

Open Access Journal Literature is an Open Educational Resource

by Gavin Baker

Terra Incognita: Penn State World Campus blog

September 5, 2007

In addition to FOSS¹ and OERs², there is another phenomenon which is having a marked impact on education – in particular, on higher education. This movement shares a similar philosophy, focuses on making content available online gratis, uses open copyright licenses, and most of the noteworthy software used by the movement is FOSS. I'm writing about the movement for open access to peer-reviewed scholarly journal literature.

Advocates of OERs should seek to understand the open access movement – not only out of curiosity over the linkages or similarities between the two movements (and there are many) but because, as I will argue, free education needs free scholarship.

(Readers already familiar with OA may wish to skip ahead to the section entitled “Why free education needs free scholarship”.)

Open access: low-hanging fruit of free culture

The OA movement deals with (in the words of the Budapest Open Access Initiative), “that which scholars give to the world without expectation of payment” – namely, peer-reviewed scholarly journal articles.

To borrow the words of Peter Suber, open access is a response both to problems and to opportunities. OA tries to solve real problems: readers have limited access to knowledge, authors have limited impact for their scholarship, libraries have limited budgets for journal subscriptions. On the other hand, OA also aims to capitalize on opportunities: the potential for non-rivalrous, low cost distribution on the Internet, along with the information processing capacity of computers.

There is not complete consensus on the precise definition of an open access work (I understand this is a similar situation with OERs). However, two influential statements provide definitions: the Budapest Open Access Initiative and the Bethesda Statement on Open Access Publishing.¹

Generally speaking, according to these definitions, open access literature is:

1 Free and open source software.

2 Open educational resources.

- Made available *gratis*, or “free as in ‘free beer’”, on the public Internet. There is no cost to access the content, aside from any costs incidental to access the Internet itself. Stated differently, *access barriers* to the content are removed.
- *Libre*, or “free as in ‘free speech’”. *Permission barriers* to use of the content are removed. The definitions of Budapest and Bethesda differ slightly on the details here, but both require the freedom to use and redistribute, subject to attribution of authorship. The biggest discrepancies between the two definitions are on the subjects of derivative works and commercial use:
 - Bethesda includes the right to make and distribute derivative works, but is silent on the right to make commercial use.
 - Budapest states that authors should have “control over the integrity of their work”, which restricts the ability to make derivative works. The declaration further states that integrity of the work and attribution of authorship should be “the only constraint[s] on reproduction and distribution”, which implies the right to make commercial use.

Those familiar with FOSS and OERs will note the striking similarities in how the three movements define their work.

What does this look like? The first condition, free online availability, is usually satisfied one of two waysⁱⁱ:

- Archiving, usually by the article’s author. This is known as the “green” road to open access. Articles are typically archived by deposit in one of two types of Web sites:
 - An institutional repository, provided by the author’s institution to host the scholarship of authors affiliated with the institution. For an example, see DSpace at MIT.
 - A subject repository, provided to host scholarship in a particular field. For an example, see arXiv (for physics and related fields).

An author may provide open access to his own articles by archiving them, regardless of whether the journals in which the articles were published are open access (subject to journal policies and copyright, but almost all journals allow this in one form or another).
- Publishing in open access journals, which provide open access to their complete scholarly content immediately upon publication. This is known as the “gold” road to open access. For an example, see the Public Library of Science journals.

The second condition, free licensing, is usually satisfied by way of a Creative Commons license. Befitting the disagreement regarding which rights to grant and which to reserve, this condition has wide variance in implementation, from the PLoS journals which use the CC Attribution license, to most self-archived papers which contain no specific grant or waiver of any rights whatever (but are nonetheless commonly referred to as “open access”).

Both archiving and journals are facilitated by widely-used FOSS packages, e.g. Open Journal Systems for journals and EPrints for archives.

It should be noted that open access has no connection with the quality of scholarship in an article or a journal. The same quality controls, such as peer review, are present in the publication process, whether or not the reader will need a subscription to access the output.

