Essential Learning with Digital Tools, the Internet and Web 2.0

Note: The following is an excerpt from: **Reinventing Project-Based Learning: Your Field Guide to Real-World Projects in the Digital Age**, *available from ISTE Publications January 2008.*

Essential Learning Functions

Having the functional ability to *make things visible and discussable* or to *foster collaboration* will always be important, even as the tools that let you do these things change. Unlike the tools themselves, such *essential learning functions* are stable. Once you identify a function you need, sort through a growing array of tools and select the ones that deliver that function best for your context.

In this Appendix, examine the *essential learning functions* of digital tools that are useful for any instruction and especially interdisciplinary and project-based learning. Each *essential learning function* is described, followed by a list of specific tools that deliver that function. The rapidly shifting technology landscape requires that this resource be updated frequently. You can find the latest version of this Appendix on the authors' blog.

1. Ubiquity
Learning inside and outside the classroom and all the time

Imagine what you and your students could do if you had the opportunity to learn anytime and anywhere. While "ubiquity" is not a learning function per se, it is an overarching and desirable quality of tools that support project learning. Anytime-anywhere access to information, web-based productivity tools and multiple communications options are especially suited to project-based learning. When a project breaks through the space and time of school into the larger world, ubiquity becomes something of real value. From handheld devices to Web-based applications, look for tools that help students learn wherever they are, whenever they want, and more frequently, with whomever they want.

Portable computing devices. Basic laptop and handheld computers let learners tap into their studies and work with others from anywhere. A laptop is a laptop but what is a "handheld computer?" Portable digital gadgetry is expanding quickly and a "handheld" computer is not just a miniature computer anymore. Mobile phones, gps, cameras, mp3 players, wireless capability are combining with small computers into new devices that make switching from one learning function to another easy. And adding peripherals expands their functionality. Some ideas: Attach a digital recorder to a device with an mp3 (audio) player and conduct "man on the street" interviews or capture soundscapes from nature. Attach probeware to a portable computing device and collect field data to send by email. Send photos or video from a phone directly to a blog to report on an event as it unfolds. *Idea: With your students, make an "asset map" of your portable devices and imagine ways to put them to work.*
Learn More: Read technology reviews from Engadget, TechCrunch and the other sites listed above to keep up with new technologies. Set up a news reader and track reviews from these sites and and follow tech mavens like New York Times' David Pogue:
feed://pogue.blogs.nytimes.com/rss2.xml.

Mobile phones. Mobile phones are turning into multifunctional gadgets like those above, but even as "just a phone" they offer useful learning functions. Most of today's phones let you talk, photograph, do text messaging, and browse the internet from most anywhere. *Idea: Use increasingly more powerful speakers in mobile phones to turn one-to-one calls into conference calls when your class calls half way around the world.*

Wireless Internet. "WiFi" and "WiMax" technologies allow users link their portable computing devices to the Internet at little or no expense. Many public libraries supply free internet service and San Francisco, Caracas, Stuttgart, London, Xi'an, Paris and Singapore are just a few cities that have created wireless hotspot networks or "clouds" for ready access. *Idea: Think about class or team trips ahead. How might ready internet access be useful for real-time interactions – sending and receiving data, reporting "from the field" and more?*

Web-based mail and instant messaging. Web-based mail allows email access from any networked computer, freeing users from their desktop mail programs. Many young people use Web mail services exclusively, and associate their email accounts with instant messaging services. Yahoo! Mail, MSN Hotmail, and Gmail are three Web email services students subscribe to frequently in the U.S. Your students (especially older one) likely have Web email accounts. Schools using learning management systems can supply restricted email services for their students. Something else to consider –Many Web 2.0 services, including personalized Web pages (Netvibes, Protopages) require authentication, and that usually means accounts are associated with email addresses.
Idea: With talk with your teaching colleagues and technology specialist about school policies around email. Weigh the benefits of using email communication with other options like blogs and wikis. You may decide to create team email accounts for small groups to share in order to consult with experts and register for Web 2.0 applications or personalized Web pages.

