

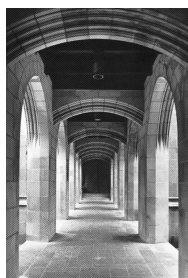
SCHOLARLY COMMUNICATION: STARTING A KENTUCKY DIALOG

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INTRODUCTION

The nature of scholarly communication has changed drastically over the past decade, creating challenges and opportunities that require attention by faculty, administrators and librarians at academic institutions. With advances in technology resulting in changes in speed of communication, media format, user behavior and expectation, the current model of scholarly publishing is no longer sufficient to meet the needs of scholars producing and consuming information today.

Scholarly publishing systems were developed to advance science by facilitating the communication of ideas, but traditional publication methods now actually impede the natural flow of information. Commercial publication imposes delays, requires authors to relinquish intellectual property rights, and forces universities to *buy back* the intellectual work of their own faculty, at costs that are able to increase without market control.

Universities and scholarly institutions all over the world are seeking to break the hold of traditional scholarly publishers to promote:

- Open access to scholarly work
- Changes in intellectual property practices
- Changes in promotion and tenure practices to recognize innovations in scholarly creativity

This report is our attempt to begin a statewide conversation about these issues here in Kentucky.

OPPORTUNITIES AND CHALLENGES

Information technology has revolutionized scholarly communication. Email, word-processing and the World-Wide Web were just the beginning. Commercial publishers were once the only means of effective distribution of scholarly ideas, but new technologies now make it possible for scientists and scholars to distribute their work broadly, effectively and inexpensively without mediation by a com-

mercial publisher. In addition to performing traditional publishing tasks faster and better, emerging technologies also make possible fundamentally new ways of distributing and interacting with information. Some current trends and issues in scholarly communication are discussed below.

Open Access. Historically, traditional publication provided the benefits of *distribution* and *validation* to the process of scholarly communication. In exchange for these services, publishers were paid through subscription costs and sometimes author page charges. Until relatively recently, the system depended on this relationship because wide distribution of information required resources that were unavailable to individual scholars and researchers. With advances in electronic communication, however, information no longer has to be translated into a distribution format (i.e., paper publication) to be shared. More pointedly, traditional commercial publishers are not *necessary* for the wide distribution of scholarly ideas. Relying on a traditional publisher now inserts delay and cost that many scholars see as unnecessary. Traditional publication methods impose delays in distribution that are by-products of procedures that are not technically necessary today. For example, publication of a particular article might be delayed because all available physical space in the current issue is taken by other reports. Such restrictions are less valid in electronic publications and in systems that focus on facilitating dissemination rather than generating profit. New-breed publishers, like Berkeley Electronic Press, further reduce delays by requiring authors to submit articles in publication-ready format, bypassing the need for copy-editors and typesetters. Common office software applications make complying with such requirements easy.

Flexibility. Traditional publication is expensive. An article is published in one “final” ver-

sion if it meets criteria justifying its selection as one of the finite number or pieces in a given issue. Competition can involve criteria beyond scholarly merit, such as market value and uniqueness. Emerging technologies allow more flexibility in the communication of ideas. Pre-print publication, updating, and re-distribution all contribute to the primary goal of scholarly publishing: communicating ideas to facilitate scientific advancement. This trend signals the shift from “publication as product” to “publication as process.” (Lougee, 2002)

Format. New publication methods bypass the physical limitations of paper. Research can be communicated more directly, through distribution of complete data sets rather than summaries and with greater flexibility in the presentation format (including audio, video and interactive presentation), which is not possible in paper publications. These publication options provide new opportunities to extend scholarly communication, and even the research itself, into areas that could not be conveyed effectively using traditional methods.

Despite our exuberance over new possibilities, there are areas of concern in this new environment.

Peer review. In addition to dissemination, the other primary function of traditional scholarly publication is that it provides validation of research ideas through the peer-review process. At a time when anyone with a \$200 computer can put a report on the Web, the peer-review function may be more important than ever. But it is possible to implement peer-review, outside the realm of commercial publication, or bypass traditional peer-review and still have a useful distribution system. Eprint archives, such as the physics collection *arXiv*, can employ “a variety of heuristic screening mechanisms...to ensure insofar as possible that submissions are at least of *referee-able quality*” (Ginsparg, 2003). The arXiv, in particular, has been an invaluable resource in the fields of physics, astronomy and related disciplines since 1991, and is an example of the long-term viability of this new publication method. Another factor to consider is that, since the advent of the Web, information consumers today are accustomed to making judgments about the quality of the information they gather and use methods other than formal peer-review in making these assessments.