So where are we? A brief snapshot of the OA movement:

- *71% of journal publishers* on the SHERPA/RoMEO list formally allow some form of self-archiving.
- *2818 journals* are listed in the Directory of Open Access Journals.
- arXiv, the preeminent repository in physics and related fields, includes the full text of nearly *half a million articles*.
- A number of public and charitable research funders have mandated that grant recipients provide open access to publications resulting from the organization's funding. Other funders are considering adopting similar mandates, including the U.S. National Institutes of Health, the Canadian Institutes of Health Research, and the European Commission.

(In preparing this entry, I wrote a bit more about linkages and similarities between FOSS, OA, and OERs. I decided to excise that section from this post, but if you're interested in further musings on the subject, I invite you to my blog to read and comment there.)

Why free education needs free scholarship

Here are four reasons why advocates of OERs should support OA journal literature:

1. As direct learning content in tertiary education
2. As "outside-the-classroom" learning content
3. As learning content for self-learners
4. As "raw materials" for re-use in free learning content

1. Journal literature as direct learning content, particularly in tertiary education

As long as professors assign readings from scholarly journals, learning content will not be fully free if the journal literature is not free.

For the user (the student), the costs of accessing this learning content are non-trivial.ⁱⁱⁱ The student pays

these costs in the purchase of coursepacks, also known as sourcebooks. Coursepacks assemble readings from disparate sources, frequently including journal articles as a significant portion. Unlike a textbook, though, a coursepack is custom-assembled for each class. This gives a professor greater flexibility in selecting readings for her class, but this ability to change the contents of the coursepack destroys the resale market: nobody wants to buy an old coursepack with the wrong readings. Conversely, a student can often hope to recover 50% of the cost of textbooks in resale when the course is completed.

Who profits when students pay these access costs? The copy center or book store will receive a portion. Another portion may go to a rights licensing middleman, such as the Copyright Clearance Center. But most of the revenue will go to the article's copyright holder – which, as a rule, is the journal publisher, not the article's author.

Open access cuts out these middlemen: once peer review and editing have been performed, and the article has been published, the article is forever free to the world for educational use.

Other approaches to circumventing the middlemen will not prove as sustainable a solution as OA:

- Relying on fair use as legal grounds to distribute copies of the articles to students is a perilous position.
- E-reserves are similarly problematic.
- “Virtual coursepacks,” which link to copies of the articles in electronic databases via the institution's library subscriptions, only shift the cost from students to libraries. At a time when libraries have struggled with surging serials costs^{iv}, this cannot be a sustainable solution, either.

2. Journal literature as indirect or “outside-the-classroom” learning content

Journal literature is often encountered in educational contexts other than where an article has been assigned for reading.

Most commonly, a tertiary student will consult journal literature as a source for coursework. Tertiary students are frequently assigned to write research papers which cite articles from scholarly sources, including peer-reviewed journals. The process of conducting this search, filtering and reviewing relevant literature is an educational process. Broad access to this literature enhances the student's education. Unfortunately, as long as scholarship is disseminated on a “toll-access” basis, some students will be priced out of access. This is particularly notable for students at educational institutions in developing countries^v.

Another educational context for journal literature is as optional reading for secondary or tertiary students. An interested student may (perhaps for extra credit in the course) volunteer to read journal

articles related to class topics. Again, here broad access enriches the educational experience.

3. Journal literature as learning content for self-learners

If one considers education as lifelong learning, then journal literature must be acknowledged as learning content with great value for self-learners.

Many parents of children with uncured diseases have an unquenchable thirst for information about the condition – particularly for rare diseases which receive little coverage in the mainstream press. Journal articles which report original research are of incredible value to help parents understand their child’s condition. Unfortunately, many of these parents express frustration with obtaining access to relevant literature. (Many organizations which represent these parents are members of the Alliance for Taxpayer Access for this very reason.)

