

ESSAY 9

Sea Changes in Technology Services and Learning

Debbie Abilock, Consultant & Editor-in-Chief, Knowledge Quest
Elisabeth Abarbanel, Brentwood School (Los Angeles, CA)

What sets evolving, visionary, technology-oriented, future-focused libraries apart? Open-minded, flexible librarians who focus with laserlike clarity on excellence. They evaluate new tools for discovering, managing, and presenting information; design new instructional strategies and services; collaborate with their colleagues; and share widely with other library professionals. As fast as they absorb one set of tools, new ones are introduced, pushing traditional library services in new directions. Whether operating on a shoestring budget or with a full spectrum of technology and resources, today's independent school librarian aims for excellence in support of teaching and learning.

In independent school libraries, teaching, learning, and research are participatory, integrated, experimental, ethical, and independent.

From its beginnings, the Internet has supported social interaction on a global scale. Web 2.0 has shifted the platform from a predominantly “read only” information highway to a continuously evolving “read-write” Web in which it is easy for everyone to interact and produce, collaborate and create, and remix and share. Inspired by participatory tools that support collaborative academic work, called “social scholarship” (Cohen 2007), independent school librarians are experimenting with user-focused services and group projects that benefit learning and literacy. They envision Library 2.0 (Miller 2005) as a dynamic intellectual commons, a center for learning and teaching, that supports the school community by integrating the resources and personalized help of the physical place with responsive, well-managed online services and systems.

The McCullough Library (Jack McCullough '25) is a place where students feed their curiosity, enhance their research skills, sharpen their ability to think logically, and enjoy reading. Aligning with our mission and our equity pedagogy, the library strives to be a warm, welcoming, inclusive environment that students and faculty view as a place to connect, converse, and grow.

The mission of the library is to support and enrich the school curriculum; to engage the students in the process of lifelong learning; to support and encourage lifetime reading habits; and to empower the students as library users.—Mission Statement, Lick-Wilmerding High School, San Francisco, CA (www.lwhs.org/podium/default.aspx?t=106751)

Setting the Stage for Learning

The independent school's Web site serves as a recruiting tool for new families and a source of timely information for current families. At the turn of the millennium, a library's static list of databases with a link to the catalog and information about staff, hours, and policies, was good enough. Today the library's Web pages must serve learners, teachers, and the curriculum with continually updated resources, targeted help, and few barriers to access and use.

The library learning space is not just a place

"Our physical library is small and busy with students borrowing materials—it cannot accommodate classes I'm teaching. But there's really no need to be 'in the library.' I design lessons carefully, pull the topic/inquiry books for classroom use, and ask the class to access my Netvibes resource page with their laptops."

—Katie Day, teacher-librarian at United World
College of SE Asia, Singapore

To market library services, the librarian designs "sticky" experiences, which entice users to come, come back, and stay longer in both the physical and virtual spaces. Once there, learners can examine and question information with peers, reflect and write for authentic audiences, and synthesize and create together with support when needed. Some virtual libraries are staffed during evening hours, providing the personal service that students and teachers have come to expect from their in-school experience.

If the library's Web pages cannot be integrated directly into the school's official Web site, the librarian works with the technology or communications department to design a complementary, easy-to-update library Web site, which might be a blog, a wiki, a NetVibes landing page, or a LibGuides home page that serves as the virtual starting point for student research and collaboration.

A participatory environment for students, teachers, parents, and librarians. Find out about new resources, and learn about locating, evaluating, and using information effectively.

—Wildwood School, *The Library Blog*
(<http://thelibrary.typepad.com/>)

Wildwood School in Los Angeles uses a blog as the complete library Web site. Librarian Michelle Simon Frommé explains, “I started it because I didn’t like the way our internal page functioned. It wasn’t user-friendly and it required a password, which students never remember. I want the library to be a place for all things . . . for everything students need.”

Just as the walk-in patron stops to browse a timely book display or observes a presentation of student work, the virtual user is enticed by interactive components like widgets, surveys, blog-style narratives, pictures, and video. The environment conveys information in interesting ways and features library services. In the physical library, one librarian might place *Wordle* posters next to each Dewey section’s subject headings to show the relative importance of topics in books that are shelved in that area. Another might mount a digital summer reading list in *issuu*, which simulates a print magazine to lure students into browsing the lively annotations and book covers. Yet another might decide to migrate to a social public access catalog (SOPAC) so that students can write reviews, rate books, and tag them with their own subjects. Technology draws curious students into exploring both physical and virtual resources.

Experimenting with Social Software

“Jumping into this public 2.0 ocean can be intimidating. I was embarrassed to tell the kids I was on their turf. I felt that everything I tried was so public. And yet, as I paddle, I grow proud of my skills, my networking, and my discoveries—and I welcome new risks at work. My advice to others just beginning? Vary your experiments using tools for different purposes. Dip a toe in as you feel comfortable—it’s less scary than taking a plunge!”

—Elisabeth Abarbanel, Brentwood School, Los Angeles, CA

Because independent schools encourage their faculty to be innovative and may place fewer limitations on their networks than do school districts, a dauntingly wide array of technology tools is available to the librarian. Little empirical data exist on the depth of school change required to use technology effectively in learning (Lempke, Coughlin, and Reifsneider 2009, 5) and the worth of certain social tools may only become evident after intensive use by thousands of users. Notwithstanding these considerations, independent school librarians are experimenting with new technologies, aware that technology motivates their students to learn more deeply when the right tool matches the teacher’s

goals and the learner's characteristics and needs (Abilock 2007). But social tools have a wide range of "affordances," a term used by designers to mean that users expect tools to work flexibly for many purposes. Therefore the "fit" of a particular tool for a specific function is less obvious than with earlier, less-flexible technologies. As one school librarian has said, "It's obvious that I can't hammer a nail in with a screwdriver, but with ten hammers available, how do I choose?"

Consequently librarians are taking calculated risks without the benefit of rigorous data, experimenting alongside their students, teaching along with their faculty. Because their students' informal learning experiences are shaped by highly interactive digital media, librarians embrace participatory culture as a window into how their students play and learn. Typical of these risk-takers, Elisabeth Abarbanel of the Brentwood School (Los Angeles) readily experiments with Web 2.0 technologies:

I started a blog for my library and, as I learned to use it, I promoted it and explored its uses for the library. Then I deliberately volunteered to advise a student life blog whose purpose was to highlight sports, performing arts, and community service events because I suspected it could support students' sharing of school experiences. Of course, I did 'sneak' library-related stories and information into the blog. For example, I published one of our new READ bookmarks there, with a link to the library blog to see the rest and I added a widget that displays covers of our library's new books via LibraryThing.

Free Web services are easy to learn superficially and then build out incrementally with add-ons that work with each other, a characteristic called "interoperability." With little instruction, her students participate as co-designers, adding widgets, slideshows of their school events, original music, and weekly videos and podcasts about student life. "When my student journalists learned to embed a slide show and post stories and polls on their blogs, their enthusiasm grew. Now we also teach blogging to tenth graders for a United Nations simulation, and remark on how easily they pick up technology skills and make blogs their own." Experimentation and observation uncover the potential for social scholarship and allow Elisabeth to test teaching strategies in an informal setting.

Characteristics of a 2.0 Independent School Librarian

Flexible—willing and able to adapt to change in curricula, services, and tools.

Brave—willing to put new ideas to the test, and able to learn from mistakes.

Involved—willing to publicize new ideas to the community in collaboration with others, and to take the library curriculum into classrooms.

Friendly and collaborative—willing to work with faculty and the technology department to get the job done and able to work with students in an open dialog.

Creative—willing to create content for the Web site/wiki/video/podcast, and able to assist others in learning to do so.

Visionary—able to sort through the tools and ideas and create a vision for your library, at your school, in your school curriculum.