Portable productivity. Learners need no longer rely on access to the computers at home or school in order to create, transfer, store and share digital information. Two options that make productivity more portable for anywhere-anytime learning include tiny storage devices and Web "office" software.
First, USB "thumb" drives, small digital storage devices, are an inexpensive tool for storing and sharing files. Every class should keep a few on hand for easy file swapping.

Second, proliferating Web-based applications (drawing, writing, spreadsheet and even presentation software) allow students to create, collaborate, store and access digital work products from any internet-ready computer. Google IG and Zoho Virtual Office are two of many Web services that provide an applications "suite". One day "I forgot it at home" won't mean a thing when students can pluck their schoolwork down from the Web where they created and stored it.
Idea: Set up a collaborative document in Google or Zoho and see how you and a remote partner can work on it at the same time. Imagine ways to use the applications with students and their collaborators.

2. Deep learning

Most Web sites students go to for information either explain or report (and now with blogs, opine). Go beyond "filtered" information where meaning is made by others and help students find and make sense of "raw" information on the Web. Primary sources (i.e., digitized versions of historical documents) and rich databases (i.e., real-time data) are becoming more accessible all the time. Higher-order thinking is engaged when students have to navigate and sort, organize, analyze, and make graphical representations in order to learn and express learning. And as information piles higher and higher, tools such as spreadsheets and relational databases can help students grapple with what they find.
Here is an assortment of primary source repositories and archival collections:
- American Memories Project – The US Library of Congress collection has documents, images, film and more. http://memory.loc.gov/ammem/index.html
- America's Story – The US Library of Congress repository for younger learners. www.americasstory.com/cgi-bin/page.cgi

- The British Museum's Learning Art & Images– Use the magnifier tool! http://www.bl.uk/learning/artimages/index.html
- The Library of Congress – Directory of Primary and Secondary Sources http://memory.loc.gov/learn/start/inres/world/primary.html
- The National Archives, Educators and Students - Guides students as they conduct research using primary sources. www.archives.gov/education/index.html
- Repositories of Primary Sources – Managed by the University of Idaho, US. www.uidaho.edu/special-collections/Other.Repositories.html
- World Fact Book - www.cia.gov/cia/publications/factbook

Mining real-time data is possible in the "everything is information" age. The Center for Innovation in Engineering and Science Education (CIESE) compiled over 100 real-time data sources at www.k12science.org/realtimedatasites.html. Here are a few to help you imagine the possibilities:

- Radio Meteors - Listen and track meteors as they enter the earth's atmosphere
- Oceanweather.inc – Collect real-time weather data from ships and buoys
- Morbitity and Mortality Weekly Report – Use up-to-the-minute data to chart health trends
- WhaleNet Active Satellite Tags – Use satellite monitoring data to track whale migration

Other real-time data sets are available from these sources:

- Worldometers – Tickers continuously update world population data, carbon emissions, hunger, deforestation, and more. www.worldometers.info
- United States Geologic Survey – Real time data on water and earthquakes with geospatial databases. www.usgs.gov
- Numbers in Search of a Problem from SCORE Mathematics - Study sports statistics, stock quotes, lending rates, and more http://score.kings.k12.ca.us/junkdrawer.html

Students can contribute to data sets, too:

- Global Grocery List Project - Students around the world share local grocery prices to build a growing table of data. http://landmark-project.com/ggl

Learners can interpret and make visual displays of the data they mine or collect with Web-based tools such as spreadsheets, relational databases and chart and graph creators.

- Google Spreadsheets – This Web-based application allows users to upload or create spreadsheets and share, manage, and manipulate data online. http://docs.google.com. Zoho Virtual Office and other web-based productivity suites offer spreadsheets too.
- Database tools to manage, share and explore data:
  - Dabble DB –www.dabbledb.com
  - Lazybase – http://lazybase.com
  - ZohoCreator – http://creator.zoho.com
- Create-a-Graph - Web-based graph creator at Kid Zone, National Center for Education Statistics. http://nces.ed.gov/nceskids/createagraph

3. Making things visible and discuss-able

There are many good reasons to "make things visible" with digital tools: showing rather than telling, conceptualizing with "mind" maps, seeing things too big or too small or too fast or too slow for the naked eye, examining history through digital artifacts, expressing ideas through photography and multimedia, and conceptualizing with graphical representations, modeling, animation and digital art. A picture is worth a thousand words, and making thoughts and ideas visible and *sharable* is the first step in getting the conversation going.

