Contents

From the e-Sphere

Writing in a Multiliterate Flat World, Part II Finding Audiences Through Tagging and Aggregation

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Abstract

This is the second part of a two-part article on how Web 2.0 tools freely available online afford so many opportunities for collaboration among writers in the context of social networking, creating the means for student writers to write purposefully for worldwide audiences. Part I set the stage by placing writing in the context of new views of literacy due in part to revolutionary changes since the turn of the century in how content finds its way to the Internet. It explained how artifacts created with such tools are aggregated and harvested as learning objects with potential to promote and augment communication and collaboration online, and to promote writing by giving students interesting and meaningful ideas to write about, thus significantly changing how the teaching of writing might be re-envisaged in the digital age. Whereas Part I examined the production side of this dynamic, Part II explains how the Internet resolves the marketing side of the role once played by traditional publishing and how writers and audiences can navigate the seemingly chaotic preponderance of content online by tagging their work and using RSS and other aggregation tools to find one another's written work and carry on conversations about it, thus providing truly authentic motivation for their writing.

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Paradigm Shift in Power to Publish in the Era of Web 2.0

Thomas Kuhn coined the term *paradigm shift* (Kuhn, 1962), by which he characterized tectonic shifts in thinking which impact future directions of inquiry – for example, from Newtonian physics to Einsteinian relativity. Another such shift might be that from behaviorist to cognitive views of learning, and then to humanistic, constructivist, and now connectivist views of learning – the gamut of which many digital immigrants (Prensky, 2001) have experienced in their lifetimes. The digital age is causing educators to refer to paradigm shifts when discussing the way we view media, communication, and storage and dissemination of knowledge. The shifts in question refer to moving from past assumptions that information should be guarded and arbitrated, to more modern assumptions that publishing can be the result of genuinely populist impulses, making it possible for individuals to express themselves and reach audiences on an unprecedented scale. One of Kuhn's theses is that there is normally conflict between the old order and new proponents of change until the new order eventually prevails. What we see playing out in our educational institutions of formal learning is debate following this pattern, such as the tone set in Christensen, Johnson, and Horn's (2008) book on "disruptive innovation."

This shift from "read-only" to "read-write" ways of viewing information storage and transfer is having significant impacts on our conception of literacy and, in particular, the primary cohesive element in literacy, writing. One of the greatest impacts of technology brought about by the popularity of Web 2.0 is its subversion of the traditional system of entrenched power over what gets published. Back in the read-only century, publication was not easily earned. Even if you wanted to produce a student newsletter, you would have to lay it out, take it to a publisher, and pay to have it rendered into print. Toward the end of that century, if you wanted to put such a newsletter online yourself, you had to know some HTML, you had to arrange for your own Web hosting, and you often had to pay for that as well. Most people's bandwidth limitations at that time, coupled with the limited amount of space made available by service providers, seriously constrained the use of any large media files, so what did get published online tended to be plain (albeit hyperlinked) text.

This system of entrenched control over media had a narrowing effect on what got published, which tended to depend on what publishers were willing to risk in their business. There are many whose voices were previously ignored by traditional publishers in what Anderson (2004) called the "long tail": the many who deal in niche areas where there is a need for expertise but little profit because that niche is too specialized to attract many with monetary or other forms of power. The traditional publishing

world could not cater effectively to many of these interests; and, whereas we may all share common interests in many central issues of our field or culture, most of us also inhabit niche areas where previously our voices and those of others who shared these niche interests were not being heard, if indeed we were able to find one another at all.

New Age Tools for Writing

Successfully navigating the quicksands of shifting paradigms to engage in, and teach, writing in the read-write century requires a set of tools only just becoming familiar to the wider spectrum of educators (see Glazowski, 2008, for an annotated list of 35 such tools). Although such tools are only recently emerging, they are crucial to managing projects in which networks of collaborators keep current with one another by exploiting features in Web 2.0, such as aggregation on tags and RSS. Many students and teaching professionals are familiar with such systems through social networking sites like Facebook, MySpace, and Ning; but the principles employed can also apply to management of information flow in a classroom, for tracking and giving feedback on ongoing work and submission of final assignments, in a professional development group, or in any community of practice or collaboration project, including ones in which the purpose is to connect writers in order to enhance chances for meaningful feedback.