Fostering Social Relationships

Seeking to holistically understand the impact of a networked social environment, independent school librarians look beyond the library's walls and hours to cultivate durable personal relationships with students. As a by-product, they hope to encourage students' full use of the library's resources. CD McLean, the library director at Berkeley Prep School (Tampa, Florida) is available to her students on Facebook, "to provide my Middle School advisees with another opportunity to converse with a safe adult who will be objective about things in a way that parents or relatives cannot—just what an advisor's role should be—a friendly adult, who cares, not a friend, per se." She "friends" all who ask because "it gives me access to students I rarely see in the library—but who 'live' on Facebook. They're more likely to ask for research help online, request a book or retrieve a password on a wall post, or using Facebook's internal e-mail or chat."

According to Helen Adams, author of a book on intellectual freedom in school libraries (2008), the librarian has a professional obligation to educate minors when they are learning or socializing in an environment with ill-defined norms and few guidelines:

Although CD's students may appear to be adept in social networking, her presence is vital to their safe navigation in a constantly shifting technological landscape. Not only is she modeling and guiding how to use popular social networking tools ethically in school and online settings, but she is also providing the 'safety net' as middle school students grow into new online academic and personal social situations.

Others disagree. They believe that supervision of media practices outside of school is best left to parents. "For the most part, the existing mainstream strategies that parents are mobilizing to structure their kids' media ecologies . . . are more than adequate in ensuring that their kids do not stray too far from home" (Ito et al. [2009]). Yet librarians may be able to provide insights that can help students grapple with virtual norms since they, themselves, are struggling with what to reveal or conceal. The very features that make these technologies attractive—personalization, transparency, and interactivity—reduce privacy. CD argues that her students ought to be explicitly considering how much personal information they reveal when they ask to "friend" her in a social network. "After all, they know I am a faculty member and they are opening up their page, should I choose to look at it."

In the field of educational technology a creepy tree house is an institutionally controlled technology/tool that emulates or mimics pre-existing technologies or tools that may already be in use by the learners, or by learners' peer groups. Though such systems may be seen as innovative or problem-solving to the institution, they may repulse some users who see them as infringement on the sanctity of their peer groups, or as having the potential for institutional violations of their privacy, liberty, ownership, or creativity. Some users may simply object to the influence of the institution.

—Stein (2008)

What is defined as private is in flux, and some administrators are concerned about their schools' liability if faculty were to become aware of "situations" that should be reported, so they develop policies that forbid faculty from "friending" a current student. Other librarians, like Laura Pearle at Hackley School (Tarrytown, New York), delineate this boundary for themselves by maintaining a separate list of student "friends" who have requested a link. "It blocks them from seeing almost all of what I'm doing while allowing them to leave me a message asking for research help or a book recommendation. In reverse, I 'hide' them from my newsfeed so I don't see what they are doing."

Other schools require librarians to use password-protected services that are closed to all but the school's users. CD disparages private microblogging platforms like *Edmodo*, opting instead for public technology because "students respect teachers and librarians who actually use the same technology in their everyday lives that they do for classes." She argues that the cachet she gains as an early technology adopter gives her added credibility when she teaches online research or talks to an advisee.

However, not all students welcome these incursions of power and authority into their social culture (Stein 2008). Indeed, because users' practices and expectations define the technologies in which they are embedded, danah boyd, social media researcher at Microsoft and a fellow at Harvard University's Berkman Center for Internet and Society, warns that repurposing social technology for school use may "rupture norms in the classroom" in ways that are "socially or educationally harmful."

They don't use del.icio.us (sic) or Second Life or Ning or Twitter as a part of their everyday practices. And the ways that they use Facebook and MySpace and YouTube are quite different than the ways in which you do. We each approach technology based on our own needs and desires and we leverage it to do our bidding. In this way, we actively repurpose technology as a part of engagement such that rarely does one technology fit all. Yet, when we introduce technology in an educational setting, we often mistakenly assume that students will embrace the technology in the same way that we do. This never works out and can cause unexpected strife. Take social network sites as an example. You use this for professional networking; teens use it to socialize with their peers. Putting Facebook or MySpace into the classroom can create a severe cognitive collision as teens try to work out the shift in contexts. Most problematically, when teens are forced to navigate Friending in an educational setting, painful dramas occur because who [sic] you're polite to in school may be very different than who [sic] you socialize with at home.

—boyd (2009)

Given that intellectual freedom is a core value of librarianship, school librarians have voiced concerns about minors' First Amendment rights: "Despite the technology protection measures required by the Children's Internet Protection Act (CIPA), students still retain their First Amendment right to receive information whether in print or online in a school library" (Adams 2008). According to *Minors and Internet Interactivity* (2009), social

software poses “two competing intellectual freedom issues—the protection of minors’ privacy and the right of free speech.” Adams supports “school librarians like CD and Laura who are online alongside their students [and] are in the best position to help their students learn to strike a balance between their First Amendment right to free expression and the need to retain a degree of personal privacy as they interact with ‘friends’ online.”

In the absence of empirical evidence to substantiate the positive effects of repurposing social tools for academic learning or hard data on the most effective ways of scaffolding students’ ethical and safe behavior within social networks, most independent school librarians depend on the sharing of tacit knowledge in informal networks by professionals like CD and Laura.

Developing Collections Collaboratively

Typically, early use of a new technology replaces an older way of accomplishing the same task. Because collection development is another core responsibility, many librarians have gravitated toward Web-based collection tools to manage their resources. Social bookmarking services like Diigo and delicious allow users to tag, save, manage, and share Web links. Customizable Web pages like LibGuides, PageFlakes, or Netvibes employ browser add-ons and drag-and-drop functionality to aggregate and update resources and services on the fly. Given the ease of use of these tools, librarians rarely maintain just-in-case lists on a static Web page; rather, they seed pages with authoritative resources and targeted help that match a particular assignment or project.

Katie Day, the International Baccalaureate Primary Years Programme (PYP) teacher-librarian at United World College of SE Asia in Singapore, has assembled widgets, Web sites, blogs, search engines, photos, videos, and podcasts into an Endangered Animals page on Netvibes for her first graders’ Animal Research unit (www.netvibes.com/uwcsea#Grade_1%3A_Animal_Research). She admonishes librarians to make the selection of technology and resources the last step in designing a unit. First she and the curriculum coordinators identify which units of inquiry need a research component. Because the PYP “transdisciplinary” skills (skills that work across the curriculum) match well to information literacy skills, Katie is able to plan instruction that addresses both. In certain cases she begins with a mini-research-cycle project that models a larger unit to follow. In other cases, teachers will ask for specific lessons: “I might be part of the tuning-in process where students learn skimming and scanning or come in later for online searching and note-taking.” Finally, just before the unit begins, she creates a Netvibes home page, selecting tools, resources, and services based on the large goals of the curriculum, the needs of the project, and the characteristics of learners.

Social aggregation tools invite collaborative collection development. For a unit on beliefs, Fiona Collins, librarian at Shanghai Rego International School, asks students to add resources to their unit’s home page. She teaches them to search the Library OPAC for reliable Web sites, to bookmark and store searchable copies of Web pages, and to evaluate the information on these pages to give each site a rating. After the first iteration of this project, a Furl database of teacher- and student-vetted Web sites had been created for use the following year. Unfortunately, Furl closed its services in April 2009, and Fiona had to migrate her list to Diigo (www.diigo.com/user/librarianfchk/Beliefs). Since that unsettling

experience, she has become more cautious about using free Web services, which usually offer no assurance that contributed work will remain available if the company's business model changes.

That's one reason why Elisabeth Abarbanel chose to use a subscription service called LibGuides: "I feel that the company is likely to feel more responsible to its subscribers than a free service." Unlike a printed pathfinder handout or static and unattractive list of links, a project's LibGuide is easily updated by the librarian or teacher with information in almost any format, and as a plus for students, they can access it without a password.