Maps and more.

Take in a world view. Google Earth makes the world visible and understandable in too many ways to mention. The best way to understand Google Earth is to experience it. "Fly" from your house to Paris. Examine placemarks along the "Silk Road". See how communities of users share location-specific information with photos and data feeds. Read the Chapter 2 Spotlight about Google Lit Trips (www.googlelittrips.org) for inspiration.
Idea: Learn how Google Earth "mashups" combine the power of Google Earth with real-time information services. Visit Google for Educators: www.google.com/educators/p_earth.html.

Where are we? Web based mapping services tap into huge databases to supply precise maps, directions, and landmark tags or "placemarks". Improve students' spatial relations and knowledge of geography using interactive maps.
Yahoo! Maps: http://maps.yahoo.com
MapQuest: www.mapquest.com
Google Maps: http://maps.google.com
Idea: Learn how "mashups" combine the power of maps with real-time information services. Some mashups to get you started:
- *Incoming 911 emergency calls in Seattle displayed on a continually refreshing Google map: www.public911.com/911/seattle*
- *Synchronized Yahoo map and timeline about the life and legacy of Shakespeare: www.kennedy-center.org/explorer/shakespeare*
Idea: Follow the UK blog Digital Geography which tracks uses of new technologies to learn about everything from tectonics to windfarms: www.digitalgeography.co.uk.

Words into visual arrays. The Visual Thesaurus is an interactive dictionary and thesaurus with an innovative display that encourages exploration, learning and word play. Relational word "webs" capture the nuances of language in ways regular reference books cannot. After five free lookups the Visual Thesaurus requires a subscription at a nominal fee.
Idea: As you play with the Visual Thesaurus, imagine the power of projecting these interactive webs whenever your class wonders about a word. See how a simple inquiry turns into a rich and wonderful exploration. http://www.visualthesaurus.com.

Web cams. As the story goes, the first Web camera was trained on a coffee pot, saving the innovator who thought this up the trouble of traveling down several flights of stairs to the staff room only to find an empty pot. Use Web cams to view extreme weather, the panorama from the Eiffel Tower, and many zoo exhibits. The site EarthCam tracks thousands of Webcams. Stay within their Education domain to avoid quenstionable content:
http://search.earthcam.com/search/adv_search.php?cat[]=EDU
Idea: Imagine the possibilities for using Web cam imagery as you read about UK extreme geographer Tony Cassidy's Web Cam Wall. Cassidy flows multiple camera feeds into a single PowerPoint slide for a captivating effect.
http://pilotgcseradicalgeography.co.uk/2007/04/02/web-cam-wall.

Mind mapping. Move beyond classic desktop mind mapping software and try Web based applications that allow simultaneous contributions by remote users. Here are a few to try.
- Mindomo: www.mindomo.com
- Bubbl.us: www.bubbl.us
- Acorn: www.managemyideas.com
- Kayuda: www.kayuda.com
- MindMeister: www.mindmeister.com

Photographs online. Flickr www.flick.com and Picasa http://picasa.google.com are two photosharing Web services that are easy and fun to use. Picasa syncs up nicely with a Google Personalized Homepage and is adding community features all the time. Flickr (which along with del.icio.us put the social "folksonomy" concept on the map) has tagging and sorting functions that encourage collaboration and build community among like-minded users. Many images on Flickr are submitted to the "creative commons" and can be used royalty-free. Search for photographs you can teach with ("diorama" returns 7,302 images), and post students' photographs into collections to share with others. Consider adding a Flickr feed to illustrate your class blog. See how Meriwether Lewis Elementary School in Portland, Oregon uses a Flickr feed to show fresh photos on the school's site: http://lewiselementary.org.
Idea: Join a Flickr group such as "Classroom Displays" to see how collaboration happens with this medium. Browse the photos and meet group members who are interested in what we show in our classrooms. www.flickr.com/groups/classrmdisplays.

