

Open Access in the World of Scholarly Journals: Creation and Discovery

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ABSTRACT:

Open Access publishing continues to grow, and it has profound implications for librarians in a variety of contexts. This report serves two functions. It provides background on Open Access publication of scholarly journals and the role of academic libraries in this movement. In particular, it examines the University of Lethbridge Journal Incubator as an example of library involvement in Open Access publication. The report also examines how hybrid journals, in an attempt to provide Open Access publication options in traditional subscription journals, have introduced a new discovery and access problem for libraries. While standards bodies have begun to address the problem, there are still many challenges when accessing open content in hybrid journals.

KEYWORDS: Open Access; hybrid journals; scholarly publishing; Canadian libraries

Academic libraries and the Open Access movement

Access to scholarly journals produced by commercial publishers is becoming more and more expensive, while open access (OA) to publicly-funded research results is increasingly mandated by funding bodies. In response to these and other motivators, the open access scholarly journal movement is growing. In the Canadian context, open access publishing has begun to get more traction in response to these factors, and in spite of some resistance by researchers. University and college libraries are getting involved in both the promotion and the creation of open access content. An example of this trend is the University of Lethbridge Journal Incubator, which publishes three open access journals from the University Library. In this report, we will explore some of the benefits and drawbacks of open access in scholarly communications.

One model of open access is the hybrid journal, which causes particular challenges for discovery and access. With access restricted at the article level, rather than the journal level, it's surprisingly hard to get library users to Open Access (OA) content through catalogs, link resolvers, or even discovery tools. The second part of this report will investigate some of the roadblocks to connecting users with hybrid OA content and share insights from publishers, librarians, and service providers about what is currently being done to overcome this challenge.

Overview of scholarly Open Access in Canada

Academic libraries play a role in the creation of OA content through initiatives such as OA journal publishing and institutional repositories, as well as in the increasing strength of the OA movement as a whole. The first part of this report will discuss the growing momentum of OA scholarly publishing in the context of academic libraries, specifically from a Canadian perspective.

According to the Open Access Academy, “Open Access Publishing can be defined as publishing when the articles are free to all interested readers, and the publishers place no financial or copyright barriers between the readers and the article.”¹ There are two main streams of OA scholarly journal publishing: green and gold. Green OA refers to the self-archiving of an article in an institutional or subject repository. There is no cost to the author, and no cost to users who wish to access the articles that are self-archived. Gold OA refers to published scholarly journal articles that are freely available at no cost to the user, but often require the author to pay an Article Processing Charge (APC). The APCs cover the cost of publishing, since a true gold OA scholarly journal does not charge subscription fees.

Hybrid OA refers to a commercially published journal that charges subscription fees, and gives authors the option to have their individual articles made open by paying an APC. These journals have two revenue streams – subscriptions and APCs.

Canadian universities are largely publicly funded; university faculty’s research work is part of their employment, hence funded by their salaries, often combined with publicly-funded research grants. Their research results, in the form of publishable articles, along with their labor as reviewers and editors, are provided for free to commercial scholarly publishers, who in turn charge academic libraries ever-increasing annual subscription fees. Even without the hybrid OA model of publishing, commercial scholarly publishers have a very profitable business model based on resources paid for from the public purse and provided to them for free in the form of writing, editing, and reviewing work from faculty, followed by subscription fees paid by publicly-funded academic libraries. The hybrid model does seem like adding insult to injury by charging APCs--which can be several thousand dollars per article--back to the author, and thereby back to the publicly-funded universities and research grants, while continuing to charge full subscription fees as well; ultimately, it is the public purse that appears to be paying many times over for these scholarly research articles.

The cost of scholarly journals tends to increase substantially every year, far beyond the rate of inflation. According to one study, the cost of journals has increased 402 percent between 1986 and 2011, or four times the inflation rate.² Scholarly publishing has also become concentrated in the hands of an ever-decreasing number of commercial publishing companies. Vincent Larivière of the University of Montréal and his fellow researchers called this handful of publishers the “oligopoly”—the power is concentrated in the hands of just a few highly profitable commercial publishers.³ By 2013, over 50 percent of scholarly articles were being published by one of five big publishers – one of the oligopoly. While some disciplines have successfully resisted the commercial publishers’ grasp on their intellectual property, largely due to the strength of their scholarly societies and the success of their OA disciplinary repositories (e.g., ArXiv) or genuine OA journals (e.g., PLOS), the social sciences in particular suffer from

the oligopolistic publishing, with 71 percent of Psychology papers published by the top five commercial publishers in 2013.⁴