The interface is attractive and easy to use—I can link to or embed all types of media and even upload word-processed documents I've created. Students can recommend new links for a guide and their names are not visible, respecting student privacy while still enabling their collaborative work. An added benefit is that I can see other LibGuides on the same topic created by other librarians and either modify them for my own use or just discover other professionally selected resources.

A consistent interface for all projects, with access from the library's blog, homepage, Facebook page, and the school's Moodle, has standardized where students begin research and go for help:

In just one school year, everyone has become accustomed to go to their LibGuides. When students are absent from a research mini-lesson they can find the lesson, their homework and, indeed, everything they need. I even embedded a Google Calendar of the library and lab's schedules, so that teachers at home can plan class visits and students know when they will be able to work on research during school.

Teaching Information Literacy

Print reference books, once the bread and butter of the physical library, are rapidly migrating to computers and other devices. Large-scale digitizing efforts include volunteer transcription and editing of classic titles for Project Gutenberg, scanned books by the Internet Archive and Google Books, vendor repurposing of reference books as reference databases, and the mounting of static e-books by publishers and authors. After Cheri Dobbs, the middle school media specialist at Detroit Country Day School, provided her students with access to Gale's middle- and high-school collections and the e-books included with ABC-CLIO social studies databases, she found her students "receptive to using digital reference books because they had access 24/7."

To improve their access, she added the Gale Virtual Reference Library to the library's research page, "but I had to continue to eliminate barriers if I wanted them to be well used," she recalls. "I added Gale's e-book search widget to the library's home page so that everyone has a way to do a 'quick and dirty' search of e-books. Then I downloaded MARC records from Gale so that each e-book now appears within the library's online catalog." In preparation for a project or lesson, Cheri works with teachers to identify resources, then organizes an e-book subcollection and directly links to relevant e-book titles, complete with thumbnail images. As sixth graders begin their World Tour geography project, they find focused and age-appropriate information about countries, cultures, world cities, and foods, tailored to what they will need to know and be able to do. In addition to making e-book searching "as easy and 'in-your-face' as Google searching," Cheri shows students how to download e-books to their laptops and then teaches them to take notes and cite sources in NoodleTools.

Like published print books, e-reference sources lend themselves to traditional evaluation of authority and credibility, a prime focus for Cheri's collaborative units in French, social studies, study skills, and science. "We examine authoritative results from a digital reference book and contrast them with open-Web results so that our students are acutely aware of the value of vetted sources," she reports. "In fact," she adds, "if you ask our sixth graders to list three adjectives that describe a resource that is valuable for their research, most of them will reply 'reliable, authoritative and useful'—or some version of that—and mention our e-reference books." Cheri's analysis of her students' understanding is based on more than anecdotal evidence. On a recent sixth-grade assessment, 85 percent of her students demonstrated that they knew what made a source authoritative and reliable.

As software programmers develop new interfaces for e-book content, the content is becoming more difficult to evaluate. "Snippets" of e-content are delivered out of the context of a chapter's logic. Evaluation can involve examining metadata (the descriptive data about the source), which can be as diverse as a MARC record and user-generated tags. Further, authors are disseminating original digital books that have not gone through a publisher's editorial review, copyediting, and fact checking. Undoubtedly Cheri will need to further refine her teaching of reading, source evaluation, and note taking when everything is indeed "miscellaneous" (Weinberger 2007).

"Our 9th grade history teacher wanted to emphasize the potential unreliability of Wikipedia, so we set up an ancient history wiki that her students could contribute to, based on their research on a particular historical topic. Each student created her own page, uploading text, images and links about their topic. Fellow students could read and comment on each other's pages, but time and constraints of the assignment did not provide for sharing or adding to the information. Nonetheless, they began to understand the process of a wiki and were able to see the potentials and the pitfalls of creating and using shared information."

—Joann Davis, middle- and upper-school librarian,
Archer School for Girls, Los Angeles, CA

In coordination with a content-area teacher, librarians at Archer School for Girls (Los Angeles, California) are teaching information evaluation through the collaborative creation and transparent review of content in a wiki. They wanted students to view and comment on each others' work as they published and revised information on African countries. When asked to read each other's wikis and comment on similarities among their countries, students were motivated to carefully evaluate what they had written and produce more accurate information.

Initially students had been focused more on the superficial design features of a wiki, like changing font colors and adding pictures and maps. The ease of examining classmates' pages and sharing artistic tips with one another resulted in personal comments such as, "Ooh, I like your page color" or "cool avatar," at the expense of evaluating the quality of their peers' information. Perhaps their interest in design elements is a natural response to the novelty of using a wiki, just as students in previous classes experimented with the capabilities of a word processor or PowerPoint when these tools were first introduced. Rather than just refocusing the students on content evaluation, educators have an opportunity to draw parallels to large-scale research findings on information evaluation that show that many adults also rely heavily "on the surface qualities of a Web site to make credibility judgments" (Fogg et al. 2002, 24–25).

Within the wiki interface, the Archer team was able to use the revision history to observe both group and individual progress, ask or answer questions, and give feedback. School librarian Joann Davis acknowledges that, without comparative data, she cannot definitively evaluate "whether students learned the content any better than with a traditional paper." She believes that the project "raised students' comfort level in navigating and evaluating Web sites and using the computer for research," foundational skills for later, more sophisticated units. As students create, maintain, and add to a collaboratively written and continuously updated record of what they know, the Archer librarians and teachers are also learning the tool's features and refining how to teach information evaluation through wiki peer production.

Engaging Readers and Leading Literacy

Book clubs, book fair events, picture book writing projects, and any number of special activities and celebrations testify to the strong place that reading motivation has held in independent school library programs. It is no surprise to see early uses of new media focus on reading promotions and readers' advisory services. School librarians help elementary school children share books in *StoryTube* videos and podcast poems for two voices with a Book Buddy. Older students are encouraged to comment on book blogs, write reviews on Amazon, or create *MakeBeliefs* short comic strips as visual book reports.

Librarians create motivational virtual displays of banned books, promote state reading award programs on *VoiceThread*, and add *LibraryThing* feeds for new titles and blog about them as they are shelved. To develop young children's understanding of a picture book story, Lauren Collen projects digitized pages from the International Children's Digital Library (ICDL) collection during early childhood storytime. She finds that all students, not just those closest to the book, begin to raise questions about the interaction of illustrations and text (2006, 14–16).

Some teaching teams are assessing students' margin notes as part of their reading instruction. "We located collections of digital folk and fairy tales and asked 6th grade students who have laptops to use Diigo, a social bookmarking and annotation tool, to 'dog-ear' important pages, ask questions, reflect, and analyze the story by inserting their comments, then view and respond to the comments of their peers," said Sarah Hanawald, the technology and learning specialist at Greensboro Day School (North Carolina). Later the team used the "Extract Annotations" feature to collect highlighted passages, review the annotations, and evaluate students' thinking.

Strong reading programs developed by librarians are focused on developing skillful lifelong readers and writers. Although some programs are extracurricular (see essay 13), others are embraced as core curriculum. The librarian becomes a respected literacy leader, responsible for a unique school- or division-wide initiative that is essential to the literacy goals of the school.

For over three decades, students at the San Francisco Bay Area's Nueva School have met weekly in mixed-grade groups (third and fourth grades, fifth and sixth grades, seventh and eighth grades) to discuss student-selected literature. Using mixed teams of administrators, parents, and teachers to facilitate small-group student discussions (www.noodletools.com/debbie/consult/articles/litclub.html), this weekly program is administered by the librarian, Marilyn Kimura, who gives booktalks and provides in-service to the year-long adult volunteers on reading comprehension and questioning, annotation skills, facilitation techniques, and assessment strategies. Currently few independent school librarians are attempting online book discussions for older students, although they are common in postsecondary classrooms. Perhaps because face-to-face book group discussions in K–12 independent schools have a low adult-to-child ratio, there is little to be gained by taking the discussion online. One librarian, who did not want to be identified, explained that her attempts at a book discussion blog were "artificial and impoverished because the body language, expressive language, and immediacy of our sustained face-to-face discussions were missing."