Virtual manipulatives and modeling software. Here are sites and resources that use the power of the Web to help students with patterns, data analysis, probability, geometry , physics, chemistry and even architecture.

- National Library of Virtual Manipulatives, sponsored by the National Science Foundation: http://nlvm.usu.edu/en/nav/vlibrary.html.
- The National Council for Teachers of Mathematics hosts interactive applets and associated lessons through their *Illuminations* portal: http://illuminations.nctm.org.
- Google Sketchup: Developed for working through the conceptual stages of design, this software allows students to create 3D models. Add Sketchup "buildings" to your Google maps. See Google Educator to get started: www.google.com/educators/p_sketchup.html.

Concept modeling. Intel Corporation offers a set of interactive reasoning tools that help students rate and rank, grapple with forces in systems, and construct a well-reasoned argument. See Visual Ranking, Seeing Reason and Showing Evidence tools and associated curriculum at www.intel.com/education/tools/index.htm.

4. Expressing ourselves, sharing ideas, building community

The World Wide Web has evolved from an information medium into a social medium and opportunities for expression continue to grow. Students using MySpace and instant messaging are accustomed to these forms of personal interaction. Imagine the parallels in school and ways students can use the Web to express their ideas and build society around shared interests. Connect your class to the world using a Web site, blog, wiki, or a virtual world like Second Life. Have students "tag" Web content and share tags with others. (You will be surprised how social connections form just by sharing tags.)

Web sites and blogs and hybrids.
Bottom line, your class will want to have a digital face to the world when you are in project mode. The lines between blogs and Web pages is blurring a bit as content management becomes more fluid and the kind of site you build will depend on the functions you want.

Regular Web sites. Your district may support class Web pages associated with the school site. This may be a first step in transmitting information to the bigger world, but static sites don't offer the function of two-way communication like blogs and dynamic Web sites can. If this is how you choose to start letting others know about your projects, be sure to advise families and community members to check in regularly, or notify them by email when you update the site.
If the district does not support class pages, consider trying a free Web hosting service. Here are a few that don't have banner or popup ads (the usual cost of "free" services). Again, let your wider community know when you update.

Reinventing Project-Based Learning:
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- Google Page Creator - Online tool for anyone to create and publish simple web pages. www.pages.google.com .
- Doteasy - Free hosting without ad banners. Includes email addresses, unlimited FTP access, and more. www.doteasy.com.

If you want to present many kinds of media like streaming video, news feeds, Podcasts or downloadable files and if you want participation by readers, create a dynamic Web site or blog. Here is more on these blurring environments, followed by a recommendation for your first efforts.

> *More Web than blog:* Check out hosting services that let you build a Web site with advanced functionality, such as Site 5 and Dreamhost. These offer multiple services beyond hosting and site administration controls for your Web pages, including a blog auto installer, email accounts, 15 gigabyte Web storage, web mail, and more. Services such as these cost around $10.00 a month.

> *More blog than Web:* You can create Web pages along with your blog. Wordpress is one popular and free blog service that does this. Wordpress is free but requires a compatible hosting environment, which will cost between $6.00 and $8.00 a month. Wordpress recommends BlueHost, AN Hosting, Yahoo! Web Hosting, Dream Host, and Laughing Squid.