The main thing that people have to manage in order for the system to function is the "pipe," i.e. the means of locating relevant content in the form of blogs or document repositories that they want to follow ("more important than the content within the pipe," according to Siemens, 2004) and the means of "pulling" in the most relevant feeds. Many educators use Google Reader (http://reader.google.com) to pull in content from blogs they already know about, but given the chaotic nature of content creation on the Web, there are obvious hurdles for those who want to discover what they need to know in order to realize the transformative power of the read-write Web. With this in mind, I now examine some important tools relevant to 21st century skill sets.

Tags and Folksonomies

Fortunately, tools exist for ferreting out information on the blogosphere. Some searches will succeed through normal search engines, but it is sometimes more appropriate to use Google Blogs (http://blogsearch. google.com) or Technorati (http://technorati.com) to search blogs. There are other specialized services such as Blogsearch (http://www.blog-search. com) which lets you (in theory, according to the Web site) "search for a

blog, add your own blog, or grab an RSS feed on the blog topic of your choice." There are also newsmastering services that allow sophisticated filtering of data via RSS feeds (Good, 2004).

Having an RSS feed of the results of a specified topic is useful in that it keeps feeding results of constant updates on topic searches to your aggregator. In addition, if you want to construct your own specialized search and feed the results of that search via its own RSS link into your aggregator, where you can monitor it at your leisure, this is also possible using RSS blocks available in sites such as iGoogle (http://www.google.com/ig), Pageflakes (http://pageflakes.com), Netvibes (http://netvibes.com), Protopage (http://protopage.com/), Yahoo Pipes (http://pipes.yahoo.com/pipes/).

Some searches operate at the level of text found in blog postings themselves, but there is a deeper layer, a meta-layer, of information that blog posts can, and should always, contain. These are called most generically *tags*, but they also might be known as *labels* or *categories* in different Web 2.0 applications. Tags are simple in concept though the implications can elude the uninitiated. Taken together, tags comprise an organization system known as *folksonomy*, i.e. a personal (or "folksy") system of classification created on the fly by users of that system.

A folksonomy is to blogs, wikis, and other tagged artifacts created as Web 2.0 learning objects as the Dewey Decimal System is to the Library of Congress. The latter is a *taxonomy*, a hierarchical organization imposed top-down in client-server fashion to enable us to categorize a set of related objects. The Dewey Decimal system, for example, was created top-down as a means by which books on all topics should be classified according to a classification system originally conceived 100 years ago.

An online bookstore, on the other hand, might allow searches on tags, which are words that readers of those books have registered with the site. Tags are created *ad hoc* by users of information dissemination networks in peer-to-peer relationship to one another. Over time and after many users have registered their tags, a classification system evolves in which the tags suggested most often become the most useful and productive categories. In the case of the Dewey Decimal System, all books are forced to fit pre-existing categories. In a folksonomic system, users create and apply the categories as they use the system, and patterns emerge and change constantly.

There is much written on folksonomies (e.g. Guy and Tonkin, 2006) describing the relative merits of the top-down client-server (precise, predictable, yet inflexible) modes of classification vs. bottom-up, peer-to-peer (sloppy, unpredictable, yet creatively comprehensive and adaptable). Weinberger (2007), for example, shows how "messiness" can be a virtue when classification systems record metadata and allow searches to be carried

out flexibly on parameters not anticipated by the developers of the scheme. Tagging is how users register their intuitions about how a system should be organized.

