

Web 2.0: A New Wave of Innovation for Teaching and Learning?

by Bryan Alexander

Bryan Alexander is Director for Research at the National Institute for Technology and Liberal Education (NITTE). Comments on this article can be sent to the author at <bryan.alexander@nitte.org>.

The term is audacious: Web 2.0. It assumes a certain interpretation of Web history, including enough progress in certain directions to trigger a succession. The label casts the reader back to Sir Tim Berners-Lee's unleashing of the World Wide Web concept a little more than a decade ago, then asks: What forms of the Web have developed and become accepted enough that we can conceive of a transition to new ones?

Many people—including, or perhaps especially, supporters—critique the “Web 2.0” moniker for definitional reasons. Few can agree on even the general outlines of Web 2.0. It is about no single new development. Moreover, the term is often applied to a heterogeneous mix of relatively familiar and also very emergent technologies. The former may appear as very much “Web 1.0,” and the latter may be seen as too evanescent to be relied on for serious informatics work. Indeed, one leading exponent of this movement deems continuous improvement to be a hallmark of such projects, which makes pinning down their identities even more difficult.¹ Yet we can survey the ground traversed by Web 2.0 projects and discussions in order to reveal a diverse set of digital strategies with powerful implications for higher education.² Ultimately, the label “Web 2.0” is far less important than the concepts, projects, and practices included in its scope.

Concepts

Social software has emerged as a major component of the Web 2.0 movement. The idea dates as far back as the 1960s and JCR Licklider's thoughts on using networked computing to connect people in order to boost their knowledge and their ability to learn. The Internet technologies of the subsequent generation have been profoundly social, as listservs, Usenet groups, discussion software, groupware, and Web-based communities have linked people around the world. During the past few years, a group of Web projects and services became perceived as especially connective, receiving the rubric of “social software”: blogs, wikis, trackback, podcasting, videoblogs, and enough social networking tools like MySpace and Facebook to give rise to an abbreviation mocking their very



prevalence: YASN (Yet Another Social Network). Consider the differences between these and static or database-driven Web pages. Wikis are all about user modification; CNN's front page is decisively not. It is true that blogs are Web pages, but their reverse-chronological structure implies a different rhetorical purpose than a Web page, which has no inherent timeliness. That altered rhetoric helped shape a different audience, the

blogging public, with its emergent social practices of blogrolling, extensive hyper-linking, and discussion threads attached not to pages but to content chunks within them. Reading and searching this world is significantly different from searching the entire Web world. Still, social software does not indicate a sharp break with the old but, rather, the gradual emergence of a new type of practice.

These sections of the Web break away from the page metaphor. Rather than following the notion of the Web as book, they are predicated on microcontent. Blogs are about posts, not pages. Wikis are streams of conversation, revision, amendment, and truncation. Podcasts are shuttled between Web sites, RSS feeds, and diverse players. These content blocks can be saved, summarized, addressed, copied, quoted, and built into new projects. Browsers respond to this boom in microcontent with bookmarklets in toolbars, letting users fling something from one page into a Web service that yields up another page. AJAX-style pages feed content bits into pages without reloading them, like the frames of old but without such blatant seams. They combine the widely used, open XML standard with Java functions.³ Google Maps is a popular example of this, smoothly drawing directional information and satellite imagery down into a browser.

Like social software, microcontent has been around for a while. Banner ads, for example, are often imported by one site from another directory. Collaboratively designed Web pages sometimes aggregate content created by different teams over a staggered timeline. And if we consider e-mail messages, discussion-board posts,

Notes

1. Tim O'Reilly, “What Is Web 2.0,” September 30, 2005, tim.oreilly.com, <<http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html>>.
2. Stephen O'Hear, “Seconds Out, Round Two,” The Guardian, November 15, 2005, <<http://education.guardian.co.uk/elearning/story/0,10577,1642281,00.html>>.
3. See <<http://en.wikipedia.org/wiki/AJAX>>. See also Janice Fraser, “It's a Whole New Internet,” Adaptive Path, April 21, 2005, <<http://www.adaptivepath.com/publications/essays/archives/000430.php>>.

