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### **Tomorrow's Research**

#### **SHARING IN THE ONLINE COMMUNITY**

Not everything on the Internet is available for free, and some resources are very costly, but open-source and open access initiatives are contributing to a digital community that shares intellectual content and educational resources.

#### **Open-Source Licensing**

In 2003 the OYEZ project began permitting people to download selections of its Supreme Court audio collection in MP3 versions through a Creative Commons license that permits users to download, share, and create derivative works using the files. In an interview, Goldman explained that OYEZ was doing this to emphasize a positive use of peer-to-peer networking that focuses on sharing rather than withholding information, saying that he envisioned "a community of dedicated listeners and scholars who could add to the audio," particularly by annotating the files and sharing their findings (Lynch, 2003b). Creative Commons is a nonprofit organization founded in 2001 that provides creators of works with an alternative to traditional copyright: they retain copyright of their work but can let those accessing the work know that certain uses are permitted without needing to ask for permission. Licenses are freely available for download from the Creative Commons Web site (<http://creativecommons.org/>), and a growing number of musicians, photographers, writers, filmmakers, and educators are represented.

Open-source licensing represents a growing trend in academia to forego the often relatively small profits made from educational publications in order to disseminate knowledge to a wider audience. In the spirit of an open university, the authors of the Athabasca University text *Theory and Practice of Online Learning* used a Creative Commons license to make their book available through free download from the Internet, to share freely and widely their knowledge of distance learning alternatives and to encourage scholarly discussion and further development in the field. The editors describe this as a form of "gift culture": "The gift weaves bonds within our community and empowers those who benefit from it to create new knowledge that they can share with others and with ourselves" (Anderson & Elloumi, 2004, p. xviii). In an unprecedented move to contribute to global knowledge and foster collaboration, the Massachusetts Institute of Technology offers its MIT OpenCourseWare resource (<http://ocw.mit.edu/index.html>), which disseminates freely to the world the high-quality course materials developed by MIT faculty.

Open-source course management systems, such as Moodle (<http://moodle.org>), Sakai ([www.sakaproject.org](http://www.sakaproject.org)), and Athabasca University's Bazaar Online Conference System (<http://klaatu.pc.athabasca.ca/>), represent a growing trend in helping faculty build course Web pages without having to invest in high-cost course management systems such as Blackboard and WebCT.

## Electronic Books

Project Gutenberg (<http://gutenberg.net/>) provides access to thousands of electronic book on the Internet, primarily literary works in the public domain in the United States. The project dates back to 1971 when Michael Hart, finding himself in possession of a million dollars' worth of computer time at the University of Illinois, decided to enter books and other texts into the computer to permit everyone in the world to have a copy. The project relies heavily on volunteers and focuses not on authoritative editions but on getting high-demand works out to the general public. Other projects that offer electronic books and texts at no cost to the reader include the Online Medieval and Classical Library (<http://sunsite.berkeley.edu/OMACL/>), available through the Berkeley Digital Library SunSITE collections, and the Humanities Text Initiative (<http://www.hti.umich.edu/>) from the University of Michigan.

## Electronic Journals

By the mid-1990s journal publishers, particularly the major publishers of scientific journals, began to move into the online environment. The term electronic journal or e-journal refers to a number of different entities. The early e-journals were electronic versions of print journals, and this continues to be the case in large part. The main benefit of the electronic versions is accessibility. Many of these e-journals can be accessed through searchable journal databases, although some have their own Web sites.

Some e-journals are based on a print counterpart, but they take advantage of digital technology to offer added value not found in the print source, such as extra data, graphics, audio clips, video clips, and interactivity. There has been considerable growth in e-journals that have originated digitally and remain digital only.

Some e-journals are freely available on the Web. International Review of Research in Open and Distance Learning (IRRODL; <http://www.irrodl.org/>), is a peer-reviewed e-journal published by Athabasca University dedicated to promoting research, theory, and best practice in open distance learning. The Association of Historians of Nineteenth-Century Art publishes Nineteenth-Century Art Worldwide (NCAW; <http://19thc-artworldwide.org/>), a referred e-journal dedicated to the study of painting, sculpture, and other fine arts of the period. These and other electronic journals that do not charge readers or their institutions to access them are referred to as open access journals. Funding for open access journals often comes from grants and donations. An indication of the growing importance of open access journals can be seen in the Web version of Ulrich's Periodicals Directory, the standard source for periodicals information. Ulrich's has added a feature that permits the searcher to limit retrievals to open

access, electronic, full-text scholarly journals, many of which are peer-reviewed. A number of providers are dedicated to offering access to free electronic full-text journals, including these:

- BioMed Central (<http://www.biomedcentral.com/>) is an independent publishing house that publishes open access peer-reviewed research journals in biology and medicine.
- The Directory of Open Access Journals (DOAJ; <http://www.doaj.org/>) indexes scientific and scholarly research journals in a variety of subjects and languages. DOAJ includes only journals that have peer-review or editorial quality control and provides all contents in full-text. The project is hosted by Sweden's Lund University Libraries.
- International Consortium for the Advancement of Academic Publication (ICAAP; <http://www.icaap.org/portal/>) is a research and development organization devoted to the advancement of electronic scholarly communication that provides free publication services to scholars who are considering developing independent scholarly journals. ICAAP, which is hosted by Athabasca University, also maintains a database of open access resources.
- The Public Library of Science (PloS; <http://www.publiclibraryofscience.org/>) is a nonprofit organization of scientists and physicians dedicated to making scientific and medical literature freely available. PloS publishes its own peer-reviewed journals, PLoS Biology and PloS Medicine.