According to Weinberger (2007), a taxonomy is organized in a tree structure; so if you have a leaf with certain characteristics, you can place it properly on any branch according to characteristics set forth in your taxonomy. If someone wants to retrieve a leaf, they follow the hierarchy out to the branch where similar leaves are stored, and the particular leaf can be found in its place. This works well in situations where standards are established and people follow the same system in placing leaves on branches. The Internet, however, is anything but such a system. The Internet is a place where every user has the power to create his or her own filing system; but chaos is averted when users tag the leaves with descriptors they feel are appropriate (and as it turns out, their intuitions often coincide). Lacking orderly trees, the Internet is like autumn, and the leaves are all over the ground. Fortunately, the leaves that have been tagged can be retrieved.

In practice, and despite the obvious drawbacks such as misspellings and lack of standardization in tags, the system works well. It turns out that users tend to tag objects helpfully, in ways that will enable them to retrieve those objects themselves. This assists like-minded users in finding the same objects; and with millions of users providing tags, tag-based retrieval systems can be robust and are sometimes the best option for finding the desired leaves that have been stored in computers and placed wherever on the Internet.

This system is not perfect. However, it can be gamed to our advantage for education. The following experiment is one of those in my recent presentations on Tag Games (http://braz2010vance.pbworks.com/TagGames). A group of users gets together (from anywhere on the Internet), and they go to *Flickr* and tag a few photos with the same tag. The group makes it one that no one else is likely to use (e.g. *groupname-datetoday*). Now everyone goes to Taggalaxy (http://taggalaxy.com) and keys in that tag. Taggalaxy searches Flickr for photos with the tags specified and places these photos on the surface of a globe which can be rotated by moving the mouse over it. In this experiment, the photos that group members have *just* tagged will fly onto the globe. This game will work in a matter of minutes, and so it can quickly illustrate the power of tagging and one way the concept can be manipulated.

Other websites for getting at information distributed over the Internet and classified by means of tags include (besidesTechnorati), Diigo (http://diigo.com), and Delicious (http://delicious). Whereas all three base their power on tagging, Technorati scans the blogosphere for tags which appear in blog postings and which were put there by the person who created the
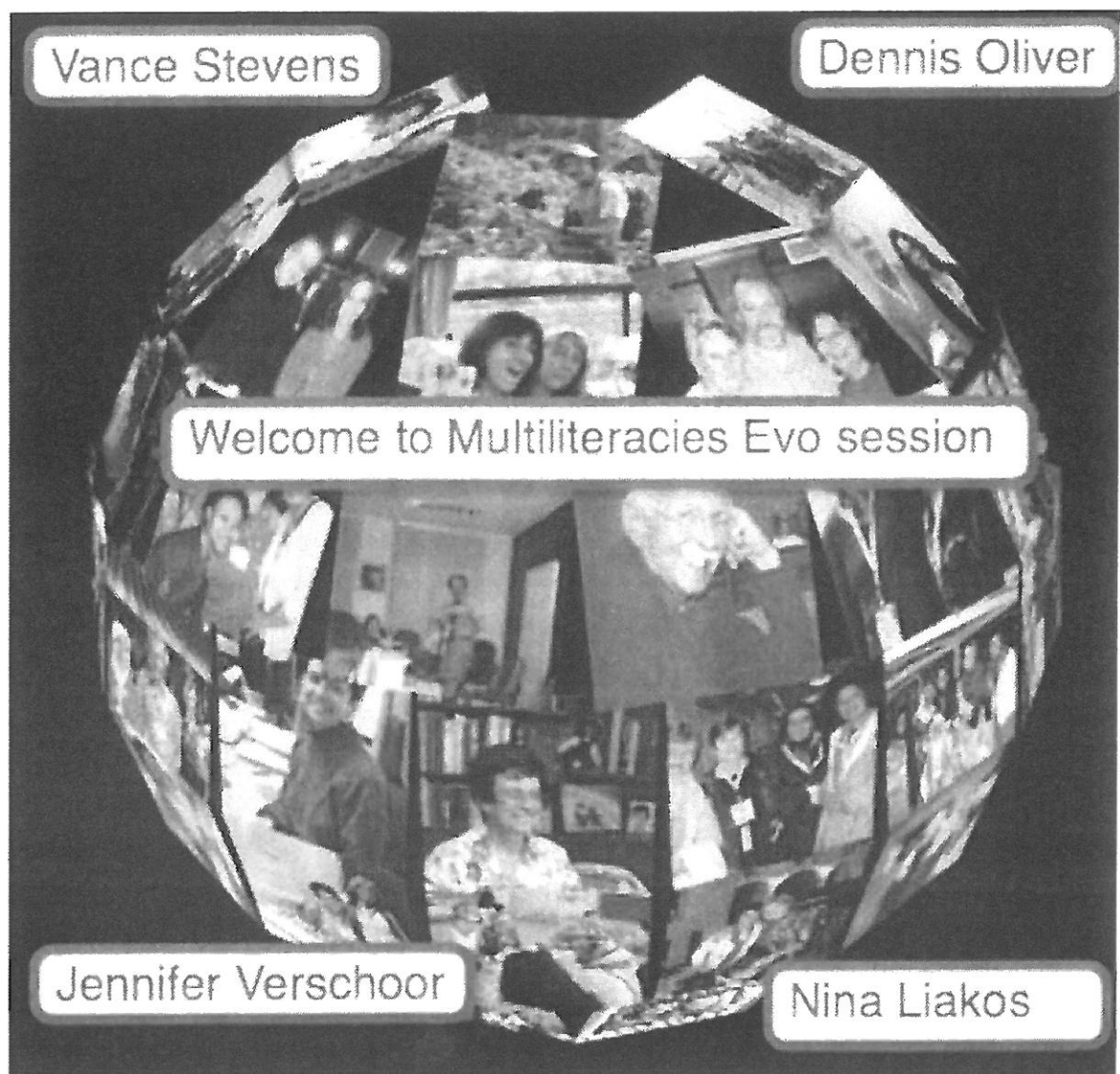
Figure 1. Logo for EVO Multiliteracies Session
(http://goodbyegutenberg.pbworks.com/frontpage2010evo)
Made from Taggalaxy aggregation of Flickr photos tagged *evomlit*.