---continued on page 9

Usenet-hosted images, and text messages to be microcontent, then users have generated this material for decades. But Web 2.0 builds on this original microcontent drive, with users developing Web content, often collaboratively and often open to the world. Moreover, technical innovations suggest still further refinements in microcontent. Arnaud Leene outlines a series of characteristics, including variable licenses, feeds, Web APIs, and single identity.⁴

This openness is crucial to current Web 2.0 discussions. The flow of microcontent between domains, servers, and machines depends on two-way access. Web 2.0 can break on silos but thrive in shared services. Still, silos and shared services are not mutually exclusive. Amazon.com, for instance, lets users harvest ISBN numbers from its listings but does not allow access to a customer's shopping cart. Some wiki platforms allow users to lock down pages from editing or restrict access to authorized users, as does the popular blog service LiveJournal. Yet openness remains a hallmark of this emergent movement, both ideologically and technologically.

Openness and microcontent combine into a larger conceptual strand of Web 2.0, one that sees users as playing more of a foundational role in information architecture. Drawing on the "wisdom of crowds" argument, Web 2.0 services respond more deeply to users than Web 1.0 services. A leading form of this is a controversial new form of metadata, the folksonomy. Whereas traditional metadata is usually hierarchical (topics nested within topics), structured (e.g., the fields within Dublin Core), and predetermined by content authorities, folksonomic metadata consists of words that users generate and attach

to content. A historian photographs the Waterloo battlefield, uploads the result to Flickr or 23, and adds keywords meaningful to her: Napoleon, Wellington, Blucher, 1815. A literature scholar creates similar images but tags them according to his interests: Thackeray, Hugo, Clarke.

Why does this matter, and why do such projects not degenerate into multisubjective chaos? First, users actually use tags. Folksonomic services fill up with tags rapidly enough to make information professionals take notice. Second, Web 2.0 services tend to provide tools for helping users with their folksonomies. Tags can be arranged into concept maps called "tag clouds," which allow revisualization of the way one considers one's work.⁵ The social bookmarking innovator del.icio.us automatically reminds users of previously deployed tags, suggests some tags, and notes tags used by others. Third, people tend to tag socially. That is, they learn from other taggers and respond to other, published groups of tags, or "tagsets."⁶ There are of course limitations to folksonomies, including the difficulty in scaling up tags from several to many users and the problem of quickly grasping contextual shifts between tagsets. But the rapid adoption and growth of folksonomies is noteworthy. Popularly created metadata is a rarity. Yet as of February 2006, tag-centric Flickr hosts 100 million images.⁷

Bryan Alexander, "Web 2.0: A New Wave of Innovation for Teaching and Learning?" *EDUCAUSE Review*, vol. 41, no. 2 (March/April 2006): 32-44. Copyright 2006, Bryan Alexander. Reprinted with permission from the author.



Notes

4. Arnaud Leene, "Web 2.0 Checklist 2.0," MicroContent Musings, July 21, 2005, <http://www.sivas.com/microcontent/musings/blog/web_20_checklist_20/>.
5. For examples, see the following: the BBC "What People Are Saying in England" display, <<http://www.bbc.co.uk/dna/england/TSP/>>; Casey Bisson's library experiment, <<http://www.plymouth.edu/library/prototype/clusteredopac.php?srchtype=X&k=sociology+of+education>>; a Washington Post headline cloud, <<http://www.revsys.com/newscloud/>>; or TagCloud.com's samples, <<http://www.tagcloud.com/index.php>>.
6. Clay Shirky, "Ontology Is Overrated: Categories, Links, and Tags," Clay Shirky's Writings about the Internet, <http://www.shirky.com/writings/ontology_overrated.html>.
7. Noted first by Hans Kullin in his Media Culpa blog, <http://www.kullin.net/arkiv/2006_02_01_mc.html#113999533755894760>.