The big commercial publishers have worked out a very successful and profitable business model, however the costs are becoming unsustainable for libraries. As collections budgets stagnate or decline, academic libraries are struggling to maintain subscriptions that increase in cost every year. In Canada, this burden is compounded by the relative decrease in value of the Canadian dollar as compared the US dollar, in which Canadian libraries pay for most of their subscriptions and collections. Through 2015-2016, the Canadian dollar went from almost at par to below 70 cents as compared to the US dollar. This effectively increased subscription costs by 30 percent or more, on top of the usual annual 3 to 5 percent increases, escalating a difficult financial situation for libraries into a crisis situation. Canadian libraries have handled the crisis in different ways, from cutting into book budgets to pay for subscriptions, to putting off filling positions, to cancelling e-journal subscriptions and even Big Deals.⁶ There have been panicked headlines in the news media as libraries have been forced to cut subscriptions, and libraries have faced backlash from faculty and the public at large.⁷

A further study by Vincent Larivière identified University of Montréal's core journals (only about 18 percent of their subscriptions) and used that data to successfully negotiate with one of the big publishers to break up a package subscription and cancel journal titles; they were able to save about 13 percent of the library budget in this way.⁸ A Canada-wide consortium, the Canadian Research Knowledge Network (CRKN) is leading a similar study in all major research libraries across Canada.⁹

Even without the added difficulty of the decline in the Canadian dollar, the scholarly journal publishing model was proving unsustainable, and some might argue exploitive. OA may be a long-term alternative to this problem, a way to create a sustainable system of scholarly publication and diminish the power of the oligopoly of commercial publishers.

OA policies, mandates, and successes

In the face of what seems to be bad news for libraries, the OA movement has seen momentum in recent years. The Registry of Open Access Repository Mandates and Policies, or ROARMAP (roarmap.eprints.org), shows an increase in OA policies by both research institutions and funding organizations across the world. In Canada and the USA, there has been a substantial increase in OA policies in the past five years.¹⁰ Led by Concordia University in Montréal, several universities across Canada have instituted policies to encourage faculty to deposit their research in their institutional repositories. Furthermore, all three of the main research funding bodies in Canada—the Canadian Institute of Health Research (CIHR), the Natural Sciences and Engineering Research Council of Canada (NSERC), and the Social Sciences and Humanities Research Council of Canada (SSHRC)—instituted a policy in 2015 that requires researchers to publish any peer-reviewed articles resulting from grant-funded research in either an OA journal or repository within 12 months of publication.¹¹ Following the granting agencies' OA policy, Canadian Science Publishing introduced a new OA multidisciplinary science journal, *FACETS*, in part to help support the policy.

In addition to the increase in policies and mandates encouraging OA, there has been an increase in awareness of OA in general, and many success stories. Some examples of highly successful OA initiatives include the Public Library of Science (PLOS) and the suite of prestigious journals it publishes (www.plos.org/publications). *PLOS ONE* is among the top journals that University of Lethbridge (U of L) science researchers publish in, according to Scopus.

The proliferation of institutional repositories at research libraries across the world is another OA success, along with the Directory of Open Access Repositories (*OpenDOAR*) (www.opendoar.org), which provides access to repositories around the world and their content from a single interface. Along the same lines, the Directory of Open Access Journals (DOAJ) (doaj.org), is a well-developed and reliable directory to locate open access journal articles from reputable scholarly journals.

Non-commercial OA subject repositories, such as Cornell University Library's ArXiv (arxiv.org), constitute another OA success story, providing free and open access to peer-reviewed, pre-publication versions of scholarly articles in specific fields. The Scientific Electronic Library Online, or SciELO (scielo.org/php/index.php), is another very successful OA initiative. SciELO is a pan-Latin American database, digital library, and cooperative OA publishing model. Up to 85 percent of research articles in Latin America are published open access. Another successful OA example, which was created by legislative mandate, is PubMed Central, an archive of biomedical and life sciences literature in the USA (www.ncbi.nlm.nih.gov/pmc). As these OA archives, repositories, and finding tools increase in number and usage, they will begin to be the places that researchers look to for information.

