FRPAA & NIH Mandate: A blessing in disguise for scientific society publishers?

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Introduction:

Society publishers will hopefully see both the FRPAA: Research Public Access Act of 2006, Senate Bill 2695 (1a) and the U.S. House of Representatives' National Institutes of Health (NIH) Directive (1b) as an opportunity to develop new business models based on appropriate "open-access" for archival material, balanced pricing between authors and readers, and expanded outreach to underserved research communities.

The "Open Access" dilemma:

The dream of freely available "Open Access" for published research articles is an obvious outgrowth of the many positive 'Google' experiences searching the World Wide Web (WWW). Information retrieval from the WWW, however, has serious quality issues due to the random mixing of both published and unpublished material. It can also be frustrating for users without institutional or society member access to the full text of research articles.

The inability to freely access the full text of many copyrighted articles on the WWW is a result of the long-standing practice of rewarding intellectual creativity, with the presumption being that authors (or their assignees) deserve, for a limited time, tangible benefit for their work. This partially explains the centuries old legal and commercial structures that protect and publish creative endeavors.

The FRPAA (sponsored by senators Cornyn and Lieberman) and the NIH Directive appear to be a circumvention of this centuries-old tradition. The FRPAA requires that federal agencies, with research budgets in excess of \$100 million, (2) adopt the policy that final peer-reviewed manuscripts, that result from agency-funded research, be made freely available on the WWW six months after their publication in a peer-reviewed journal. The NIH Directive requires that the NIH provide free public online access to agency-funded research findings within 12 months of their publication in a peer-reviewed journal (1b).

These approaches, however, may well create new problems. In the sciences, especially, it is often essential to have access to the final published research article. Pre-publication manuscripts (especially in biology, chemistry and medicine) may have limited value, and actually could do some harm. Such 'manuscript' publishing would offer a diminished product that would likely fail to meet some of the significant needs of the very people who read the published research literature, namely, copy editing, manuscript formatting, dynamic (hyper-) linking to referenced resources maintained by a responsible publisher, and permanent archiving.

Depending on repositories (such as PubMed Central or arXiv) that are populated with article manuscripts, preprints and technical reports (even with electronic links to the published version), and subject to the vagaries of government funding, is clearly a very questionable solution.(3) This, because of the possibility of multiple versions, insufficient editorial input and an unproven record of sustainable archiving.

FRPAA & NIH DIRECTIVE : Driven by Medical Research Results?

The FRPAA & NIH Directive both appear to be primarily driven by the spirit of “Lorenzo's Oil”(4). The anguish associated with the inability to find a cure for rare diseases can not be overestimated.

However, many patients and their advocates have ready access to the WWW, which is populated with both a wide variety of medical research findings and with many questionable claims. Thus, it is not surprising that politicians seek to offer new hope. Quoting the sponsors of FRPAA (5):

"Making this information available to the public will lead to faster discoveries, innovations and cures," Cornyn said. "This bill will give the American taxpayer a greater return on its research investment."

"Taxpayer-funded research should be accessible to taxpayers," Lieberman said. "Our bill will give researchers, medical professionals and patients in Connecticut and throughout the nation access to scientific discoveries and advancements that can help bring new treatments and cures to the public."

While provision of open access to research-article manuscripts on the WWW might be somewhat beneficial, albeit 6 or 12 months after publication, many medical journals already provide immediate “Open Access” to research article summaries thru PubMed. The timeliness of these articles is rapidly increasing as this information is now being made available from electronic feeds directly from publishers. For the vast majority of the public, most of whom lack the subject background to read and fully comprehend the primary research literature, PubMed abstracts may be more than sufficient for their needs. In the face of PubMed's bountiful cornucopia of information, plaintive claims to be

without access to current medical research results are highly questionable, especially since the National Library of Medicine maintains a "How to Get the Journal Article" website (6).

FRPAA & NIH Directive: A Solution or Misdirection?

Many of the problems that researchers, practitioners, and patients face when trying to access copyrighted works on the WWW directly result from the continuing commercialization of Scientific, Technical & Medical publishing. Subscription costs for many commercially published journals generally limit their availability to students and staff at large research organizations or to those willing to purchase articles directly from publishers or their agents.