Archiving of electronic information. Libraries have a long history of successfully archiving paper documents. Best practice for archiving

of electronic information is still being developed. As we began to convert paper documents to electronic formats for easier distribution, we did not have to rely on the electronic version for long-term access – the paper original was an innate back-up. As an increasing amount of scholarly work is “born digital”, we must develop standards for long-term retention of electronic formats. A related issue concerns ownership of electronic publications. When libraries subscribe to paper publications, the library takes on responsibility for long-term retention of those volumes. Even if the subscription is canceled, the backfiles are still available to patrons and are most likely available at multiple libraries. Licensing of electronic journals is entirely different. Libraries are expressly disallowed from making archival copies or providing access beyond the life of the subscription. We are counting on the publishers themselves to archive these materials, but we wonder if the cost of retaining (and migrating) these materials after their most profitable period is over makes this a risky assumption. Programs such as LOCKSS (<http://lockss.stanford.edu/>) represent new efforts at collaboration between publishers and libraries to insure long-term retention of electronic commercial journals.

Intellectual property issues. Copyright laws were established to encourage the creation and distribution of knowledge. By providing *limited* ownership of creative material, copyright laws allow authors to profit from intellectual endeavors, encouraging future endeavors. Copyright attempts to balance the needs of authors, who benefit through restricting access, with the need for scholarly advancement, which benefits from open access. Authors who publish in scholarly journals, however, generally benefit in ways other than financial, for example, by becoming “known” in a field and by contributing to their professional record and so gaining promotion or tenure.

These goals are actually compatible with facilitating the flow of information. Most commercial publishers of scholarly journals, however, ask authors to sign over their copyrights to the publisher. Without restricting access, subscribers would have no reason to pay for the journal. If readers do not subscribe, the publisher does not make money and so has no reason to continue publishing. If the profit motive of commercial publishers is removed from the scholarly communication system, information should flow more freely.

Another intellectual property issue affecting scholarly communication is the fact that copyright laws have been extended and enhanced in recent years, more to the benefit of publishers and corporations than to individual authors. Efforts to relax copyright restrictions on scholarly material include recommending that authors do not sign over their rights to publishers, or at least attempt to mediate the restrictions. Organizations like Creative Commons (<http://www.creativecommons.org/>) recommend alternative copyright licenses that authors can adopt, dedicating their work to the public domain or retaining specific rights that are more flexible than standard copyright.

VARIOUS PLAYERS AND VARIOUS MOTIVATIONS

Information technology itself is evolving rapidly, driving change in the scholarly publication system and straining relationships among the communities involved in this process. Rapid change and opposing goals among these groups have resulted in perceived crisis situations, which have in turn resulted in demands for even faster change.

In the 1950s there existed a balanced system for the academic enterprise of research and publication. Faculty researchers presented the results of their work to their scholarly societies who used peer reviewers to vet the scholarship. The societies then published the results of that research and libraries then acquired those publications to be used as a part of an ongoing discourse to advance scholarship.

In the 1960s and 1970s as enrollments swelled in the nation's universities and as the federal government increased the amount of funding available to support research, the volume of scholarship produced for the previously balanced system also dramatically increased and exceeded the capacity of the publishing system. Commercial publishers rose to the challenge with the support of scholarly societies, universities, and faculty who served as editors, peer reviewers, and members of editorial boards. Under this model the number and volume of commercial publishers serving in this capacity increased to fulfill the market.

Initially this model seemed to serve all players well. Societies were relieved of the burden of publishing the research, faculty were presented with new avenues for publication, and commercial publishers were presented with increasing markets for the publications. In looking for ways to secure their markets, com-

mercial publishers began asking faculty contributors to assign the copyright of their intellectual property to the publishers. The publishers, in turn, began to charge exorbitant fees to the institutions that supported the initial research, through salaries and infrastructure, for the intellectual output resulting from that research.

Different constituencies have widely varying motives in regard to scholarly output. Faculty and researchers' primary motivation in having work published is the dissemination of knowledge and the advancement of scholarship; librarians' primary motivation is to provide free of charge the resources needed for scholarship to take place; scholarly societies' primary motivation is to provide the imprimatur and collegial value judgment needed to evaluate the quality of the scholarship; and commercial publishers' primary motivation is to make a profit.

The Serials Pricing Crisis. The "serials pricing crisis" is by now a well-known description of the impact of rising subscription rates on library budgets. Commercial journal subscription rates have skyrocketed, particularly in the STM fields (Science, Technology and Medicine). For the period 1986-1999, statistics gathered by one ARL-sponsored report (Kyrillidou, 1999) show an increase of 170% in subscription costs while serials titles held actually declined by 6.5%. Costs can rise without the usual market control because the nature of "competition" is different with scholarly journals. A new journal does not effectively compete with an established publication. There is only one *Nature*, and authors seek to publish in the original. The publisher can charge almost anything and authors will still publish there and faculty will still insist that the library subscribe. While costs increase exponentially, library budgets do not. The net effect is journal cancellation, meaning reduced access to information for our faculty and students. Journals in all disciplines suffer, as libraries attempt to balance cuts. As larger portions of library materials budgets are surrendered to supporting the increased cost of serial subscriptions, less funding is available to support the purchase of monographs. Scholars in disciplines that depend on the scholarly monograph are witnessing a decline in monographic literature in the library and in the number of opportunities available to publish in their disciplines.