Beyond the newsletter: Blogs for expression and reporting. (For blogs as a reflection tool, see 8, Reflection and Iteration, below. Blogging tools are discussed there as well.) For the purposes of expression, think of a blog as a simple web page an individual or group uses to present their ideas. A student might keep a journal in a blog to share her thoughts. A class might maintain a blog in order to show parents and others what is going on in a project. A blog allows visitors to comment on any article or "post" they read, which is a nice way for students to hear from the outside world. Imagine a class blog with articles as well as syndicated "feeds", information that flows from sources such as a photo site, a school calendar, a news outlet, or even a dictionary word-of-the-day. Syndicate your class blog so everyone who reads it knows whenever something new has been posted.
Idea: Idea: Start reading blogs to see how they differ from more static Web pages. Look at A Duck with a Blog, a simple class blog where young students published on a single topic over several months. Notice the clustr map showing visits to the blog from around the world. http://duckdiaries.edublogs.org.

Blogs for building community. The society-building part of blogging begins when bloggers loosely connect around a shared topic of interest. The prolific "edublogger" community -see a short list in Chapter 1- are up-to-date, provocative writers who share their thoughts on education and offer dispatches from the field. They report and opine about education technologies, conference proceedings, their own workshops and interactions with educators and kids. Bloggers often publish a blogroll, a set of links to other webloggers with whom they feel kinship.
Idea: Read a blog on a topic of interest and see how that author connects you to other bloggers. Blogs are bountiful sources of information. As you read a while, you will settle in with those bloggers whose expertise and authority you trust.

Get started. A class blog will serve you in myriad ways and can be easier to maintain than more complex dynamic Web sites. To begin, explore the functions of a free blog like Edublog, Blogger, or Blogmeister. If you want more design options and administrative controls try Wordpress, which is also free. With your free blog you can publish news like you would in a paper newsletter, and add pictures easily. But, unlike the newsletter, a blog invites participation. When visitors come to the site they can write comments about the postings they read, and even

comment on comments. You can send automated email updates to everyone interested in your class blog whenever you change material on the site. To do this, set up Feedburner, which recognizes when new content is added to your site and pushes it out to subscribers as email. Feedburner works behind the scenes, taking care of list management and verification and responding whenever new content is available to send. Since Feedburner sends out an update as email, recipients are likely to reply to you in email, too– just another way your blog can invite interaction. To see an example of a school site that uses Feedburner, see Sellwood Middle School in Oregon. Look for " Subscribe to Sellwood News" to get the idea. http://www.sellwoodmiddleschool.org/alpha.

5. Collaboration –Teaching and learning with others

Projects invite collaboration. Tools abound that help us learn together. Use exchange services to find experts or fellow learners. Use shared Web applications to plan and write together. Plan virtual experiences that allow people to "meet". Use survey tools to take the pulse of the community.
Examples: wikis, Google Docs & Spreadsheets, podcasts and webinars, survey tools

Engage Experts. Chapter 4 has readers create an asset map- a visual display of all the talent, tools, spaces and support that can be put to use for project learning. As you seek expertise, look back at your asset map and think about experts in your own community who you might engage. Think of ways to interact with them both in person and with email, a wiki, or other digital tools. Once you've exhausted local resources, turn to remote experts for help. The nearest university may be the place to start, or consider one of these clearinghouses:
- *The Virtual Reference Desk AskA+ Service* from the Digital Education Reference Initiative introduces students to research librarians who are experts on topics from architecture to zoology: http://vrd.askvrd.org/default.aspx
- *The Electronic Emissary* hosted by the School of Education at the College of William & Mary helps kindergarten through grade 12 teachers and students locate mentors who are experts in various disciplines http://emissary.wm.edu

Engage other learners. Think about your project. Who would be interested in studying with you? A school nearby, older adults, college students, a classroom across the world? Imagine who shares an interest in your topic and engage them.
To find remote collaborators, visit project clearinghouses to connect your students with other learners (see Appendix Z) studying the same topic.
If a project idea hasn't emerged yet, set up a simple email exchange and see where it goes. IECC is a good place to start an email exchange. Since 1992 the Intercultural E-mail Classroom Connections (IECC) service has helped teachers around the globe arrange intercultural email connections between their students. A new service, IECC-INTERGEN, helps teachers and their classrooms create intergenerational partnerships with volunteers who are over 50 years of age. http://www.iecc.org.

