome/media/presentrep/essayspdf/openaccesscitations2.pdf. There exist at least 200 institutional open-access archives worldwide, but most are less than 20% full, relative to each institution’s annual output of research articles. Canada, with 27 of those archives, is fourth in the world in archive number (after the US, UK and Germany) http://archives.eprints.org/eprints.php?action=browse but its archives are as underfilled as the rest, even though Canada is also high in proportionate research output http://www.crsc.uqam.ca/lab/chawki/analyse_pays.htm.

Researchers have been slow to self-archive, partly because they are not yet aware of its benefits, and partly because they feel they already have enough to do (unaware that it takes only 6-10 minutes per article to self-archive it: http://eprints.ecs.soton.ac.uk/10688/). Publishers are certainly not at fault for the fact that authors have been so slow to self-archive: Ninety-two percent of the 8450 journals surveyed to date (including most of the top journals) have already given their authors an explicit green light to self-archive: http://romeo.eprints.org/.

In two international surveys, researchers have indicated exactly what needs to be done to get them to self-archive: Seventy-nine percent of authors replied that they do not now self-archive, and will not self-archive, until and unless their employers or funders require them to do so; but if/when they do require it, they will self-archive, and self-archive willingly: http://www.eprints.org/berlin3/ppts/02-AlmaSwan.ppt.

The remedy is on the way: At the recent international conference at the University of Southampton UK on formulating a concrete policy for institutions to adopt in order to implement the Berlin Declaration on Open Access -- http://www.eprints.org/berlin3/outcomes.html -- the delegates recommended exactly what the researchers in the two surveys had indicated was needed in order to motivate them to self-archive: an institutional self-archiving mandate. And soon afterward, some of the world’s biggest research institutions (including France’s CNRS and the multinational CERN) led the way by adopting the policy: http://www.eprints.org/signup/fulllist.php.

It is now time for Canada to follow suit: http://www.eprints.org/signup/sign.php to the benefit of Canadian researchers, their institutions, their funders, their funders’ funder (i.e., the Canadian tax-payer) and to the benefit of (worldwide) research itself.