Examples of reasonable subscription pricing, however, have existed in the past and continue today with many society publishers. The Society for Neuroscience, for example, balances reasonable subscription prices with a modest author submission fee (7). This balance allows them to set their institutional subscription rates at a fraction of the cost/page charged by competing commercially published journals.

Compare, for example, the 2006 ISI Impact Factors and the 2006 price/page for:

7.453 J. NEUROSCIENCE (v.26) \$2608 / 13,575 pages = \$0.19/page

2.341 BRAIN RESEARCH -Elsevier (v.1067-1126) \$23,483 / 12,852 pages = \$1.83/page

3.831 J. COMPARATIVE NEUROLOGY - Wiley/Liss (v.494-499) \$20,475 / 5,591 = \$3.66/page

Additional comparisons between society and commercial journals show similar disparities between Impact Factors and cost/page. (8) For example, the 2006 ISI Impact Factors and the 2006 cost per page for Organometallic Chemistry journals:

3.632 Organometallics - ACS (v.25) \$2650/6970 pages = \$0.38/page

2.332 Journal of Organometallic Chemistry - Elsevier (v.691) \$11,682/5994 pages = \$1.95/page

1.233 Applied Organometallic Chemistry - Wiley (v.20) \$2,440/896 pages = \$2.72/page

These examples strongly suggest that the reason "universities can't afford to keep all their subscriptions"(9) is the result of an increasingly dysfunctional commercial-journal business model and not the fault of learned-society publishers.

A researcher submitting an article starts a process that requires professional administration and production. Acceptable publication standards require expenses, for peer review, editorial salaries, copy-editing, printing, electronic-formatting, and archiving. These costs should be shared between authors and readers, as they were in the past and continue today with some society publications in the United States. For example, the American Institute of Physics has a voluntary page charge for the following titles: Applied Physics Letters-\$115, J. Applied Physics-\$60, J. Chemical Physics-\$40, and Physics of Plasmas-\$55.

FRPAA & NIH DIRECTIVE: An Opportunity for Society Publishers?

There is a real concern, especially on the part of commercial-journal publishers, that passage of the FRPAA and/or NIH DIRECTIVE, thus making article manuscripts freely available after only six or twelve months, will result in substantial subscription cancellations.

Society publishers, however, are generally in the currently enviable dual position of publishing both the premier journals in their fields and providing them at a very reasonable price. I strongly feel that society publishers will be able to sustain any possible disruption since research scientists recognize the essential importance of published journal articles. Thus, cancellations of many society journals should not be a major concern, even if their article manuscripts are freely available six or twelve months after publication. This view is further strengthened by the very positive experiences of the American Chemical Society's 'Articles on Request' and the Royal Society of Chemistry's 'Open Access' policies (11).

Many commercial publications, on the other hand, given their expense and quality issues, are clearly at substantial risk as pay-per-view and author reprints promise to increasingly diminish the value of subscriptions.

In their mission statements, societies have a generally recognized obligation to "provide knowledge and access to it". This is a defining distinction between societies and their commercial competitors, that seems to be lost on many Open Access proponents. Societies can enhance their image in scholarly communication in the following ways that should forestall calls for 'Open Access' for published articles, while continuing to enhance their market position.

1. New self-sponsored 'open-access' publications in new interdisciplinary research fields would benefit current members and also provide outreach to potential members. An excellent example is the Optical Society of America's Optics Express.

2. Introduction of modest author and/or institutional submission/publication fees, in combination with reducing subscription rates for existing publications, would insure subscriber goodwill and provide an additional rationale for institutions to maintain current subscriptions. An additional possibility would be to offer HTML formatted articles free, with advertising, and reserve subscriptions for final version PDF format. This approach would be in contrast with the seemingly cynical 'Open Choice' option first offered by commercial publishers. John Ewing of the American Mathematical Society has noted that "Commercial publishers are delighted by the inadvertent misdirection (of 'Open Choice') because it diverts attention from the exorbitant prices they charge. As savvy business people, they understand that changing how they collect money does not have to change their profit margins."(12)

I understand why the American Chemical Society and the Royal Society of Chemistry had to follow suit (13), and it is a shame that their 'Open Access' policies are not more widely known.(11)

3. Working with institutional subscribers to expand access to well-defined groups of university associated researchers and alumni, and institutional consortia members would address access problems currently faced by retirees, start-up companies, small colleges, and high schools. This largely underserved research community should make limited use demands.