Hold virtual meetings. Use virtual meeting software to host meetings with anyone in the world. Virtual meeting brokers allow remote participants to interact and even take turns controlling the meeting. Services can include screen sharing, white boards, chat and more. Test out these virtual meeting services for free before subscribing.
Webex: www.webex.com
Adobe Connect: https://onlineservices.adobe.com
GoToMeeting: www.gotomeeting.com

Connect through Webinars. A Webinar is a Web-based seminar with video. Imagine having an expert "visit" your class via computer projection. With a Webinar service, computer video camera and a microphone, a presenter and audience can interact as if they are in the same room.

Test out these Webinar services for free before subscribing.

GoToWebinar: https://www.gotowebinar.com

Webex: www.webex.com

Talk over the computer. It is now possible to speak to others through your computer as you would over the phone. Voice-over internet protocol or "voice-over IP" services such as Skype and Gizmo let you call from your computer to another computer or to a telephone anywhere in the world. Not only do they support voice, but many services offer instant messaging and video. You are not limited to two-way communication – host a conference call of any reasonable size with Skype or the other services. Imagine your students going home and saying: "I talked with my collaborators in Singapore and Tokyo today."

- *Skype.* To talk with others through your computers, you all need to have Skype. No set up is necessary for calling ordinary phones. www.skype.com.
- *Gizmo.* Gizmo offers free calling to any Gizmo Project, Yahoo! Messenger, Google Talk, or Windows Live user. www.gizmoproject.com.

Collaborate.
- *Wiki.* A wiki is a great tool for planning and writing together. Organize the site to match the structure of your project, then invite others to write with you. Wikis are rarely the place to publish a final draft. Think of the wiki as the "workroom", and a blog or Web page as the "showroom". See more on wikis under 8 below, Reflection and Iteration.
- *Web-based applications*. Collaborate on a-Web-based product (document, spreadsheet, presentation) using applications such as Google Docs & Spreadsheets or ZohoCreator.

6. Research

21st-century projects invariably involve research, and for most research questions students turn directly to the Web. Internet research puts information literacy to the test. Quality directories, search engines with filtering, a variety of bookmark tagging tools and citation "engines" help students make sense of and organize what they need from the ever-expanding Web.

Quality Directories:
- ASK for Kids – Designed for K-12 learners, ASK offers a search engine plus study help with an almanac, biography index, dictionary, thesaurus, math, science, and astronomy information, clip art and more. www.askforkids.com
- InfoPlease – Many "desk reference" tools. http://www.infoplease.com
- International Children's Library - A collection that represents outstanding historical and contemporary books from throughout the world. http://www.icdlbooks.org

Kid Search Engines:
- AOL@School - A search engine and directory with sites selected by online education experts. www.aolatschool.com/students
- Kids Click! – Web search for kids by librarians. www.kidsclick.org

Safe Search:
- AltaVista Family Filter - The family filter option is available from the settings page and may be protected with a password. www.altavista.org
- GoogleSafe Search - Go to the preferences section to turn on filtering. www.google.org
- Lycos SearchGuard - Go to the Advanced Search section to set the adult content filter. www.lycos.com
- Yahoo SafeSearch - Select preferred SafeSearch setting in Preferences. www.yahoo.com

Bookmarks and Citations: Bookmarking tools help users organize Web sources and share ideas about what they find with others. The Citation Machine makes proper acknowledgement of references easy. *Note: More about bookmarking in Chapter 1 Technology Focus: Social Bookmarking.*

- Del.icio.us - web service for storing and sharing web bookmarks with social features. www.del.icio.us.com. Other bookmark services include Furl and …
- Citation Machine – Teach students to acknowledge the sources they learn from and make the task easy using the Citation Machine, from David Warlick's Landmarks Project. Not just for books, the engine creates citations for Web, newspapers, and more in common citation formats. http://citationmachine.net.

