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Using New Technologies for Library Instruction in Science and Engineering: Web 2.0 Applications

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"Quantum computation is... a distinctively new way of harnessing nature... It will be the first technology that allows useful tasks to be performed in collaboration between parallel universes." … David Deutsch, The Fabric of Reality: the Science of Parallel Universes-- and its Implications **http://en.wikiquote.org/wiki/David_Deutsch**

INTRODUCTION

The transformational concept of Web 2.0 for libraries was a hot topic at three major conferences in June of 2006. The American Library Association (ALA), Special Libraries Association (SLA), and the American Society for Engineering Education (ASEE) conferences all had sessions on the subject. Not all of the focus was on sci-tech libraries. An exploration of the use of these technologies for library instruction in science and engineering fields is the emphasis for this column.

LIBRARY AND LIBRARY INSTRUCTION APPLICATIONS

Let us focus on four applications of Web 2.0: blogs, wikis, communities of practice, and social bookmarking. Exploiting a particular wiki, here are *Wikipedia*'s definitions of each:

Blog: http://en.wikipedia.org/wiki/Blog

"Blog is the contraction universally used for **weblog**, a type of website where entries are made (such as in a journal or diary), displayed in a reverse chronological order. Blogs often provide commentary or news on a particular subject, such as food, politics, or local news; some function as more personal online diaries. A typical blog combines text, images, and links to other blogs, web pages, and other media related to its topic. Most blogs are primarily textual although some focus on photographs (photoblog), videos (vlog), or audio (podcasting), and are part of a wider network of social media.

The word *blog* can also be used as a verb, meaning *to maintain or add content to a blog"*.

One of the speakers, Michael Stephens, at the ASEE's Engineering Library Division Program "Staying Relevant to Our Users: How New Technologies are Redefining the Role of the (Engineering) Librarian" has a blog, *Tame the Web: Libraries and Technology*, at http://tametheweb.com.

Application software examples: *Blogger*, *Typepad*, *LiveJournal*, *b2evolution*, and *WordPress*

Wiki: http://en.wikipedia.org/wiki/Wiki

"A **wiki …** is a type of website that allows the visitors themselves to easily add, remove and otherwise edit and change some available content, sometimes without the need for registration. This ease of interaction and operation makes a wiki an effective tool for collaborative authoring. The term wiki can also refer to the collaborative software itself (wiki engine) that facilitates the operation of such a website, or to certain specific wiki sites, including the computer science site (an original wiki), WikiWikiWeb, and the

online encyclopedias such as Wikipedia." From Antonio Fumero's "Web 2.0 Beyond the Blog Phenomenon", a presentation available at http://antoine.iies.es/Papeles/web20.ppt, retrieved September 14, 2006. "**The read/write Web:** a universal, emergent and growing repository of human knowledge without boundaries. Another innovation wave that get [sic] us a little bit closer to the original idea of an actual World Live Web… This is the idea behind … wikis." Many wiki's have sandboxes, spaces where new users can test the function of adding an entry without actually adding it. From ALA/LITA is an informative summary of the Wiki experience, "WikiWikiWebs: New Ways of Interacting in a Web Environment" retrieved September 21, 2006 and available at http://www.ala.org/ala/lita/litaevents/2004Forum/CS_WikiWikiWebs.pdf, and a synopsis of three wiki providers: *QwikiWiki*, *PMWiki* and *TikiWiki*. Other providers include: *MediaWiki* (used by *Wikipedia*) and *UseModWiki*. *Wikipedia* has a comparison of wiki software at http://en.wikipedia.org/wiki/Comparison_of_wiki_software. From *Wikipedia* comes an annotated list of wiki software http://en.wikipedia.org/wiki/List_of_wiki_software. Wiki comparison tools can also be found at http://www.wikimatrix.org/ and http://www.siteground.com/compare_best_wiki.htm.

Community of Practice: http://en.wikipedia.org/wiki/Community_of_Practice "The concept of a **community of practice** (often abbreviated as CoP) refers to the process of social learning that occurs when people who have a common interest in some subject or problem collaborate over an extended period to share ideas, find solutions, and build innovations." One of the speakers at the SLA session: "SLA Hot Topic: Web 2.0 – Making Use of Collaborative Applications – Wikis, Blogs, CoPs, RSS and Podcasts," Karen Huffman, Manager of Knowledge Initiatives, National Geographic Society (NGS), reviewed Communities of Practice. The National Geographic Web site, *Communities*, at http://ngsednet.org/communities/index.cfm outlines current communities relevant to NGS. SLA has its own CoP for SLA members at http://www.sla.org/content/community/cop.cfm.

Social Bookmarking: http://en.wikipedia.org/wiki/Social_bookmarking **"Social bookmarking** is a Web based service, where shared lists of user-created Internet bookmarks are displayed." These shared lists can be organized and tagged with appropriate subject headings. Web based bookmarks that are created and tagged by librarians can be update with additional, patron-devised, tags. *Del.icio.us*, *simpy*, and *BlogMarks*, are Web sites that support social bookmarking.