"The physical book creates links thru memory and imagination, the web creates [links] to electronic destinations."

—Interview with Hugh McGuire, co-founder of
BookOven.com and founder of LibriVox.org

Dorcas Hand (Annunciation Orthodox School, Houston, Texas) has reshaped the school's writing and research curriculum in collaboration with her teachers. Dissatisfied with yearly author visits that had no relationship to what students were learning and determined to revitalize her library research at the same time, Dorcas led the creation of "History as Story," a library program that transforms author visits into curriculum-related master classes related to the AOS schoolwide focus on writing across the curriculum. It also includes an authentic assessment of the research process that has redirected her teaching of research skills. As a result, each year an author is invited to teach four days of master classes directly relevant to teacher-assigned writing projects for which students have already researched historical information. Each master-class author teaches writing techniques that students can use in their own writing to help their readers understand the significance of the

facts they've gleaned from their online note cards in NoodleTools. "Within literary nonfiction," Dorcas explains, "while every fact and idea is attributable to various research sources, the 'story' of history embeds real people and settings in a narrative. In every grade, as students and their readers read, write and research, they are developing a deeper understanding of an historical time and place." She plans to create a student wiki of her eighth graders' writing about a broad range of American artists from the first half of the twentieth century because the wiki will facilitate a broader understanding of how these artists influenced each other—Ella Fitzgerald and Langston Hughes, Les Paul and Jerry Jeff Walker—and show their continued influence on American culture.

Collaborating to Create Knowledge

Some independent school librarians are helping teachers move successful assignments online. Although the initial assignment may appear substantially unchanged, the transparency and social nature of networked technology begins to impact important aspects of instruction and learning. Shannon Bomar (Colorado Springs Christian School, Colorado Springs) developed an assignment with freshman English teacher Mason Young in which students would individually own the responsibility for learning grammar conventions and collaboratively improve their wiki writing skills. The teacher identified six conventions for the wiki based on the Six Trait writing guidelines for capitalization and punctuation: 1) capitalization rules; 2) abbreviations and end marks; 3) commas; 4) semicolons, colons, dashes, and parentheses; 5) quotation marks and underlining; and 6) hyphens and apostrophes. Each group developed a *Wikidot* wiki page about an assigned grammar convention, including usage rules and examples, then added a *MyStudiyo* interactive quiz to test readers on the content of their page. Each student was responsible for reading and understanding the writing conventions and taking the student-created quizzes. When the guide was finished and the quizzes completed, students would be able to refer to it throughout the year for other writing assignments.

Bomar (2009) notes that the online implementation of this project changed the number and nature of students' collaborative interactions. Because all student interactions and work were visible, hyperlinked together in one place, date- and time-stamped with the student's name, and archived with a revision history, the teacher and librarian had ample data to evaluate both individual and group work. The student's grade was based on the quality of his or her wiki content, the average quiz grades received by classmates for the group's section of the wiki guide, and the student's own quiz scores. By providing an authentic purpose and audience, the wiki motivated students to do better work so Bomar plans to use this assignment template for other projects.

In another example, Archer School's senior AP English classes began using wikis as "collaborative online study guides." Realizing that the AP class had no time to discuss two important novels prior to the AP exam, teachers asked students to read *Lolita* and *The Age of Innocence* independently during class. Students' written responses were archived in a wiki chapter-by-chapter, allowing everyone to follow the emergence of ideas and make connections across the texts. According to middle- and upper-school librarian Joann Davis, students made the wiki their "study destination" as they prepared for this demanding test.

The insight gained from this use of a wiki encouraged the Archer librarians to suggest to the English Department that they use the software again as a means of increasing discussion depth. “Probably the first real wiki conversation,” recalls Joann, “was our ‘Wykyssey’ in which students were required to comment on each of the books in the *Odyssey*. . . . We saw what they were finding or not finding, saying or not saying . . . [and] watched their evolving work without dealing with paperwork.”

Archer English teacher Genevieve Morgan saw additional benefits: “A wiki discussion works especially well for the shy kids who don’t want to speak in class but have much going on in their heads.” In asynchronous literature discussions, more reserved, or perhaps academically weaker, students are able to take the extra time that they need to thoroughly read and think about others’ comments before they respond. Because the wiki discussion is archived, the teachers and librarian can monitor and evaluate all students’ contributions unobtrusively.

In contrast to the earlier AP wiki, which simply archived the thinking of individual students, this one became a place for lively discussion. Wikis promote “unmediated” discussion, because students publish first and edit later. If educators fade back online while continuing to follow the conversation, students’ ownership of “their” discussion grows. To confer legitimacy on peer-directed discussions, some independent school librarians deliberately quote students’ online comments during face-to-face class discussions to show that they are following online exchanges and take them seriously.

Testing New Presentation Formats

Librarians have long recognized that multimedia formats can facilitate teaching to multiple intelligences (Gardner 1993) and help teachers differentiate instruction (Tomlinson et al. 2002). Presentation tools may be used by students in culminating displays of learning or by teachers presenting content in preparation for a class discussion. Participatory tools offer added opportunities to teach multiple literacies (Abilock 2007), because one interacts with content as both a consumer and creator. PowerPoint, a desktop presentation tool, is being replaced by less powerful, but nonetheless adequate, online slide show programs like Slideshare and Prezi, which hold images, documents, and video.

More flexible tools, like Google Earth, enable students to collaboratively create tours of ancient ruins; report on current events or world hotspots; and display immigration patterns, troop movements, or bird migrations. VoiceThread, a popular tool among educators because of its low barrier to entry, lets a Web audience leave comments (subject to the creator’s approval) using a microphone or telephone or add text comments, drawings, or audio or video files. In the two examples that follow—a teacher’s lesson and a student’s writing assignment—the school librarian grounds the use of the presentation software in sound pedagogy and thoughtful reflection.

Constance Vidor, director of library services at Friends Seminary in New York, produced a multimedia lecture to complement a music teacher’s fifth-grade unit on classical composers. Her narration, images, text, and music connect elements of Johann Sebastian Bach’s life and music with Paul McCartney’s contemporary music. The screencast pauses to ask questions that are prompts for her class’s face-to-face discussion. “The students were very engaged and had a lot to say about each of the slides and each of the questions,” reports Constance, “so my lesson was successful in this respect.”

Her second goal was to demonstrate to faculty how one might use this presentation tool to compare and contrast two composers or, for that matter, two people from another field or from different eras. “I can see its potential for effective and intellectually engaging student work,” she observes, “beyond the traditional composer report that our Middle School students are currently assigned.”

After her class discussion, Constance began to think about ways to strengthen her lesson. She focused on how to develop her students’ listening skills. “It was hard to get the students to refocus after listening to the Beatles excerpts,” she remarks wryly, “so perhaps I could add prompts about the purpose for listening to the musical excerpts.” She also wondered if the design of her questions contributed to students’ misconceptions:

Disconcertingly, some of my open-ended questioning in the *VoiceThread* opened the door for some students to say ‘Paul McCartney is a better composer than J. S. Bach.’ Of course, it is valid for students to prefer one composer over another. However, is it educationally sound to give students the impression that they are qualified to make a judgment about one composer being ‘better’ than another? Their responses spotlight some of the complexities of developing open-ended questioning in multimedia.

Constance decided to initiate a follow-up discussion with students about “the difference between personal opinions and mature, informed judgment.” She used their initial comments to “explore with them the purpose of background knowledge and how one marshals evidence to construct an argument . . . an important part of an information skills curriculum.”