WHY WE NEED ACTION

As the mechanisms of scholarly communication

evolve, the professionals who *create* and are charged with *preserving* scholarly information need to take control. The issues we are describing are not just theory – in terms of the serials pricing crisis specifically, we are seeing real impact at all institutions of higher education:

- Unrestrained costs of commercial journals are consuming increasingly larger proportions of library budgets, resulting in journal cancellations and fewer monograph purchases. This situation translates directly into *reduced access to scholarly work for our faculty*.
- Commercial publishers traditionally require authors to give up copyright to their own work. While scholars benefit by distribution of the work, publishers benefit by restricting access to those who pay for it, creating hurdles for faculty even if they want to distribute their own work to their students. This situation translates directly into *reduced access to scholarly work for our students*.
- University promotion-tenure practices are directly tied to the peer-review system of traditional scholarly publication. Commercial publishers (driven by cost incentives) play too significant a role in career success for university faculty. Universities must regain control of the scholarship created in the academy. Efforts to incorporate new methods of validating scholarly work will allow faculty to explore alternative publication models, expanding the possibilities available to them.

The issues described in this report are bigger than one institution, bigger than one state. Change requires cooperation, awareness and advocacy. Local action by individual scholars, at individual institutions, or by consortia can have an effect when pooled with similar actions around the world. Some activities undertaken or suggested by others include:

- Create Institutional archives. Institutions can facilitate dissemination of scholarly work outside the realm of traditional commercial publishers by developing alternative systems such as the DSpace project at MIT, E-Prints (<http://www.eprints.org/>) at the University of Southampton, or Fedora (<http://www.fedora.info/>) cosponsored by the University of Virginia and Cornell. Institutions can support faculty wishing to participate in such endeavors by providing infrastructure, systems, and expertise. Institutions can make a commitment to migrate the materials in the archives forward, adding another support system as a service to the faculty.

- Support alternative publishers. (e.g., SPARC, Public Library of Science) Encourage faculty to publish in non-commercial, open-access journals. Provide information about such projects to your campus community. Libraries should make efforts to subscribe to such journals and encourage patrons to use them.
- Boycotts. The following statement is an example of a boycott initiated by the Public Library of Science: “To encourage the publishers of our journals to support this endeavor [establishing an open-access public library of science], we pledge that, beginning in September, 2001, we will publish in, edit or review for, and personally subscribe to, only those scholarly and scientific journals that have agreed to grant unrestricted free distribution rights to any and all original research reports that they have published, through PubMed Central and similar online public resources, within 6 months of their initial publication date.” (This “open letter” statement is still available for signatures on the PLoS Website, although the Sept. 2001 deadline is past. See <http://www.plos.org/support/openletter.shtml>.)
- Copyright change. Encourage faculty to review copyright transfer requirements from journal publishers and challenge anything that is questionable. Review options recommended by Creative Commons and others. Educate yourself about copyright law!
- Promote open-access. Recommend symposia or conference sessions on this topic. Invite some of the many frequent speakers on this issue to participate in conferences sponsored by your professional associations. Write opinion pieces supporting open access. Promote this issue to colleagues locally and within the various organizations to which you belong.

A CALL TO KENTUCKY LIBRARIANS

Librarians are well situated to be leaders in promoting awareness and activity in scholarly communication issues. Scholars in all disciplines are affected by the changing publishing system. The library can help facilitate dialog within the diverse academic community, serve as a center for workshops and discussion, and provide resources and support for faculty. An educated faculty – not to mention an educated library staff! – will help insure that those of us who create, archive, and utilize scholarly material have a voice in how this system develops.

These issues are key to the survival of scholarly discourse that on its present course is a

house of cards on the verge of collapse. A lack of action within academia will lead to the demise of the scholarly monograph and scholarly literature as we have known it. This is not merely a "library problem" but the problems have surfaced first within the library budget. Librarians have an opportunity and an obligation to take a leadership role on these and related issues. We must first educate ourselves and then educate the faculty, researchers, and administrators who are part of the equation.

We have begun the dialog at the University of Kentucky by initiating a series of symposia for librarians and our campus community about

the challenges and potential solutions for these issues. These events are open to others in the library community and we welcome broad participation from our colleagues. We are also beginning to discuss the possibility of an institutional repository to begin to capture the digital output of the university for access and preservation. We urge our colleagues to join with us in leading these discussions statewide.

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