post. Diigo and Delicious, on the other hand, allow users of blog posts and all other Web artifacts which have their own URL to be classified according to the intuitions, whims, and best judgments of the users of those artifacts.

Tagging is the key to collaboration for many purposes over the Internet, including that of bringing students together in writing projects. One innovative project that explores this concept of student collaboration on the Internet is known as Writingmatrix (http://writingmatrix.wikispaces.com). A group of four teachers (myself included) engaged their students in writing using blogs, and had the students tag their postings and other Web artifacts (YouTube videos and Flickr photos) with the term *writingmatrix*. We then set about tutoring each other and the students on how to use

tagging and RSS to aggregate each other's blog posts using Web tools that search the Internet for tagged objects (Stevens, Quintana, Zeinstejer, Sirk, Molero, and Arena, 2008).

Any tag can be used in such projects; the stipulation is only that it should be unique, not used by anyone else online. If student writers in different parts of the world are writing in blogs and want other students to find their postings and read and comment on them, they can tag their posts with a tag such as *writingmatrix* that other student writers have been alerted to search for. These other student writers will of course be tagging their postings the same way in hopes of their being found and responded to by other students whose teachers have told them about the project.

Barbara Dieu also applies aggregation techniques in her Dekita Project (http://www.dekita.org). For example, the student blog postings displayed at http://www.dekita.org/orchard are constantly updated through aggregation of blog RSS feeds; see Dieu and Stevens, 2007).

The next section examines the tools mentioned above in more detail.

Technorati and Other Tag Aggregators

Technorati is the (self-proclaimed) world's foremost authority on blogs. It constantly trolls the blogosphere and gathers statistics from all the blogs it knows about. This is a crucial point to keep in mind (that Technorati can *only* search blogs it knows about). Blogs come and go all the time, especially blogs created by student writers, so it's worth taking a moment to try and understand how Technorati can possibly know a blog exists.