Unlike Constance, the library media specialist at Colorado Springs Christian School (Colorado) is teaching students to use VoiceThread as a presentation tool. Shannon Bomar’s students are comfortable creating online content and regularly engage in formal presentations during class. Like many teens, they believe they understand what kind of language is appropriate in a given context (Lenhart et al. 2008). Yet Shannon found that their presentations employed the informal language of the social Web, rather than the academic voice that they ought to realize would be appropriate for a school presentation. Some scholars have argued that new literacies reshape communication and establish new practices and ways of thinking that result in new forms of rhetoric (Lankshear and Knobel 2006, 17, 25). However, Shannon contends that, even in new media, an academic purpose should have a scholarly tone, and that one of her goals is to “help student learn to modulate their narration for different audiences, since they will be entering a workforce that will increasingly conduct formal business over multimedia channels.”

Like Shannon, librarian Annette Counts and her teaching partner, Cora Antonio, are observing peer-group culture become a powerful driver of what is learned when learning becomes more social. Cora, teacher of a required tenth-grade religion course called Christian Scriptures at Bishop O’Dowd High School (Oakland, California), proposed to Annette that students use Facebook applications to fashion multimedia profiles of biblical characters from the New Testament, who would then converse with each other online. She felt that the fresh format for displaying their research and peer-to-peer interactions would result in a deeper understanding of these biblical characters’ lives and impact beyond what their textbook presented.

The team began with a whole-class brainstorming of elements that make one Facebook page more expressive or illustrative than another. Their list was posted in the classroom throughout the project.

Cora developed a rubric for students that enumerated requirements such as “five personality traits represented by three quotations, two songs, and five examples from the scriptures or from evidence found during research.” The visual depiction of the character would be evaluated for accuracy and authenticity:

We told them to avoid glorified portraits with halos and other unrealistic features imposed by later artists. We asked them to evaluate pictures by considering questions like: Was the clothing typical of first-century life? Does Martha belong in fancy Renaissance garb? Wrong time period and social class. Does Luke have a stethoscope or does the image contain people from a different time period? Anachronisms.

The rubric also required “appropriate and insightful comments or questions” on five other characters’ walls. In turn, the recipients would reply to at least five posts. The social aspect spilled easily into face-to-face interactions in the classroom. “When a student found a great image or piece of research for another character,” Annette recalls, “we loved the way he or she would say, ‘Who has Martha? There’s great information about her on this site.’ It felt like a learning community!”

However, without more guidance about what it means to “share and comment,” the students experienced a certain cognitive dissonance between school and social norms. Although some student walls displayed insightful comments and questions, many used superficial, breezy dialogue. “Cora and I need to figure out how to teach everybody to make substantive remarks rather than ‘Hey, how was prison, Paul?’ ”

To teach students to write unstilted, content-rich dialogue in new media involves striking a balance between the timeless artistry of English composition and the dialogue of participatory culture. Many educators wonder about the long-term effects of electronically mediated communication on academic discourse. According to Baron (2009, 42), there are currently few observable effects in essay writing. As alternative writing genres supplant traditional essays, and new media shape communication, one assumes that there will be an escalating impact on both writing and thinking.

When asked to evaluate their Facebook project, Cora and Annette’s students asserted that the technology had helped them “learn more.” However, Annette observes, “Some kids omitted important aspects of a character, for example one student focused on Luke as a physician, but neglected his role as Christian leader and evangelist.” Distinguishing between seeing students *engage* with their characters, the biblical text, and the time period, and having students *demonstrate understanding* of the characters’ influence on the Christian faith is key to assessing instructional design using technology. “Further,” cautions Annette, “teachers and librarians should not overestimate students’ abilities in using new technologies.” This group of high school students had little previous experience with Facebook in any systematic way. “Even our savvy technology users had trouble setting up their pages to accommodate the project’s requirements,” Annette recalls. To address these issues, Cora and Annette plan to unblock Facebook earlier, begin the unit by showing students some examples of quality pages, post this year’s criteria for a good Facebook page, and invite students to revise them as they learn more. In addition, they will double the class time to two eighty-minute periods so that students won’t feel pressure to comment quickly

on each other's postings. During the extended classes the teacher and librarian plan to be online, offering guidance and feedback on students' comments in real time.

What makes a successful Facebook profile in a school project?

- Compelling details and interesting vocabulary
 - Photo captions that provide background or information about what was happening, rather than a list of names
 - Regular updates about activities and insights
 - Annotated links to other sites that have relevant, interesting information
 - Lots of action, responses, and comments from other users
-

Some of the school librarians we interviewed ignored the users' agreement when asking students to sign up for social software. Others resented the subterfuge, arguing that all Web 2.0 applications should have an education site just as Glogster, an online multimedia poster-creation tool, has done. Rather than teaching students to ignore click-through agreements, educators could ask students to create fictional characters within, for example, "Facebook School Projects."

Partnering for Inquiry

Not so long ago it was common to hear independent school librarians say they were responsible for resource selection and the information literacy process, whereas the content would be handled by their collaborating teachers. Research on learning does not support this dichotomy, because reading comprehension, content knowledge, and cognitive evaluation interact dynamically as a learner accesses, evaluates, and uses information to "make meaning." An artificial separation of content from process can only diminish the potential for student learning. Fortunately, the online environment presents librarians with the opportunity to renegotiate arbitrary or traditional roles so as to become full partners in instruction (Montiel-Overall 2008, 16–18).

Barbara Jansen, chair of instructional technology and upper school librarian at St. Andrew's Episcopal School, Austin (Texas), is a full collaborative partner who is involved in planning, implementing, and evaluating student work. When the ninth-grade history teachers proposed that students do research and report on the Indian caste system, Barbara began by asking what she asserts is *the* critical question for any project: "How will students add value to the information that they find in their sources?" As Barbara explains, "In the last analysis, it is only when original thinking emerges from critical analysis, that students value their contribution." Barbara's commitment to inquiry doesn't end there:

If teachers want to give students questions to research, I suggest that we ask students to create a list that they think is appropriate for the task, a technique I have used with students since I was an elementary school librarian. For

example, in the Indian caste assignment, students brainstormed a list of questions (<http://casteproject.pbworks.com/Student-generated-questions>) that they would need to investigate in order to write authentic-sounding journal entries about the caste system. When they e-mailed the list to us for review, their questions were so on-target and creative that we hardly had to edit them at all!

Barbara is describing an information inquiry process in which one “seeks answers to questions, raises new questions and further questions the content” (Callison and Preddy 2006, 5). Unlike information literacy, in which a learner finds, evaluates, and uses information, and then absorbs knowledge created by others, students are actively constructing insights that are new to them (Callison and Preddy 2006, 5–9). When they recognize that they can apply their knowledge to authentic tasks, their learning is transformational (Abilock 2007).

Reductive and formulaic reports invite plagiarism, so Barbara’s teaching team spent a great deal of time crafting their assignment for the caste journal entries so that they would elicit students’ original ideas, require higher-level thinking, and stimulate student interest. Initially she may construct a wiki, adding graphics and uploading many documents, but the teaching team will also add and edit content. Their wiki becomes the focal point for the teaching collaboration and the inquiry process, as evident in the wikis for an Islam project (<http://islamproject.pbworks.com/FrontPage>) and the Indian caste system (<http://casteproject.pbworks.com/FrontPage>). They are one-stop assignment pages for students who are “absent, disengaged or just plain forgetful,” as well as a question bank of writing prompts to inspire students’ journal writing, thus deepening everyone’s thinking about the topic.

Barbara is quick to point out that wikis are not a replacement for face-to-face teaching; the team discusses all aspects of the assignment directly with their students and co-teaches skills at the point of need. In addition, Barbara uses Meebo, an embedded instant messaging (IM) reference service that does not require downloading any software, to make herself available to each student at his or her virtual point of need:

During class I ask students when they are most likely to be working on a project at home and I offer virtual office hours during those times. Since I have been part of the design team, co-introduced the project alongside the teachers, and am teaching the skills needed for accessing and using sources, as well as coaching students on how they might present their results, I am trusted as a reliable source of help; students will IM or e-mail me about any aspect of the project. They know, too, that I will be assessing their notes, bibliographies, and parts of the final presentations, so they consult me as much as their subject-area teachers.