4. Many publishers (especially in chemistry) have segmented their electronic journals into current and archival collections. Providing freely available electronic access to at least a basic version of their archival journal collections is long overdue.

Conclusion:

Instead of following the example of the ACS' alignment with commercial publishers, as evidenced by recent revelations of questionable public-relation efforts (14), society publishers will hopefully see the

FRPAA & NIH Directive as an opportunity to develop a new business model. Namely, one that includes appropriate 'open -access' for archival material, balanced pricing between authors and readers, and expanded outreach to underserved research communities, thus insuring the long-term survival of their publications.

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<http://thomas.loc.gov/cgi-bin/bdquery/z?d109:s.02695:>

1b. U.S. House of Representatives' National Institutes of Health (NIH) Directive

www.taxpayeraccess.org July 20, 2007

2. Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, and Transportation departments; and the Environmental Protection Agency, NASA and National Science Foundation.

<http://www.arl.org/sparc/resources/FINAL-FRPAA-CampusFAQ.pdf>

3. Baum, Rudy M., "More Socialized Science."

Chemical & Engineering News, May 16, 2005 p.5. Subscriber access at:

<http://pubs.acs.org/cen/editor/83/8320edit.html>

4. Lorenzo's Oil From Wikipedia.

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5. Aliya Sternstein, Bill to expand online access to research. Federal Computer Week, May 3, 2006. Open Access News, May 6, 2006.

http://www.earlham.edu/~peters/fos/2006_04_30_fosblogarchive.html

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<http://www.ala.org/ala/acrl/acrlpubs/crlnews/backissues2005/julyaugust05/publicinterest.htm>

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[http://www.ncbi.nlm.nih.gov/books/bv.fcgi?](http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=helppubmed.section.pubmedhelp.How_to_Get_the_Journ#pubmedhelp.Local_library)

[rid=helppubmed.section.pubmedhelp.How to Get the Journ#pubmedhelp.Local library](http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=helppubmed.section.pubmedhelp.How_to_Get_the_Journ#pubmedhelp.Local_library)

7. Journal of Neuroscience Submission Fee & Payment Policy

http://www.jneurosci.org/misc/ifa_fee.shtml

8. Dana L. Roth *Value and Quality Measures for Chemistry Research Journals*. Special Libraries Association Annual Conference, 11-14 June 2006, Baltimore, MD.

<http://resolver.caltech.edu/CaltechLIB:2006.003>

9. Rallying Behind "Open Access"

<http://insidehighered.com/layout/set/print/news/2006/07/28/provosts>

10. Martin Blume. APS pricing explained for 2003.

<http://www.library.yale.edu/~license/ListArchives/0208/msg00033.html>

11a. ACS 'Articles on Request' policy.

<http://pubs.acs.org/reprints/policy.html>

11b. The RSC 'Open Access' policy provides PDF access free to all for everything that was born electronic (i.e., since 1997) that is 2 clear years old. With a subscription, you also keep the HTML access to the born-electronic backfile. R. Parker, personal communication, 7/22/2007.

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<http://chronicle.com/weekly/v51/i06/06b02001.htm>

13a. ACS AuthorChoice option.

http://pubs.acs.org/pressrelease/author_choice/

13b. RSC Open Science option

<http://www.rsc.org/Publishing/Journals/OpenScience/>

15. Letter from PSP Executive Council Chairman Brian D. Crawford.

<https://arl.org/lists/sparc-oaforum/Message/3572.html>

Background reading:

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<http://pubs.acs.org/cen/coverstory/83/8320openaccess.html>

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