Technorati knows about blogs that it can ping, or that ping Technorati. Ping means that one server sends token data to another, which acknowledges receipt, thus verifying the existence of that server. In order for your blog (or your students' blogs) to be found by Technorati, either you have to have your blog ping Technorati manually, or you have to be using a blogging server that will ping Technorati automatically when you or your students create your blog. If you use such a system, there may be a further step. Your blog must be made "public" on that system in order for your blog host to know that it has your permission to ping and respond to pings to your blog from Technorati. Sometimes it also helps if you register (or "claim") your blogs with Technorati, as a further means of helping Technorati find your students' blogs.

There is yet another consideration that's important to students using Technorati. Consider why most people would use Technorati. Most users will be looking for information on a topic in an unregulated blogosphere, and reliability of that information is an issue. So Technorati can filter blog postings according to "authority." That is, if you are researching all blog

postings tagged Twitter, you might prefer that first time bloggers are not included in your search. By default, Technorati filters out postings that have little or no authority, meaning that the blogger is not linked to by others, so his or her postings have so far gained no perceptible credence.

If you are looking for postings tagged *writingmatrix* because that is what your students looking for one another are using as a tag for their posts, and since these are likely to be first-time bloggers, their postings will have no authority, and are by default filtered from your searches. This is not a problem if you simply use the advanced search mode to tell Technorati that you wish to search for postings with any authority. This is easily done, but if you and your students are not aware of this consideration, then search results on tags that other students are using are likely to be frustratingly nil, until they request to include postings with no authority.

If all is in order, then Technorati might find your students' blog posts based either on text strings that appear in the blog postings themselves (Technorati's default search mode) or on the tags your students have used (an option in advanced search mode). On the page with the list of all postings with that tag you can find a button that allows you to subscribe via RSS to updates to search results. When you copy its link location to your feed aggregator, you can monitor postings with that tag as they are harvested by Technorati.

Technorati is constantly evolving in the way it functions as it adjusts itself to its perceived "market" (e.g. it no longer aggregates content older than 30 days). One hopes for something like it specifically dedicated to education, but when Technorati succeeds in finding posts tagged a certain way, this can be a powerful way of collaborating with students and colleagues from around the world, who don't even need to be aware of each other's existence in order to harvest each other's postings.

Such systems are more and more commonly used these days to aggregate blog postings at online and blended international conferences. Participants in these conferences are asked in advance to tag consistently with one another. Conferences and events organized by George Siemens were among the first to use this technique; for example, the Future of Education conference aggregated content associated with its tag *FOE2007* at Technorati, and a Pageflakes portal was also created at http://www.pageflakes.com/ltc/10987119 (the Pageflakes site still exists but its feeds have mostly lapsed).

Services like Pageflakes, Protopage, iGoogle, and NetVibes allow users to create Web pages that are dynamically updated on content harvested from RSS feeds. Pageflakes, for example, can build a page from a menu of *widgets* (programmable objects that users activate by keying in data to be the target of the object), any one of which displays content from the

specified feed in a box (or "flake"). Several boxes arrayed on a page, each updated as new content is pulled in from that feed, constitute a "page" containing many flakes. As an example, see http://www.pageflakes.com/vancestevens/13487192 for a portal showing content aggregated on *writingmatrix*.