The Scholarly Publishing and Academic Resources Coalition (SPARC; <http://www.arl.org/sparc/>) supports open access publishing. Such initiatives remove barriers to access, increase the visibility of open access journals, and permit rapid and wide dissemination of research in the framework of peer review. Pre-publication works, such as the papers in ArXiv, serve important function in communicating research findings, but peer review remains an important quality-control mechanism in journal publication.

Open access initiatives represent a growing movement to address the rising volume and costs of journal subscriptions, particularly in science, technology, and medicine. Libraries provide access to publications that scholars need for their research, and scholars produce the intellectual contents that are the foundations of library collections. The university system requires faculty to build their academic reputations and to achieve tenure through a publication path that is based on publication in peer-reviewed journals. Pace (2003) describes the catch-22 that academic libraries find themselves in as faculty "assign copyrights of their scholarly endeavors to large publishing houses, who, in turn, sell the content back to college and university libraries at tremendous markups" (p. 24).

Librarians are strong supporters of open access initiatives. Create Change (<http://www.createchange.org/>), which is sponsored by the Association of Research Libraries, the Association of College & Research Libraries, and SPARC, seek to address what has come to be referred to as "the crisis in scholarly communication". Library budgets are strained by high-priced journal subscriptions and library shelf space is at a premium, with libraries struggling to keep up with the volume of literature being produced. In 1995, Andrew M. Odlyzko described

the crisis in terms of the "exponential growth" in the size of scholarly publication, particularly scientific publication, which has tended to double every ten to fifteen years over the last two centuries. Odlyzko notes that growth has slowed in recent years, but that it is still impossible for libraries to keep up with the volume of literature being produced. This volume, along with high subscription costs, is causing libraries not only to subscribe to fewer new titles but also to drop some older subscriptions, a serious concern to scholars who need wide access to the literature in their field.

Create Change (2000, para. 3) has as its main goal "to make scholarly research as accessible as possible to scholars all over the world, to their students, and to others who might derive value from it" and identifies the following strategies:

- Shifting control of scholarly publication away from commercial publishers back to scholars.
- Influencing scholarly publishers to embrace as their first goal the widest possible dissemination of scholarly information and to abide by pricing policies and practices that are friendly to scholars and libraries.
- Creating alternatives to commercial scholarly publications, both competitive alternative journals in more affordable electronic formats and programs that make scholarly research more directly available to scholars.
- Fostering changes in the faculty peer-review system that will promote greater availability of scholarly research: these changes might include both movement away from quantity and towards quality as a criterion for tenure and promotion and full acknowledgement of electronic publication as a means of communicating research.

In addition to supporting such initiatives, some libraries are actively developing alternative models for scholarly publication. The University of Arizona Library publishes the Journal of Insect Science (<http://www.insectscience.org/>) at a loss, with future plans to continue offering the publication as an open access journal but to recover costs by charging authors an "affordable" submission fee, which could be considered a research expense (Roel, 2004). The Journal of Insect Science accommodates color figures, video and audio clips, and large data sets.

Librarians are also supporting and partnering with not-for-profit publishers that offer licensing, usage policies, and pricing models that are friendly to libraries and their users. JSTOR was developed by the Andrew W. Mellon Foundation to take advantage of information technologies in addressing the challenges libraries face providing access to scholarly journal literature. By converting the complete back runs of participating print journals to electronic format, JSTOR seeks to help libraries cope with storage issues and improve access to the contents of older journal material. JSTOR promotes electronic conversions as a means to handle long-term deterioration of paper copies and through its Electronic-Archiving Initiative seeks "to develop the organizational and technical infrastructure needed to ensure the long-term preservation of and access to electronic scholarly resources" (JSTOR, 2004, para. 1).

Project Muse, a collaboration between the Johns Hopkins University Press and the Milton S. Eisenhower Library at Johns Hopkins University, offers libraries reasonably priced access to the full text of John Hopkins UP and other scholarly journals in arts and humanities and the social sciences. Even if a library does not renew its subscription, ownership of the subscribed journals rests with the library. The cost of electronic-only access is less than the print subscription, and Project Muse offers consortial pricing. Increasingly, libraries are turning to consortia of participating libraries and institutions as a means of negotiating favorable pricing for members. Electronic publication, whether it is fee-based or open access, offers hope to libraries for freeing up shelf space and offering a greater volume of core scholarly journals to researchers.