The predominant basis for the use of these technologies in libraries is to tap into the new generation of users' penchant for Web interactivity. While libraries using these technologies are not necessarily experiencing a great deal of feedback for their applications, these technologies remain a useful way to easily deliver library instruction and information to their users. Electronic updates using RSS (Really Simple Syndication or Rich Site Summary) technology are often included with these Web 2.0 technologies to provide a way to aggregate forthcoming information on a topic or from a Web site. Various spaces, such as the online bibliographic citation manager, *RefWorks*, and the Web site *Bloglines* accommodate RSS aggregation.

Science and Technology Blogs

For Science and/or Engineering Library Instruction

Jay Bhatt and Joshua Roberts have an engineering library blog, *Englibrary*, that lists new print and electronic resources available from the Drexel University Libraries in the fields of engineering and biomedical engineering with archives back to April 2006. Instructional, news, and informational postings are numerous. A section in the right frame called "categories" includes, at present, 15 categories with postings on such subjects as "Engineering Ethics", Science and Engineering Blogs/Feeds, and Statistical Resources. http://www.library.drexel.edu/blogs/englibrary/. The site links to the newly created *Engineering Library Instruction* blog that currently includes database and library resources search tips:
http://www.library.drexel.edu/blogs/engineeringlibraryinstruction/.
The math and science librarian at Drexel University, Peggy Dominy has news and information blogs for the areas, Physics, Bioscience, Chemistry, and Mathematics:
http://www.library.drexel.edu/blogs/drexelphysics/,
http://www.library.drexel.edu/blogs/drexelbioscience/,
http://www.library.drexel.edu/blogs/drexelchemistry/, and
http://www.library.drexel.edu/blogs/drexelmath/.

Gay Woods at the University of North Texas has a dual-purpose blog, *MSET5000*, that serves as a delivery mechanism for library instruction for a ten week online class, Orientation to Engineering Technology, and as a community blog for the Research Park campus of the university, with postings back to July 2006. Gay uses *WordPress* (http://wordpress.org) for her blog: http://mset5000.library.unt.edu/. *WordPress* allows the blog content to exist on a library server.

Orion Pozo and Hilary Davis at North Carolina State University maintain the *Physical and Engineering Sciences News* blog on which they post the cover picture, title, author, and call number of new books in selected science and engineering fields. Archives are available by month. The right frame on the main screen contains related RSS feeds and a "News & Tips" section for each of five fields. These have tips on database use and features and other information and news, with postings back to July 2005. Orion and Hilary use this blog for ongoing postings and updates as well as for a basic guide and instruction: http://www.lib.ncsu.edu/news/pes. Orion reports that theirs is one of 13 library blogs all using the same software, *b2evolution*, (http://www.lib.ncsu.edu/news/newsblogs.html), thus standardizing the look of North Carolina State University Libraries' blogs! The *Veterinary Medical Library News* blog, http://www.lib.ncsu.edu/news/vetmed, has a "Research Tips and Tools" link.

Kathryn Kennedy at University of Florida has created the blog, *Library Resources for Mechanical Engineering*. At the time of this writing this blog, at http://uflibmecheng.blogspot.com/, is basically a mechanical engineering research guide with an overview of the related Library of Congress call number areas, links to

appropriate databases, basic library links, links to other resources (reference books, Internet links, professional organizations, internships, etc.) and College of Engineering Links. Posts will be added.

Dongmei Cao, Science Reference Librarian at the College of Charleston, authors *From Your Science Librarian's Desk*, more broadly a news and information blog that has a category for library instruction: http://scilibrarian.wordpress.com/about-me-this-blogg. Archives go back to January 2006.

The author of this column has two blogs for library instruction. Each is for a session(s) of a specific engineering class. Blogger is the software used and the postings were made before the class was delivered. These postings can be easily updated using the edit feature of Blogger. The concept of lifelong learning was addressed in library instruction sessions in a sophomore career development class required by the College of Engineering at University of Nebraska-Lincoln: *Engineering Library Blog* at http://unlenglib.blogspot.com/. A separate blog, *Engineering Mechanics*, at http://unlenglibem.blogspot.com/ was used to deliver information relevant to a library instruction session for engineering mechanics graduate students. Basic access to library materials, search techniques, related reference works, copyright and fair use issues, and patent searching were concepts covered. The session also covered a basic overview of an online bibliographic citation manager and its application with various engineering and science databases.

For Librarians' Science/Engineering/Technology News and Information

The *Rowland Institute Library Blog* is maintained by Librarian Garrett Eastman at Harvard Library, with postings back to November 2003: http://blogs.law.harvard.edu/rihlib/.

Confessions of a Science Librarian is maintained by John Dupuis of York University in Canada, with postings back to June 2006: http://jdupuis.blogspot.com/.

Linda Hall Library Weblog contains "news, reviews, and topical postings on science, engineering, and technology from The Linda Hall Library" at http://linda-hall-library.blogspot.com/. Postings are from Scott Curtis et al with archives back to July 2006.