Two other sites that act similarly are Addictomatic (http://addictomatic.com) and Spezify (http://spezify.com). These display results from a variety of searches over which the user has no control; that is, they operate from a predetermined set of aggregators. Such a display can be insightful if you want to conduct quick Web searches on new topics, or if you want to learn how such searches work. For example, the feeds used in Addictomatic are representative and instructive. Spezify works in a less transparent way but can produce an attractive collage of search results on productive tags. The results with Spezify and Addictomatic are not always on topic, but those results are obtained in seconds, whereas a Pageflakes or a NetVibes page takes some time to build. If you want to conduct controlled metasearches, you need to identify those that produce feeds reliably on your topic and build just those into a newsreader like Pageflakes or NetVibes.
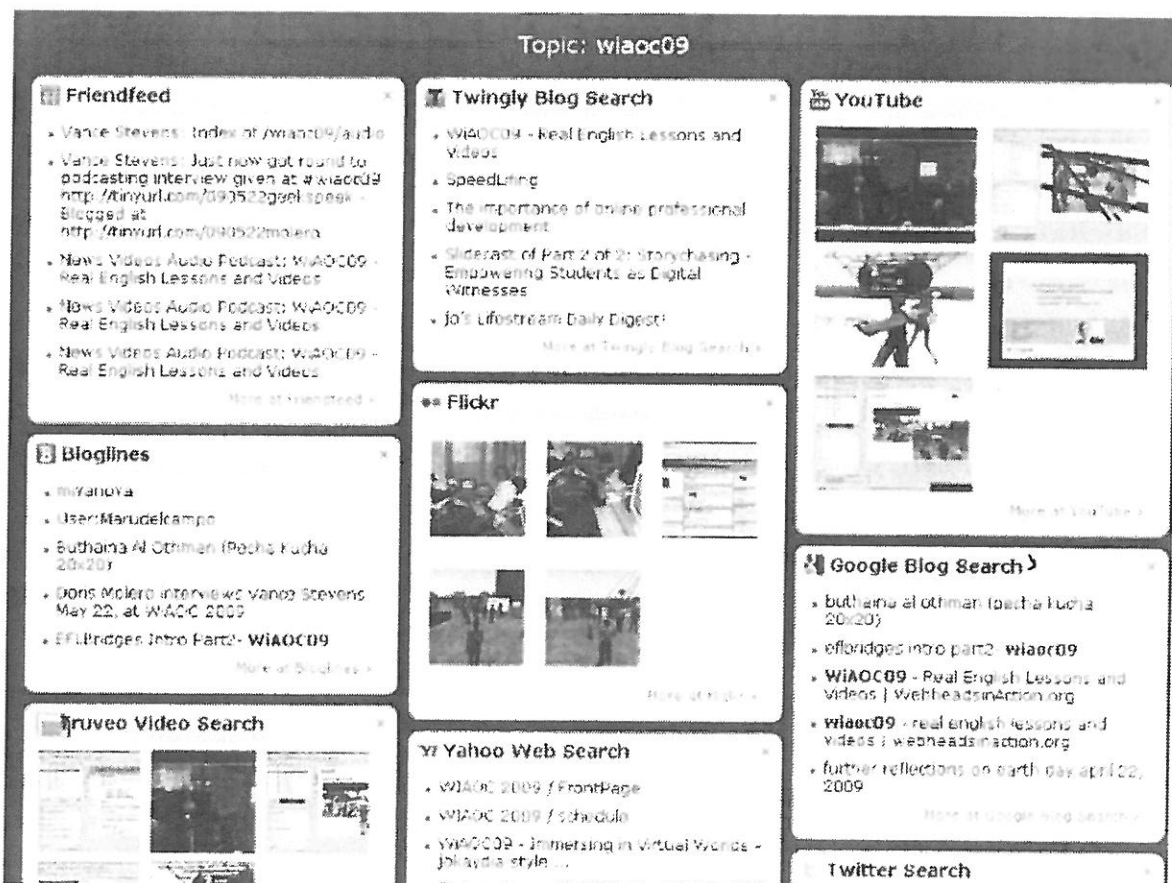

Figure 2. Screen Shot of *Addictomatic* Portal
Created from content aggregated on *WIAOC09*.

Social Bookmarking

Delicious and Diigo have become highly popular social bookmarking sites. However, in order to use them, one must understand the concept of tags as well as the concept of social bookmarking, as opposed to the isolated kind of bookmarking most of us have used since our first encounter with browsers.

