

## Public Access to Peer-Reviewed Scholarly Publications Resulting From Federally Funded Research

Submitted by

John Willinsky, Khosla Family Professor of Education, Stanford University

Lauren Maggio, Director of Research and Instruction, Stanford University Medical Center, Stanford University

We work in schools of education and medicine, respectively, and are thus involved and deeply interested in the education of professionals, and the role that public access to relevant research can play in continuing professional development, improved practice, and, far more broadly, the general educational quality of democratic life. We are advocates, then, of greater access to knowledge, while being mindful of the need for both the quality controls of peer-reviewed scholarly publishing and the need for the financial investment that allows for such quality.

(1) Are there steps that agencies could take to grow existing and new markets related to the access and analysis of peer-reviewed publications that result from federally funded scientific research? How can policies for archiving publications and making them publicly accessible be used to grow the economy and improve the productivity of the scientific enterprise? What are the relative costs and benefits of such policies? What type of access to these publications is required to maximize U.S. economic growth and improve the productivity of the American scientific enterprise?

In terms of the benefits of an access policy to research, one consideration is the utilization of the research to improve the practice and knowledge base of professionals. We have recently conducted and published a [study](#) of physicians (N=90), in which a third expressed an interest in accessing primary research as part of their medical practice, with implications for improved quality and costs for health care. Furthermore, the physicians reported the weekly need to consult research was based on a need to inform their understanding regarding a specific patient, keep their practice up to date and to satisfy general curiosity. When interviewed on information use, one physician at a community clinic commented that her need for information is “constant” while another stated that he needs information daily. In our study, physicians were currently accessing information by making do with unreliable access through colleagues, the delayed assistance of librarians and the illegal hoarding and sharing of library passwords that provided them with such access.

(2) What specific steps can be taken to protect the intellectual property interests of publishers, scientists, Federal agencies, and other stakeholders involved with the publication and dissemination of peer-reviewed scholarly publications resulting from federally funded scientific research? Conversely, are there policies that should not be adopted with respect to public access to peer-reviewed scholarly publications so as not to undermine any intellectual property rights of publishers, scientists, Federal agencies, and other stakeholders?

We believe that it, above all, needs to be made perfectly clear in discussions of this matter that one of the principal intellectual property interests of scientists, federal agencies, and the public is the widest possible distribution of peer-reviewed publications, not only for the gratifying purposes of take-up, but also to ensure further evaluation and reassessment of published work. These interests appear to be currently, and perhaps needlessly, subordinated to the financial interests of publishers. While no one denies that the publishers provide a valuable service, for which they should be compensated, the question of whether this requires an exclusive monopoly over a public good. One indication that this might not have to necessarily be the case is the number of free, open access journals publishing today (upwards of 7,000 titles, according to the [Directory of Open Access Journals](#)), the majority of which do not charge either readers or authors, as they rely on institutional support and a greater extent of the academic labor that all journals receive at no cost, whether for content or peer review. At any rate, the very assertion of a public access *right*, on the part of federal funding agencies, makes it clear that the public has a stake and claim in this knowledge and that this public right should figure in the evolution of business models in the digital age.

(3) What are the pros and cons of centralized and decentralized approaches to managing public access to peer reviewed scholarly publications that result from federally funded research in terms of interoperability, search, development of analytic tools, and other scientific and commercial opportunities? Are there reasons why a Federal agency (or agencies) should maintain custody of all published content, and are there ways that the government can ensure long-term stewardship if content is distributed across multiple private sources?

We can see the value of the arguments on both sides of this question, but feel that what is unequivocally needed is federal support for arriving at centralized standards for metadata and other structural features, in consultation with research libraries, professional societies, and related federal agencies that are also in a position to advise on management of public access.

(4) Are there models or new ideas for public-private partnerships that take advantage of existing publisher archives and encourage innovation in accessibility and interoperability, while ensuring long-term stewardship of the results of federally funded research?

One of the most promising new models for public-private partnerships that has been discussed involves repositioning the research libraries as *partners* in scholarly publishing (rather than simply customers), given their expertise and capacities, and their willingness to invest in developing resources for public access. One step has been taken in this direction, judging by how the majority of such libraries now provide public-access repositories and hosting services for open access journals. This partnership or cooperative approach would be especially effective in working with professional societies and smaller publishers.

(5) What steps can be taken by Federal agencies, publishers, and/or scholarly and professional societies to encourage interoperable search, discovery, and analysis capacity across disciplines and archives? What are the minimum core metadata for scholarly publications that must be made available to the public to allow such capabilities? How should Federal agencies make certain that such minimum core metadata associated with peer-reviewed publications resulting from federally funded scientific research are publicly available to ensure that these publications can be easily found and linked to Federal science funding?

This would appear to be another opportunity for greater involvement of research libraries and librarians in setting metadata standards, as well as advising on interoperable search, as per response to #3. The model here might be the National Library of Medicine, with specialist librarians able to work with scholarly societies to create a similar level of standards, with the relevant federal agency support and endorsement.

(6) How can Federal agencies that fund science maximize the benefit of public access policies to U.S. taxpayers, and their investment in the peer-reviewed literature, while minimizing burden and costs for stakeholders, including awardee institutions, scientists, publishers, Federal agencies, and libraries?

A key element in keeping costs down is working toward, through federal mandates and the cooperation of publishers, a further integration of public-access provisions into the publishing process. This could involve, for example, automatic deposit on acceptance, along with all of the metadata, in a centralized repository, reducing the time and expense of separate deposit and multiple repositories.

(7) Besides scholarly journal articles, should other types of peer-reviewed publications resulting from federally funded research, such as book chapters and conference proceedings, be covered by these public access policies?

Given the current standard (mandated by the NIH Public Access Policy) of providing public access to the “final draft” of the federally funded research, the published format should not be an issue. Although the NIH policy applies to *journal articles* alone, the focus on journals makes sense in medicine where the article is the standard. However, books and book chapters play a much bigger role in some fields, such as education, and they might reasonably fall within the mandate as well to honor the intention of making publicly funded research available.

(8) What is the appropriate embargo period after publication before the public is granted free access to the full content of peer reviewed scholarly publications resulting from federally funded research? Please describe the empirical basis for the recommended embargo period. Analyses that weigh public and private benefits and account for external market factors, such as competition, price changes, library budgets, and other factors, will be particularly useful. Are there evidence-based arguments that can be made that the delay period should be different for specific disciplines or types of publications?

One source of evidence that is available on the longer term effects of a zero embargo-time comes from arXiv.org, which since the early 1990s has been offering immediate pre- and post-print public access to virtually the entire literature in high-energy physics. The American Physical Society and Institute of Physics both reported to Alma Swan in 2005 that the arXiv.org repository did not appear to have resulted in any loss of subscriptions for these publishers. At the same time, the average subscriptions prices for physic journals remains second only to chemistry at \$3,252/a (2009) suggesting the sustainability of a healthy publishing industry in face of a zero embargo time in physics. The widespread use of arXiv.org among physicists can be attributed, in part, to a strong pre-print culture in physics dating back to the age of print. There is no reason why the rapid and open dissemination achieved by this field would not be advantageous to other fields. Again, a more collaborative, cooperative approach between research libraries and publishers could resolve and eliminate this embargo issue, as the libraries gain no advantage by having exclusive access to the literature, and thus may be willing to commit to supporting the

journals directly using existing allocations for subscriptions. This would guarantee the greater part of their revenue stream, while reducing subscription management costs on both sides. While this sort of change goes beyond the scope of public access policies, a move toward mandated public access to research is a strong first step in asserting that this knowledge was originally funded as, and is intended to stand as, a public good.