Role of academic libraries

Academic libraries have played a key role in the OA movement all along. Librarians at the U of L are involved in many initiatives to help maintain the momentum of the OA movement. They offer education and consultation to faculty, ranging from helping choose an OA journal to target for publication, to identifying predatory journals, to advising about copyright, license agreements, and Creative Commons licensing. The U of L Library has hosted talks, round table discussions, and promotional activities around International Open Access Week for several years. Its staff also promote OA discovery and access by listing sources such as DOAJ along with subscription databases in the library's discovery tools, and teaching OA sources in information literacy classes. Librarians are working with the U of L's Office of Research and Innovation Services, which works directly with faculty as they apply for research grants and identify dissemination venues, to share information and make sure that they are aware of OA options.

The U of L Library also helps host the University of Lethbridge Journal Incubator (www.uleth.ca/lib/incubator), which produces four OA journals from an office in the library. Three of the four journals are in process of transitioning into Open Library of Humanities (OLH), a new, international, non-commercial OA initiative that gives a home to OA publications in the humanities (www.openlibhums.org). The Library has also been involved in the establishment of a new research center at the U of L. The Centre for the Study of Scholarly Communications is a platform from which to study, advocate, program, and educate around

scholarly communications themes and issues, including OA (<http://www.uleth.ca/research/centres-institutes/centre-study-scholarly-communication>).

Obstacles and ways forward

One major obstacle to OA is the potential monetizing of OA through hybrid OA models and the commercial acquisition of formerly OA initiatives and repositories (e.g., Mendeley and Social Science Research Network, both acquired by Elsevier in 2016). On a more local scale, APCs tend to create a lot of resistance to the idea of open access, especially among less well-funded (often humanities) researchers.

Furthermore, the association—or, indeed, the equation—of OA with predatory publishing is a huge obstacle. Another challenge is the mistaken perception that OA journals lack peer review, and are otherwise inferior and less prestigious than established commercial journals. The reward system for tenure, promotion, and grants is frequently based on a prestige economy, and until equal (or greater) value is attributed to OA publishing, it seems unlikely that there will be a substantial shift in faculty publishing practice. When career advancement is dependent on publishing in the “best” (often the most expensive commercially published) journals, it is understandably difficult to seek publication in what are perceived to be lower-status journals. It may take time before OA journals become established and gain the impact factors and prestige that researchers seek.

If institutional authority resided in academic libraries, we would likely be quick to shift to OA scholarly publishing. This is not the case, so it will take a period of cultural change before a definite shift in publishing practices and valuation of OA occurs. The mandating of OA policies is a good start, but librarians also need to continue advocacy and education among researchers and faculty themselves, to move towards a real cultural shift.

As the interdisciplinary heart of the academy, libraries are well situated to advocate for these changes in policy and culture. Some possible courses of action include:

- Supporting *true* OA publishing with APC funding
- Keeping the OA conversation at the forefront on our campuses through writing, talking, educating, and programming
- Demonstrating the benefits of OA (e.g., increased research impact, increased citation rates, maintenance of intellectual property rights, research as a public good)
- Investing in repositories & other high-quality OA tools

And, of course, leading by example—of all academic staff, librarians are at the forefront of the OA movement because our profession is closely tied to the world of scholarly publishing and to the sharing of information, our professional ethics include advocating for the public good, and we have first-hand experience of how unsustainable the big commercial publishing economy has become. We are well-positioned to research and publish about these issues, but let’s make sure our research publications are OA.

Hybrid Open Access

While the growth of Open Access resources in general poses a large number of challenges and opportunities for librarians, hybrid journals come with their own unique difficulties. Hybrid journals are traditional subscription journals that also allow authors to make an individual article freely accessible through the payment of a fee.¹³ As a result, any given issue of a hybrid journal will include a mix of articles that are freely accessible and others that can only be read by subscribers.

This hybrid model may be appealing to publishers as it can add revenue from existing journal titles as well as offering a simple solution to some authors. Authors may wish to provide open access for philosophical reasons, or they may be required by institutional or funder mandates to provide free access to their paper. Yet, they may also wish to publish in familiar traditional journals due to reputation, readership, or tenure requirements. Hybrid journals allow well-funded authors to meet these potentially conflicting requirements.

Global and institutional scales

While the hybrid model may resolve this tension, it introduces another. Discovery and delivery of OA content work very well at a global scale. Readers may find articles through search engines, social media, or discipline specific tools and access those materials without issue. The delivery of subscription content, however, happens at an institutional scale. Readers who find subscription materials through search engines and social media will often hit paywalls unless they're able to authenticate through a subscribing institution. Readers who only wish to find materials they can immediately access may also use institutional discovery tools to search within that parameter.