The team understands that note-taking is critical to both synthesis and creativity. Notes are required and monitored, with feedback given often, so that students learn to organize and think about their information. Believing that the best way to teach ethical behavior is through practical application, Barbara explains that “We’re proactive so they won’t procrastinate . . . because desperation and ignorance are what lead to plagiarism.” She sees little point in copyediting student bibliographies or taking points off a grade for punctuation, because “those errors are best handled by the citation software.” Rather,

Barbara is interested in spending her time on the relationship between the notes and sources: “I check to see if the sources in the notes are included in the bibliography. Then we actually examine the sources they’ve used, evaluate the quality of the information taken from the sources, and observe how this has informed the student’s conclusions.” Summarizing and note taking are among the most important instructional strategies that enhance student learning in all subject areas and grades (Marzano et al. 2001, 7).

Although the current collaborative partnership and curricular design at St. Andrew’s Episcopal School result in impressive student learning gains, Barbara would like to find an authentic audience beyond the classroom for these projects. “We have tried, so far unsuccessfully, to get students from Indian and Islamic communities to help our students learn about these cultures. I cannot help but believe that networked culture will provide us with an opportunity to enhance this curriculum with a global connection.”

Designing Professional Development

In the past, software was likely to have been deployed by a technology director or network administrator, along with a subset of other faculty who became informally responsible for tools they believed were related to their job descriptions. Technology specialists selected and maintained, and sometimes taught workshops on, general productivity software. Librarians took ownership of specialized software related to library services. And content-area teachers gravitated toward discipline-specific tools. However, the explosion of Web-based, easy-to-learn communication tools like blogs and wikis, media creation and sharing tools, and a multiplicity of handheld gadgets and platforms has rendered it unlikely that any small group within a school could remain responsible for selecting tools and training the faculty, students, and administration. In fact, Laura Pearle argues, although the librarian can now bring new tools to the attention of their colleagues and train them in how to best use them, ultimately every educator must become responsible for maintaining and, indeed learning, the classroom-specific toolkit:

As far as our services are concerned, I tend to agree with Walt Crawford: libraries cannot be all things to everyone, and librarians cannot do all things for every teacher. Wikis? Nings? I’m all for showing faculty what tools are out there, and how to use them, but if teachers aren’t interested in managing and developing them, why would and, indeed, how could we do it for them?

Librarians who do assume professional responsibility for teaching faculty to use technology know that their task is not to conduct workshops about tools but rather to develop “habits of learning” (Fullan 2001, 179) using tools. Moreau Catholic High School (Hayward, California) was in its second year of a three-year, schoolwide rollout of laptops when Susan Geiger, the librarian, noticed that some teachers were having more difficulty than others integrating technology into their curriculum. There had been strong administrative support for staff development on the educational applications of Mac iLife productivity tools and Moodle, an open source course-management system. Now she realized that sustained, intensive, more individualized instruction could scaffold learning to *teach* in a ubiquitous computing environment.

Schools that take a systematic and planned approach to using technology to support learning achieve better outcomes with technology than other schools. These “e-mature” schools have a well-developed vision for learning and lead and manage their use of technology in support of this. They develop teacher skills and curriculum support to build habits and competency in using technology effectively in independent learning.

—Evidence 2009

To learn new ways of teaching, faculty members need time to practice and share, so she and her two library assistants adapted a version of “23 Things,” developed by the California School Library Association (CSLA) under a Creative Commons License. The original version of “23 Things,” designed by Helene Blowers, technology director, Public Library of Charlotte & Mecklenburg County in North Carolina, provides nine weeks of self-paced instruction in Web 2.0 tools. Participants blog about their progress and experiences. “Moreau Learning 2.0 (<http://moreauteachers.edublogs.org/the-23-things/>) kept most of the instructional content intact,” Susan reports, “but we changed the examples and graphics to reflect our school and updated some of the social bookmarking tools. I also started a wiki, MCHS Learning Resources (<http://mchslearning.wikispaces.com/>), as a companion to our blog.”

“I knew that we needed to publicize our idea and garner enthusiasm for participation, since this was voluntary,” she remarked. “With the blessing of our Assistant Principal for Instruction we were able to offer two perfect incentives: T-shirts and jeans.” With a relatively strict dress code, wearing jeans was a significant privilege at Moreau, even for teachers. Participants would be able to wear jeans every Friday during the nine-week program along with a T-shirt displaying the school logo and the tag line, ‘23 Things for 21st century learners.’”

During an important staff development day at the beginning of second semester, library staff members were given a ten-minute slot in which they showed a five-minute video they had shot and edited of faculty and staff members’ responses to the question “Do you have 23 things?” “We used the other five minutes to do a Letterman-style ‘Top Ten Reasons Why You Should Participate’,” Susan said, “and wrapped up our promotion with information about how to sign up.” During the first week, modeling the use of a tool from “23 Things,” they produced an Animoto music video celebrating the first thirty-three sign-ups and e-mailed the link to all computer users in the school along with a reminder of how to sign up. “Peer pressure began to kick in when the secretaries and office staff joined us,” Susan confided, “but I knew things were really going well when the entire administrative team signed up. Everybody wanted to wear jeans on Friday!”

From the moment the program began in February, the library staff began sending regular messages to all computer users, but directed toward the “23 Things” participants. On Thursdays, it was a reminder to wear jeans and T-shirts. On Fridays another e-mail announced that there were treats in the library for those needing “23 Things” help. And every Monday the library blog highlighted some of the interesting faculty blog posts and reminded everyone that library staff members were there to help.

“We were really busy,” said Susan. “We went into classrooms and offices all week offering ‘roadside assistance.’” Every Friday the library took on a festive atmosphere, crowded with faculty learners in jeans and T-shirts, and, Susan confessed, “We learned as

much as we taught!” When in-service is tailored to the needs and abilities of the learner, it markets the value of the library. “In one sense we were cheerleaders.” said Susan. “As teachers generated blog posts, we used the commenting function to encourage their efforts and, in fact, all forms of communications including e-mails, blog posts, and videos were branded with ‘brought to you by the library’.”

In turn, Susan and her staff received schoolwide recognition for these efforts, summed up in this blog post from the principal:

First and foremost I would like to offer my gratitude and joy to the library staff for bringing 23 Things to life. I have observed first-hand how Susan, Connie and Anne have been reaching out, offering to help everyone keep on track and get their blogs set up. If Susan had not paid me a special visit this morning, *In Tenebris Lux* [his blog] would still be just a motto. So thank you to the wonderfully patient, techno wonder women of the library for launching this professional development experience for everyone.

Not everyone completed all twenty-three tasks in the allotted nine weeks. Research on how schools adopt change reports that it takes at least three years to resolve early concerns and see later ones emerge. However, the library had become a hub of learning in a relatively short time, and the library staff was exhilarated but exhausted. Looking back over second semester, Susan spoke to the successes of this professional development effort: “Everyone gained confidence using Web 2.0 technology. Our library’s visibility and popularity grew—we’re now the ‘go to’ experts.” This year they are continuing to build on the momentum by conducting monthly “Techno Fridays,” during which individuals may seek help for specific integration issues while other faculty can work on curriculum together. To complete this professional development cycle and continue the change process, the faculty should be asked to systematically analyze how student learning has been enhanced by this infusion of technology.

Exploring Professional Development Options

Most independent school librarians report that they first learn to use new media tools at home. To share information, ask questions, and mitigate their own professional isolation, they may join listservs for school librarians (e.g., LM_Net, the Independent School Section of the American Association of School Librarians, the Association of Independent School Librarians, local consortia listservs) and join or create social networks hosted on platforms such as Ning, LinkedIn, Google Groups, and Moodle. Some groups are limited to independent school librarians, but others, like the Teacher-Librarian Network, the Australian School Library Association, and the Colorado Teacher Librarian Ning, include both public and private school librarians. Because collaboration with faculty is an important part of their jobs, independent school librarians may join groups that include both teachers and librarians, such as the Independent School Educators Network, First Grade Teachers, and the National Council for the Social Studies or participate in nings that focus on education topics like the Global Education Collaborative, ISTE, Classroom 2.0, and Making Curriculum Pop, which is about incorporating popular culture into curriculum.