Traditionally, a bookmark was a copy of a URL stored with your personal profile information on the local computer. Since it's stored only on that computer, it is not available to you if you move to a different computer. Delicious and Diigo store your bookmarks on the Internet, in the cloud, where they are available to you no matter where you are in the world as long as you can access your Delicious or Diigo account.

The similarity to traditional bookmarking ends there. Delicious and Diigo also let you apply your own folksonomy to your bookmarks by tagging them. Delicious has a helpful way of recalling tags that have been used before. If I want to tag a site I've just bookmarked "CALL," as soon as I type "C", all of my bookmarks beginning with C present themselves (and when I type "A" the list narrows to tags beginning with "ca," etc. I don't have to type out these tags each time; I simply select from my list. Each listing can contain a description or annotation of the site tagged, and if I highlight a section of text in the site, the highlighted text is (sometimes) pasted into the description box. If I want to go back later and add or edit tags or descriptions, I can do that as well.

Bookmarks can be kept private, but one of the great affordances of Delicious and Diigo is being able to share your bookmarks and see sites that others have tagged with the same tags you are interested in (Delicious is "opt in" – in order to share bookmarks, you have to go to your settings and grant the appropriate RSS Feeds Rights/License). Because others share their bookmarks, not only can I see the sites I've tagged recently, but I can also see how each site was tagged by others on the network. I can see their user names, the tag we use in common, and other tags which these users have used. By browsing the folksonomies of others, students can expand their conception of the topics they are researching. They can find other people interested in the same topics, and they can see what other sites those other researchers have visited on the Internet.

It's especially motivating to a student (or any) writer if the site tagged is one's own (e.g. one's own blog posting). In other words, when writers tag their own posts, they can later see who else has visited that URL with enough interest to have made the effort to tag it as one of their bookmarks. This might happen if one of the tags used is one that other students around the world are searching on – as with *writingmatrix*, for example. In this

way, students in different parts of the world, who otherwise would not be aware of each other's existence, can find one another and discover their shared interests through an appreciation of each other's writing.

Tagging allows writers to sift through and find each other's postings in an otherwise seemingly chaotic docuverse. This is one way to know that one's writing is being read, and to gauge the interest shown in it. Blogs also allow comments to be made by readers. Comments from unexpected sources can be very motivating. I recently introduced a group of high school students in the United Arab Emirates (UAE) to blogging. As their writing skills in English were minimal, they were somewhat resistant until one of them mentioned his marble collection in one of his posts. When he received a comment from a teacher in the United States who was planning to come to work in the UAE, and who responded that he was pleased to see that the pastimes of the youths he would be working with were not as foreign from his own as he had imagined, the attitude in my class toward blogging and writing for real audiences changed abruptly.

Grosseck (2010) has shared a useful tutorial on "Using *Delicious* in Education." Many educators port their Delicious bookmarks into Diigo, which expands the social bookmarking concept to include the ability to annotate bookmarks with highlights and sticky notes which other users can see online, to project slide shows of a set of sites browsed, and (with enhanced ability) to form groups and thus work within social networks of like-minded users.

What All This Means for Teachers and Students

David Warlick describes how students, teachers, parents, and administrators might interact using RSS as their common thread in generating ideas for and understanding more about what goes on in a typical 21st century classroom (Warlick, 2006). Warlick's article gives real and easily visualized examples of how Web 2.0 tools can be used in teaching and learning. Kim Cofino has posted a list of resources addressing "why blogging (along with other Web 2.0 tools) is so powerful for our students," but she correctly takes it back a notch to point out that "the bigger issues to address are:

- How do we believe students learn?
- What role does engagement, motivation and real-world application play in student learning?
- What are the skills required for the 21st century?
- How do we, as a school, ensure that our students are experiencing and understanding learning in a 21st century environment?" (Cofino, 2010)