From the Georgia State University Library comes the blog, *Science News*, "The library blog for science faculty and students at Georgia State University." Current postings are from Skye Hardesty and Robert Tomaszewski: http://www.library.gsu.edu/news/index.asp?typeID=56. Postings go back to December 2002. Coverage categories are:

- New Library Services
- New Electronic Journals
- Database Updates

- New Reference Titles
- Notable Internet Resources
- Science "in the News"

Bloglines from Teri Vogel at University of California San Diego is a collection of RSS and other feeds from various science related sources that uses the news aggregator, *Bloglines*. Included are RSS feeds for current journal issues and database alerts for search topics: http://www.bloglines.com/public/tmvogel.

Cathy Outen, subject specialist for the College of Natural Sciences, Mathematics, and the College of Engineering at California State University Long Beach, maintains postings on the blog, *Science Engineering and Math @ the CSULB Library,* with archives back to February 2005: http://www.csulb.edu/~coutten/2005_03_01_archive.html.

For Sci-Tech Librarians

STLQ includes "Occasional postings about issues and concerns of interest (but not limited to) engineering and scitech librarians." Maintained by Randy Reichardt of the University of Alberta, with posting back to March 2003, *STLQ* is available at http://stlq.info/.

Theoretical Librarian "… in general, will include announcements of past, present, and future personal publications and presentations as well as postings on current and emerging technologies and their actual and potential application for enhanced information and library services." This blog is maintained by Gerry McKiernan, science and technology librarian at Iowa State University, with archives back to February 2005: http://theoretical-librarian.blogspot.com/.

Christina's LIS Rant was created by "Christina" who is employed and working on her PhD. Her "main subjects are: math, physics, astronomy, engineering, computer science, etc.", with archives back to February 2004. Her audience is library professionals, her blogging software is *Blogger*, and the set of links to sites she is scanning is powered by *Bloglines*: http://christinaslibraryrant.blogspot.com/.

Brian G. Gray, Engineering, Math, and Statistics librarian at Case Western University produces *Information Overload E-Resources for Engineering Education* at http://blog.case.edu/bcg8/. Brian's blog includes links powered by *del.icio.us* and a map of his library's location powered by *feedmap*. His blog points to another interesting blog about libraries and Web 2.0 technology use, *Blog Without a Library* at http://blogwithoutalibrary.net/, well worth a glance or a social bookmark!

A list of Academic Library blogs, that can be edited by the viewer to add a blog URL is available at http://www.blogwithoutalibrary.net/links/index.php?title=Academic_libraries. Links to some additional sci-tech library blogs can be found at this site. Karen Huffman (NGS)

has a del.icio.us site, http://del.icio.us/khuffman/WikiEngines, that categorizes library related Web sites and Web2.0 application sites.

Science and Technology Wikis

Mech410-550 InfoSources, compiled by Carolyn Anglin at the University of British Columbia contains notes and links for engineering databases and other sources: http://careo.elearning.ubc.ca/cgi-bin/wiki.pl?Mech410-550_InfoSources.

Gary Wiggins, of the Indiana University's School of Informatics, has created *Chembiogrid* "a wiki that provides public access to support the Chemical Informatics and Cyberinfrastructure Collaboratory, an NIH funded project: http://www.chembiogrid.org/wiki/index.php/Main_Page.

Library Instruction Wikis

Not specifically for science and technology, the Oregon *Library Instruction Wiki* at the time of this writing has four categories of content: "Find Library Instruction Resources, Collaborate and Brainstorm, Add content to the wiki, Keep up with changes to the wiki. The latter offers an RSS feed, a recent changes page, and a "watch list" for tracking changes to specified pages only. "Find Library Instruction Resources" at present has six links, one of which is "Handouts, tutorials, and other resources to share". http://instructionwiki.org/Main_Page.

Library Success: A Best Practices Wiki, at http://www.libsuccess.org/index.php?title=Main_Page, is an organized collection of information from all over the world about the library profession and the technology it uses. The "Reference Services and Information Literacy" section links to "Great Online Tutorials," information literacy blogs, and specific blog posts and articles.

CONCLUDING REMARKS

Research for this column uncovered a number of challenges for science and engineering librarians.

1. Collaboration with other libraries in a multi-library system can produce a system of blogs and/or wikis that use the same platform and template. This will provide a similarity of structure and look for these applications.

2. Early collaboration with the parent institution/university can result in library blogs and wikis being included in the set of such applications that will likely be created for the institution/university.

3. Collboration within library organizations can initiate generalized library instruction blogs and wikis that are useful for library instruction by members of

the community. These can be open access or made available only to members of the organization and can reduce duplication of efforts.

4. Library instruction blogs and wikis can be linked from course management software for specific science and engineering classes, and from colleges and departments.

5. As liaison librarians we can help set up communities of practice for our faculty researchers so they can better communicate online, share references, post reports, etc. A way to do this is to instruct them on how to establish limited access wikis and to find appropriate wiki software for this purpose.

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