Many are loosely organized social groups in which members create a personal profile and post asynchronous messages inviting comments. Hard-working moderators like Jim Burke (English Companion), Ryan Goble (Making Curriculum Pop), Laura Summers (21st Century Teacher-Librarians), and Demetri Orlando (Independent School Educators Network) are impressive facilitators who are able to create flourishing professional learning communities, which offer everything from lesson plans, resource lists, moderated discussions of professional books, and discussions about teaching practice, to personal support for novice teachers and librarians. Steven Hargadon, founder of the Classroom 2.0 social network, was hired by Elluminate to demonstrate the value of its online meeting software by artfully moderating real-time interviews and panels in which librarians join notable experts and authors to discuss the impact of technology on society and culture.

2.0 Resources Mentioned Here

Animoto: <http://animoto.com/>
Animoto: for Education <http://animoto.com/education>
Delicious: <http://delicious.com/>
Diigo: www.diigo.com/buzz/hot
Diigo Educator: www.diigo.com/education
Facebook: www.facebook.com
Gale Virtual Reference Library: www.gale.cengage.com/gvrl/
Glogster EDU: <http://edu.glogster.com/>
GoogleEarth: <http://earth.google.com/>
issuu: <http://issuu.com/>
LibGuides: www.springshare.com/libguides/
LibraryThing: www.librarything.com
Moodle: <http://moodle.org/>
Myspace: www.myspace.com/
MyStudiyo: <http://mystudiyo.com/>
Netvibes: www.netvibes.com/#General
Ning: www.ning.com/
NoodleTools: www.noodletools.com
Pageflakes: www.pageflakes.com/Default.aspx
Second Life: <http://secondlife.com/>
Twitter: <http://twitter.com>
VoiceThread: <http://voicethread.com/#home>
Wikidot: www.wikidot.com/
Wordle: www.wordle.net/
The English Companion Ning: <http://englishcompanion.ning.com/>
Making Curriculum Pop Ning: <http://mcpopmb.ning.com/>

Independent School Educators Network: <http://isenet.ning.com/>

21st Century Teacher-Librarians Ning: <http://21centurylibrarian.ning.com/>

Questions, Now and in the Future

These teaching and learning snapshots are both inspiring and unsettling. On the cusp of transformative changes, how will school librarians make wise decisions about technology? Does a focus on social scholarship privilege collective over independent work at the expense of the unique individual? Will a richly realized physical and virtual space that says “Welcome to the Library” indeed lead administrators to conclude that print is “outdated technology, like scrolls before books?” (Abel 2009). Are the professional ethics and enduring values of librarianship robust enough to keep librarians afloat as they plunge into an ocean of tools?

1. What should I know about technology diffusion that can help me select and use tools?

Gartner, Inc., a leading information technology research and advisory company, has developed a Hype Cycle (1995) model to help companies understand how technology diffusion occurs. With some modification, the independent school librarian can apply it to planning for networked technology (see figure 9.1). When early adopters use a new tool, they are enthusiastic and likely to over-project the tool’s potential to change long-standing instructional practices or overhaul the librarian’s role. As it becomes clear that the tool cannot fulfill this unrealistic potential, these early users enter the “Trough of Disillusionment,” during which some will push back against or reject the technology because it has failed to solve entrenched school problems or catalyze sweeping reforms. This is followed by a period of enlightenment and consolidation; users see how the tool can, in fact, be used successfully and integrate it into their practice. The Gartner cycle ends with a “Plateau of Productivity,” when widespread use of the technology is demonstrated and accepted. According to this consulting company, “The technology becomes increasingly stable and evolves in second and third generations. The final height of the plateau varies according to whether the technology is broadly applicable or benefits only a niche market” (Gartner 2009).

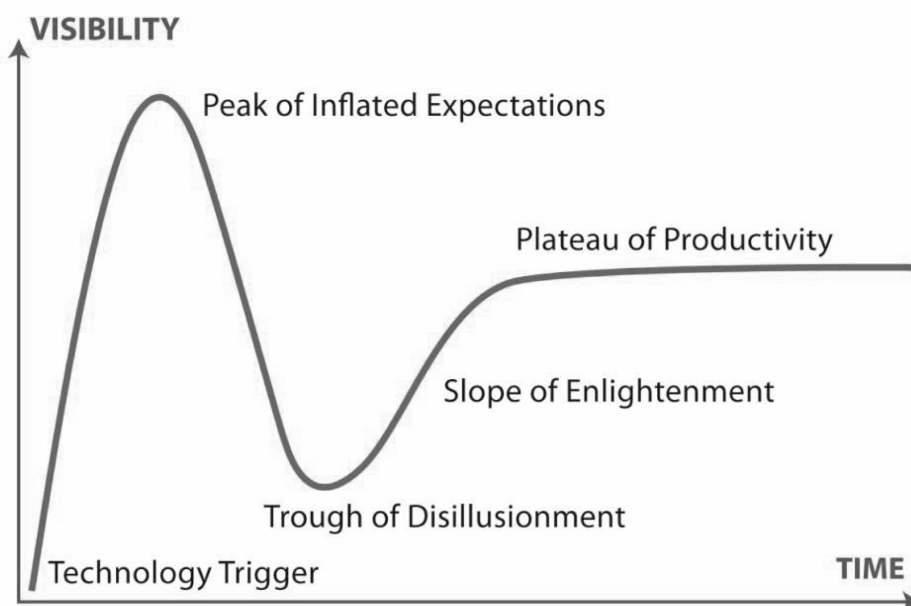


Figure 9.1. Modified Hype Cycle.

What Gartner's cycle misses is that new online technologies remain in "perpetual beta"; that is, they are continually being modified and updated while at the same time users are figuring out how to incorporate them into services and practices. School librarians who are realistic about the potential of inherently unstable tools are better able to develop a beta-tolerant school culture and pragmatically lead technology diffusion, taking calculated risks based on focused goals and preparing for uneven growth and rapid change with equanimity.

Cathy Rettberg, the head librarian at Menlo School in Atherton, California, is a teaching administrator who attends curriculum, technology, and division meetings. Although she does not always take the lead in using new media personally, she is respected as a risk taker and collaborative teaching partner who will put in the time to learn a new tool that she thinks might augment the research component of a curricular project. Cathy has taken a particular interest in cloud computing applications because they are platform-neutral and interoperable. For the last two years she has worked on integrating free Google applications into her laptop school so that students and teachers can learn, interact, create, remix, and publish without software barriers. She's aware of the pitfalls of using free services that are not locally managed. A service could decide to withdraw a particular tool, charge a fee, or change the terms of service. When she learned recently that students in several colleges were able to access and read each others' Gmail accounts (Perez 2009), she faced the fact that her school's investment in cloud computing necessitated a trade-off between privacy protection and free services. Yet she can imagine the synergistic potential of learning groups composed of individual students and teachers with their own dashboards and access to shared and individual calendars and multiple, interactive applications like Google Wave. They could plan and work together, simultaneously communicating and collaborating in real time, as well as playing back a collaborative sequence for someone who was absent. In this learning "cloud," students and teachers could gather and share sources; locate, create, and edit audio, vodcasts, and images; free write,

revise, and comment on text, sound, or images in an editor or a wiki; analyze data in a spreadsheet; and then, using any number of presentation options, publish and remix. The potential of this schoolwide model of communities of practice, she argues, outweighs privacy concerns.

Cathy says, “What I appreciate is that the teacher participates *with* students as they learn—these integrated online apps take the ‘guide on the side’ concept to entirely new levels.” When such technology is unleashed in schools and adopted by faculty, it has the potential to transform instruction and redefine schooling—and not just in the school library.