7. Project Management

Project management is a major category that gets its own treatment in Chapter 5. Briefly, during projects students need to manage time, work, sources, feedback from others, drafts, and products. A simple folder on the district server or a workspace in the school's Learning Management System may suffice, but consider Web-based "homepages" or "desktops" that give students a space to work and associated tools (calendars, to-do lists) to help them plan and organize. They can get to their "homepage" from anywhere at any time. Personalized desktops are changing rapidly. See a few in action before selecting the ones to use with students.
Examples:

- Google IG www.google.com/ig
- MyYahoo http://my.yahoo.com
- Netvibes. www.netvibes.com
- Pageflakes www.pageflakes.com
- Protopage www.protopage.com

Idea: Set up your own environment and use it for a while to discover ways to use personalized Web pages with your students

Learn More: For a screencast tutorial on creating a Web homepage in Netvibes, see: Web 2.Education: www.edtechservices.com/blog/netvibes.

8. Reflection and Iteration

Deep learning happens when you examine your ideas from all sides and from other points of view. Reconsidering and reshaping ideas to bring them to high polish is the difference between yeoman and masterful work. Blogs and wikis give learners the opportunity to shape their work and expose it to the critical feedback of others.

Blogs. A blog can serve as a personal diary or journal where students put their thinking out on the table to give it a good look and elicit alternative perspectives. The David Warlick site ClassBlogmiester lines out a writing process using blogs that promotes cycles of drafting, feedback and revision.

Blog entries spanning the life of a project let others watch how learning takes shape, and at the end can serve as a lasting artifact of the learning process.

Blogs particularly suited for school:

- EduBlogs. - Free blog for teachers, students, and english language learners, supported by WordPress - http://edublogs.org
- Blogmeister - Free blog for teachers and students from David Warlick and the Landmark Project. Great advice here on how to use blogs to shape writing. http://classblogmeister.com.

Other free blog services are listed below, some very easy to use. Be careful of features that let student or family readers go to a random "next blog", or allow spam content to populate comments boxes.

- Blogger - www.blogger.com
- LiveJournal - www.livejournal.com
- MSN Spaces - www.spaces.msn.com
- Moveable Type - www.sixapart.com/moveabletype
- WordPress – www.wordpress.com

Idea: Go to blog host Blogmeister to see a variety of classroom blogs from around the United States. http://classblogmeister.com See how classes are using them and then read http://classblogmeister.com/index.php

Wikis. Wikis are useful for drafting iterations of work and sharing works in progress. Using version histories, a writer can look back at (and even retrieve) earlier drafts. Any number of people can collaborate on a wiki. Imagine the possibilities for sharing, writing, and editing together using a wiki.

Some wikis are public. For school projects use administrator controls to limit access to those involved in a class project.

- MediaWiki (engine for wikipedia) www.mediawiki.org
- PBWiki - http://pbwiki.com
- Wikispaces - www.wikispaces.com
- JotSpot – www.jotspot.com (soon to be a Google app)

If you are not ready to go "live" with a wiki, try Instiki. The program runs on a classroom computer and can provide a wiki environment from within a classroom. Learn more from this eSchool News article: http://www.eschoolnews.com/eti/2004/10/000172.php

Idea: If you have never visited Wikipedia, go to www.wikipedia.org and see what happens when people collectively attempt to explain the world. In early 2007 Wikipedia displayed 1,688,000 encyclopedia entries in English alone.

Idea: Find other teachers who are using wikis and see what is happening in these learning spaces. One to visit: Paul Allison's High School Online Collaborative Writing wiki: http://schools.wikia.com/wiki/Main_Page.

More Ideas

For a one-stop discussion of Web-based applications, examine The Office 2.0 Database at http://o20db.com. For a deeper dive into all things technical try TechCrunch: www.techcrunch.com, Gizmodo: www.gizmodo.com and Engadget: www.engadget.com. And for fun that spills across technology and life, try Lifehacker: http://lifehacker.com.

Final Note:

Technologies come and go in the dynamic Web 2.0 landscape. What new tool functions have captivated you? Do you have ideas and resources that would improve this document? Help us keep it current by contributing to the RPBL Wiki at http://reinventingpbl.pbwiki.com.