Hybrid journals, then, bring together articles with very different discovery and delivery concerns. This mixture of access levels has implications for all stakeholders. Publishers may see different levels of usage and readership for OA and subscription articles within the same journal. Indeed, Astrid Pfenning provided an analysis of articles published in January 2014 in hybrid journals published by Springer Nature.¹⁴ Though relatively few in number, the 494 OA articles averaged 646 downloads each, nearly three times the 233 average downloads of the 12,271 subscription articles published in the same month. Of course, it's possible that this difference in average downloads is due to some other variable. For example, it could be that more of the OA articles resulted from externally funded research, and that such articles would have been more popular with readers, regardless of the level of access. A more complex large scale study of article usage within hybrid journals would be necessary to draw any conclusions.

Problems for library tools

Hybrid journal certainly have implications for librarians tasked with providing access to journals for their communities. Library catalogs and link resolvers support title level metadata and enable libraries to indicate coverage information down to the issue level. For publications that are completely OA or completely subscription supported, this level of detail is perfectly suitable. However, for hybrid journals, this level of detail will present erroneous access

information to users, and librarians must choose between presenting false positives or false negatives.

In a false positive, a researcher is presented with links and coverage information that lead them to believe they'll have access to an article when they do not. This would be the case if a library did not subscribe to a hybrid journal but activated the title in their link resolver's knowledge base due to the availability of a large number of OA articles within that journal. Even if a note is present that only selected full text is available, readers may be frustrated to find that the particular article they seek is actually behind a paywall.

In a false negative, users seeking a particular article do not see any full text links or coverage information indicating access, even though the article is Open Access and would be available to them. This would occur if a library did not subscribe to a hybrid journal and did not activate it in their link resolver's knowledge base. The library's system seems to indicate a lack of entitlements despite OA availability.

Discovery services present a possible solution to this problem, as they offer article level metadata. Even though article level metadata may be available for discovery purposes, some discovery services still rely primarily on a title-level knowledge base for fulfillment information. Even when article level fulfillment options are available, content vendors, discovery vendors and librarians must all work together to ensure that users can access the content they're entitled to.

Potential solutions

While link resolvers and traditional catalogs may never be able to overcome the problems that hybrid journals pose, discovery services do show some promise. Improved access to OA content in hybrid journals could be achieved through changes in the practices of content providers and discovery vendors. This is just the sort of change that could be enabled or at least simplified through the use of NISO's Access License and Indicators recommended practice. The practice offers a "free_to_read" metadata element that would allow content providers to indicate OA articles to discovery vendors.¹⁵ Discovery tools could then make use of article level access links for those records rather than relying on institutional holdings information in resolvers to provide access.

This model is promising, but some difficulties would remain. Currently, it seems that adoption of the recommended practice is uneven, both among content and discovery providers. For example, EBSCO Discovery Service does not currently make use of the free_to_read element, though EBSCO is investigating its potential use.¹⁶ While Ex Libris does make use of the metadata element in Primo, it has found that many publishers either use the indicator incorrectly, don't indicate that they've used it, or fail to use it at all.¹⁷

It is possible that these problems can be overcome to some extent through advocacy by librarians. Librarians who wish to see greater access to OA content within hybrid publications are encouraged to contact publishers and discovery vendors regarding this wish and the specifics of Access License and Indicators. Of course, no recommended practice is ever implemented by the entire information community, and many libraries do not have discovery tools. There are some solutions to address these cases, though they generally require more work from the user.

While link resolver knowledge bases do not include article level entitlement information, resolver menus may present users with the option of searching Google Scholar or an OA search

engine for articles without an associated subscription. This strategy requires some setup work from link resolver administrators, and would also require readers to click through these links rather than relying on Interlibrary Loan or moving on to the next article. It also assumes that researchers are beginning their searches in library tools and failing to find OA material. For cases in which users instead begin their search on the open web and fail to gain access to subscribed materials, there are other potential solutions. Many libraries already provide holdings information to Google Scholar, and researchers can be instructed to add those links to their accounts for off-campus use.¹⁸ Additional tools include browser extensions such as LibX that can add a proxy prefix to a URL or search library holdings a highlighted string on any website.¹⁹ However, despite these potential solutions, hybrid journals are likely to cause inconvenience and problematic access for library users and electronic resource administrators for quite some time.

Notes

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