Less dramatically, newspapers report daily on the latest findings of scientists and health research. Usually, the coverage reports findings originally published in a peer-reviewed journal. But the curious reader who desires to read the original paper himself is frequently stymied, not having a subscription to the journal. (For a light-hearted example to the contrary, see this recent article from the *Daytona Beach News-Journal*, which points readers to an article deposited in the arXiv.)

Going a step further, consider that prized tool of self-learners, Wikipedia. Imagine if each Wikipedia article on a scientific subject was fully referenced (a goal of the project). Imagine further that each citation linked to a freely-available copy of a relevant journal article. Those links would prove tremendously valuable to the self-learner who aspires to deepen his understanding of the topic.^{vi}

Beyond access barriers, removing permission barriers opens even more possibilities: translation, summary, annotation and commentary, to name a few.

4. Journal literature as “raw materials” for re-use in free learning content

OA journal articles can be cited in free textbooks, listed as recommended reading at the end of a textbook chapter, included as learning modules (with or without annotation, translation, summary, etc.), or repurposed for use in other learning content (need a graph or illustration? Just borrow it!).

OA journal literature represents a broad body of scholarly-quality content, without price or permission barriers, available for re-use to enrich OERs.

Conclusion

I hope this post sparks a lively discussion to inaugurate the fall series of contributors. I look forward to discussing these issues with you.

By way of disclaimer, the opinions in this post (and in any commentary that follows) are not those of my clients or anyone else, and I claim sole responsibility for them.

Reprinted from <http://blog.worldcampus.psu.edu/index.php/2007/09/05/open-access-journal/>

The original posting contained extensive links throughout, which I have not reproduced here due to time constraints.

Copyright © 2007 by Gavin Baker. Some rights reserved.

This work is licensed under the Creative Commons Attribution 3.0 United States License. To view a copy of this license, visit <http://creativecommons.org/licenses/by/3.0/us/> or send a letter to Creative Commons, 171 Second Street, Suite 300, San Francisco, California, 94105, USA.

- i A third notable statement on OA, the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, uses largely the same definition as the Bethesda Statement. Together, these statements are referred to as the “three B’s” of open access.
- ii In *The Access Principle*, John Willinsky identifies not two but ten “flavors” of open access, six of which comply with the Bethesda Definition. John Willinsky, “Ten Flavors of Open Access,” *The Access Principle: The Case for Open Access to Research and Scholarship* (Cambridge, Mass.: MIT Press, 2006), 211-6.
- iii On the cost of textbooks and supplies for college students in the U.S.:

According to data from [the U.S. Department of] Education’s Integrated Postsecondary Education Data System, first-time, full-time students attending 4-year private, nonprofit colleges were estimated to spend \$850 for books and supplies in their first year, or 8 percent of the cost of tuition and fees during academic year 2003-2004 ... In contrast, first-time, full-time students paying in-state tuition at 4-year public colleges or universities were estimated to spend 26 percent of the cost of tuition and fees on books and supplies, or \$898, during the same period. At 2-year public colleges, where low-income students are more likely to begin their studies and tuition and fees are lower, first-time, full-time students are estimated to spend 72 percent of the cost of tuition and fees on books and supplies. Specifically, 2-year public colleges estimated that their first-time, full-time students would spend about \$886 in 2003-2004 on books and supplies.

source: U.S. Government Accountability Office, *College Textbooks: Enhanced Offerings Appear to Drive Recent Price Increases* (Washington, DC: Government Accountability Office, 2005).

For anecdotal evidence on the cost of coursepacks specifically, see:

“Attack of the Wallet Killers”, editorial, *The Harvard Crimson* (February 18, 2005).

Personal observation: When I was a student (not long ago), I had classes where the coursepack cost more than the textbook!

- iv Scholarly Publishing and Academic Resources Coalition, “Book and Journal Costs, 1986-2002,” *Create Change* (Washington, DC: Scholarly Publishing and Academic Resources Coalition, 2003), 3.
- v See *e.g.* Willinsky, “Development”, *The Access Principle*, 93-110.
- vi Disclosure: For these reasons, I am involved in an effort to write a guideline for Wikipedia on the subject.