Bringing it down to the level of students in your classroom, one can listen to the podcasts on the Worldbridges Network of Teachers Teaching Teachers (http://teachersteachingteachers.org) talking about Youth Voices (http://youthvoices.net/) and about teaching blogging (Ettenheim, 2007b) and some of the quite remarkable outcomes from student bloggers whose writing has taken on a sort of cult quality and who have found audiences which neither they nor their teachers could have imagined. Consider, for example, what Chris Sloan's 9th grade student Parker has to say about her experiences blogging: "Blogging is a whole new experience for me, and i don't know if that's why i like it so much or if it's just because i have a place to jot my thoughts down so they don't bottle up inside. And on a blog, the work is there for people to read, and i like comments on my work–it makes me a better and stronger writer; i learn what i need to keep or change in my pieces" (Ettenheim, 2007a). Youth Voices organizer Paul Allison has also posted inspiring videos of students talking about their blogging as they work in class (Allison, 2008).

It's those personal stories, and the sheer number of them, that best explain the impact of blogging and of Web 2.0 on learning; for example, how Gladys Baya's student Alejandra's posts on ethics were discovered in her blog and selected for genuine publication (Baya, 2009). Baya's students were in college studying to be EFL teachers, but positive results from blogging pertain to all grade levels. Davis and McGrail (2009) report similar stories focusing on their 5th grade students Anni and Eddie, whose writings were noticed and responded to. As they put it, "The joy of learning surfaces as students exclaim, 'I have five comments!' 'I heard from someone in New Zealand.' 'I got my third comment from Lani.' 'I heard from a teacher in Canada.' 'I can't believe a high school student likes my writing'" (Davis and McGrail, 2009: 74).

Conclusion

This discussion has characterized some aspects of the paradigm shift in thinking that educators need to be considering in order to transition to teaching multiliteracies skills in an era of read-write Web 2.0. In helping learners to develop skills as complex as writing, it is most useful to think of teaching in terms of facilitation. Facilitation is itself a highly complex skill in which the teacher must first be familiar with a wide range of tools and then model their use in creating the most conducive environment possible for learners. This will be an environment in which learning objects are constantly created using the tools that appear in that environment. Therefore, a good facilitator of writing must network with peers in order to

be aware of the latest and most useful tools available and how to use them in ways that enhance the writing process.

In his mini-course on network and social network literacy, Howard Rheingold says, "I've become convinced that understanding how networks work is one of the most important literacies of the 21st century" (transcribed from the video; Rheingold, 2009). The tagging and collaboration techniques discussed here model heuristics that can help students establish personal learning networks to develop their writing and associated multiliteracies through interaction with others in a network. These heuristics can help educators and their students manage and adapt to rapidly changing information-rich environments, using tools which all can apply, once they are aware of how they work, in developing skills in the process of writing.

In real terms, this means that writers need never again write in isolation. This is a very exciting prospect, and one which many digital immigrants whose output was often never viewed outside the schoolhouse are sometimes at pains to appreciate. The opportunities for audience and feedback have positive impacts on motivation, meaning, and clarity in student writing. Teachers who have their students blog and collaborate with other students from anywhere in the world often report remarkable improvements in attitudes toward writing, where writers enjoy their work and develop it seriously. Equally important is the development of lifelong habits in learning and collaboration that can be developed when people are able to have modeled to them productive ways of handling workflow using some of the Internet tools and concepts discussed here.

The models for students are of course their teachers, but more commonly their peers as well. In order to encourage networked learning in their students, teachers must take it upon themselves to learn to use these tools by seeking out their own models and mentors. They can best find these in personal learning networks and communities of practice, and in nurturing their own strategies for professional development by connecting with knowledgeable peers in personal learning environments. As Stephen Downes has said, to teach is to model and demonstrate, to learn is to practice and reflect (Downes, 2007). Lifelong learners should be doing all of these things, as a teacher is in large part a role model with skill and experience in learning. Sometimes the best way to learn is to teach. Teachers can connect in networks in such a way that they model for one another, and then continue to learn by modeling what they have learned about working together and writing online for their students.

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