7 things you should know about...

Open Journals

Scenario

Dr. Carelli structures her graduate molecular biology course around student research projects and the papers based on that research. To that end, she implements an open journaling application that the class uses to create a journal representing the work done during the course. In the first half of the term, the students design and conduct individual experiments and compile their results into draft academic papers. The rest of the term is devoted to reviewing papers and creating the journal.

Each student creates a profile in the open journaling application, which integrates all the functions of creating a peer-reviewed journal. For the purposes of the course, every student registers as an author and a reviewer, while Dr. Carelli serves as the overall editor of the journal. Students submit their drafts through the online application. Dr. Carelli divides the 20 students into four groups, or committees, and each group reviews the papers submitted by one other group. In this way, every paper has five peer reviewers, and every student reviews five papers. Students regularly log in to the journal Web site to see where their papers are in the review process and to check their queues for papers to review. Each student must submit at least two revisions to his paper, based on reviewer comments, and each committee—with Dr. Carelli as de facto chair—must ultimately approve each paper for "publication." Students are graded on the quality of their papers and also on their reviews. At the end of the semester, Dr. Carelli compiles the students' papers into the *Journal of Molecular Biology 4201*, which is available for anyone on the Web to read.

With the open journaling application, students experience the process of peer review and publication from the perspectives of an author and of a reviewer, allowing them to model practices that will follow many of them through their professional lives. Having to critique other students' research papers sharpens their sense of what is good, and what needs improvement, in their own work.

What is it?

Open journaling replaces traditional peer-reviewed publishing with an open access model, in which the workflow for the submission, review, and publishing of content is transparent. With open journaling, authors can track the progress of their submissions, access reviewer comments, and revise and resubmit articles. Reviewers, editors, proofreaders, and others involved in the process also have access to the status of submitted material and the issues of the publication. Open journaling tools manage this process through an online application that lets users publish academic journals and other scholarly material more easily and at considerably lower cost than with traditional methods. The application also handles archiving, and some tools oversee subscriptions and support publishing in several languages.

Most open journaling tools are open source, allowing each publisher to customize the application to suit its unique needs, and in most cases the journals produced can themselves be open access or subscription-controlled. Because the tools and processes are all online, the threshold for a community of users to develop, vet, and publish content on a specific topic is considerably lower than with traditional publishing methods. For established journals, the open journaling process can streamline the production process and provide an online outlet for the journal material.

Who's doing it?

The most used application of this type is currently Open Journal Systems (OJS), developed by the Public Knowledge Project (PKP), an initiative at the University of British Columbia and Simon Fraser University. Other open journaling tools include Digital Publishing System (DPubS), a project from the Cornell University Library and Penn State University Libraries and Press; HyperJournal; and OpenACS (Open Architecture Community System). More than 800 journals around the world use the OJS application, drawing thousands of college and university faculty, researchers, and graduate students as authors each year. The *Columbia Undergraduate Science Journal* is an open journal dedicated to publishing peer-reviewed (and faculty-reviewed) articles written by undergraduates. Other open journals attract nonacademic professionals from virtually any field as authors and reviewers. Because open journaling applications operate over the Web, the organizers of some conferences use them to solicit reviews of session proposals from experts around the world.

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Open Journals

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How does it work?

Open journaling applications manage the production of one or more journals, dividing responsibilities for the various steps among users with different roles, such as editor, reviewer, layout artist, proofreader, and author. For each journal, an administrator establishes the workflow, which determines the sequence of steps and dependencies, and assigns roles to the steps in the workflow. Users register with the system and log in to perform functions associated with their roles. A department editor, for example, might evaluate submissions and assign them to individual reviewers or groups of reviewers. An author can use the system to upload submissions, check the status of those submissions, and see and respond to reviewer comments. Based on the publishing calendar, an editor or editorial board will assemble issues of the journal with completed articles.

Issues are posted online and archived to the journal's Web site. Readers access particular issues of the journal, with individual articles typically available in multiple formats. Like other online content, articles can include hyperlinks, either to internal material such as references or to resources on the Web. Readers can also conduct searches of content, within a single article or across multiple publications. Some open journaling tools automatically cross-reference articles and journals, allowing a user to quickly see, for example, all of the other articles that cite the one being read.

Why is it significant?

Peer-reviewed journals are the source of high-quality, academic research and information, and open journaling significantly lowers the obstacles to launching and publishing such journals. With these tools, any subject area with enough writers, reviewers, and editors can be the focus of an online journal, encouraging the generation of new content. Online journals do not incur the significant costs of printing, storing, and shipping paper copies, and the transparency of the process fosters a sense of trust in both readers and authors of the journal. Online access greatly expands the reach of the material, and not printing a journal also puts content in front of readers more quickly.

Because the threshold for creating a journal is so low, the journal format could be used to provide access to content collections that otherwise would not strictly be considered a journal. An online, open journal might, for example, serve as an electronic portfolio representing a student's work in a particular course, or a student's work in numerous courses over an academic career. Similarly, an event could use open journaling tools to coordinate the event content. In the same way that published articles are peer reviewed, the material pertaining to an academic conference or symposium is also submitted, typically to a committee that reviews the material and chooses what will be presented.

What are the downsides?

Open journaling tools allow virtually anyone to set up a journal that looks credible, insofar as it reflects the appearance and the functionality of other journals that use the same tool. Given concern over the inability of many Web researchers to discern good information from bad, open journals that look academic can be an effective vehicle for disseminating unreliable or blatantly false information. Open journals must take steps to demonstrate their authority and credibility.

Where is it going?

The movement toward greater use of open journaling tools is expected to continue, and associated technologies will be developed to handle the availability and usage of the content that is created. Most open journaling applications allow authors or editors to add metadata to reviewed articles and papers. Harvesters scour online journal content for these metadata, creating indices that allow users to more easily find the content they need. Increasingly sophisticated harvesters represent one answer to the question of what to do with all the new content. At the same time, tools that track usage data or poll users—the kinds of tools used by many social software applications—might find their way into open journal material, offering another way to disseminate content or provide critiques of it.

Though a paper journal and a conference are very different, they both strive to present refereed content to an audience. Because the basic model of content generation, review, and presentation is the same for journals as for conferences, there may be a convergence of technologies that manage this process.

What are the implications for teaching and learning?

Teaching students appropriate disciplinary practices, including peer review, communication, publishing, and referencing sources, can be a tricky proposition. Providing an infrastructure with disciplinary values built in can be a good way to model proper academic processes and get students habituated to the kind of work many will likely encounter in their professional lives. Open journals also promote good practices, including reliable access to information and tagging through the addition of metadata.