However, tools alone do not guarantee substantive changes in education. For example, comments and trackbacks on a blog may be disabled if a librarian uses it only to post assignments, in effect turning a participatory tool into a “broadcast” medium. If independent school librarians hope to make schoolwide changes in teaching and learning, they must be unafraid to question how and why a technology is being used, or even if technology should be used, and insist on assessing its value and congruence with learning goals.

2. Is teaching with new media different from teaching with other technology?

Unlike the first generation of digital software, whose greatest value for the school librarian was its ability to manage and organize information, new media’s biggest impact is on “relationships between people and between organizations” (Lankshear and Knobel 2006, 48–49). Although school librarians are enthusiastic about a participatory Web with independent, self-directed, collaborative students, few appreciate the deep relationship shift that a “flat” school library might entail. Librarians often see themselves as coaches and co-learners, but as yet there has been little disruption of the hierarchical relationship among librarians, teachers, and students: decisions to ban or integrate technology are made by educators, not students. Decisions about what is studied are made by adults, not children. Ultimately the librarian manages the school library, the teacher manages the classroom. The adults are responsible for imparting skills, assigning work, and evaluating learning outcomes. The students are responsible for “doing it.”

In reality, viewing these technologies through the lens of “information” is dangerously myopic. The value of the Internet and the ever-expanding World Wide Web does not live mostly in bits and bytes and bandwidth. To say that the Internet is about “information” is a bit like saying that “cooking” is about oven temperatures; it’s technically accurate but fundamentally untrue.

—Schrage (2001)

The library director at the Head-Royce School in Oakland, California, has done her share of experimenting with various new tools, but Mary Goglio is not satisfied that she has designed assignments that make full use of their potential in ways that resonate with her school's culture, the library's goals, and users' needs:

Part of the reason I'm having such trouble is that we're twelve grades with teachers and students all over the place in terms of 2.0 abilities, interests and understanding. I'm not sure that teachers or students who are using these tools think of themselves in terms of communities of practice with the potential for distributed cognition and collective knowledge generation. I think both groups, at this point, are just responding to bright shiny objects.

Can the peer-to-peer learning that is happening online and outside the classroom exist in schools? Some librarians argue that only "radical trust" (Fichter 2006) with learners as designers can enable "knowledge construction, not reproduction; conversation, not reception; articulation, not repetition; collaboration, not competition; [and] reflection, not prescription" (Jonassen et al., 1999, 16, quoted in Kimber and Wyatt-Smith 2006, 19). If we are indeed in the midst of a new age of learning in which students will exercise their freedom to question; design their environment and direct their own learning; and harness the "wisdom of student crowds" for collaborative evaluation of information, distributed problem solving, and self-assessment, then independent school librarians must face disruptive changes in control and power.

That's not to say that independent school librarians aren't questioning the focus of their teaching. Rather than teaching students to incorporate new technologies into their repertoire, some ask if they should be aggressively teaching information evaluation in an ocean of unfiltered, erroneous information coupled with an insidious infusion of advertising. Others worry that media pyrotechnics will inundate their learners and educators, preparing the way for massive societal ADD. Ought the school librarian to teach students how to manage "continuous partial attention," or how to resist impulses to multitask? What does it mean practically to teach students to use information "ethically," when copyright law is broadly contested and fair use is an ill-defined guideline? And still others ask whether the library can continue to serve the whole child; can it support both intellectual rigor and independent reflection while purveying social tools and collective wisdom?

Anne Letain, primary teacher-librarian at the Inter-Community School, Zurich, writes to her colleagues:

I daydream about my next computer—what bells and whistles I want, what kind of monitor I'll have, how I'll network it with my existing computers. Maybe I'll add a little netbook to the collection, or I might gift myself an iPhone on my next birthday. I think about open source versus shareware, about wikis and blogs and RSS feeds and social bookmarking and other interactive media that comprise my Web2 life. Will I migrate to Chrome?

But increasingly, I find myself questioning my unwavering loyalty and fidelity to the wireless world. For inexplicable reasons, I have found myself resisting invitations to Facebook, Twitter and LinkedIn.

After setting up blogs on both Blogger and Word Press, I quickly put them to death after noting that 537 other teacher-librarians already had a presence. Surely, I was not needed. I never deny the validity or worth of any of these beta and otherwise apps and have signed on to many. But, this niggling doubt about the magnificence of being “on” 24/7 has been festering inside me. What is the REAL point of being immersed in this enormous ocean of largely unfiltered information?

Human attention is indeed finite. We cannot multitask ourselves into a new age of enlightenment. Learning is a pyramid of historically based fundamentals (like philosophy, geography, art, science, mathematics, et al.) culminating at its apex with acquired meaning and context. In a nutshell, how will this generation and those that follow become “learned” when the fundamentals have gone astray? In other words, what does it matter that a second grader can embed a video into a personal PowerPoint presentation but doesn’t understand why he chose that particular YouTube segment or what the significance of the content is for our society. This is my kind of daily dilemma.

3. Where should I focus my attention?

Independent school librarians have focused their time and energies in a variety of ways. Some use an information inquiry research model to guide students in constructing new insights. Others make choices about which tools to use, inspired by a vision of schoolwide learning. Two important concepts, implicit in many of these examples, can focus these efforts. The first, “backward design” (Wiggins and McTighe 2005), is a method of planning curriculum so that students learn what the librarian or team intend, rather than just what might emerge. First the team identifies what students should be able to know and do; then they pinpoint evidence that will show that students have indeed achieved these goals; and finally they design experiences, choose tools, and select instructional strategies that will scaffold students’ learning toward these goals. The content and steps of the project *enable* students to understand the important ideas and understandings that were identified as essential (Wiggins and McTighe 2005, 17–20). See figure 9.2.

Researchers find that extracting the full learning return from a technology investment requires much more than the mere introduction of technology with software and web resources aligned with the curriculum. It requires the triangulation of content, sound principles of learning, and high-quality teaching—all of which must be aligned with assessment and accountability.

—Lemke, Coughlin, and Reifsneider (2009, 6).

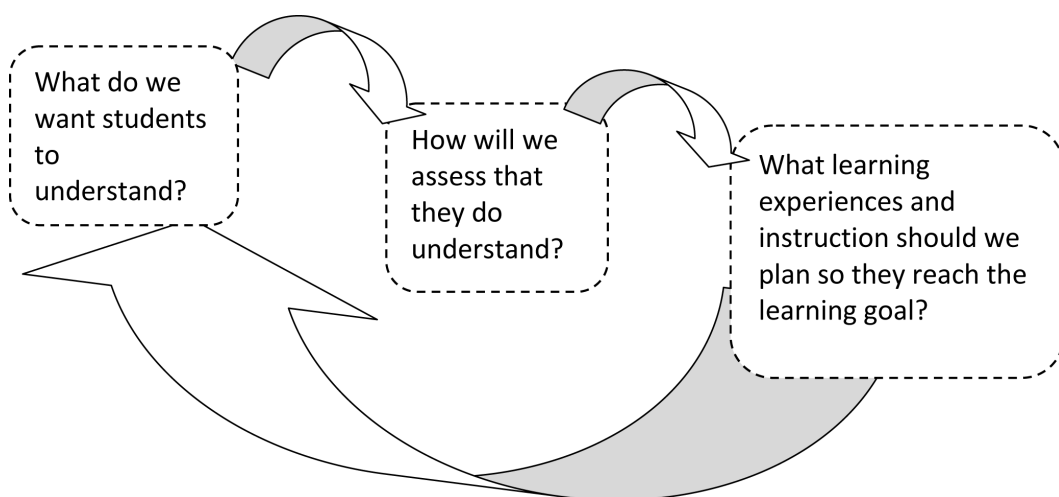


Figure 9.2. Backward Design. Based on the curriculum design model of Wiggins and McTighe (2005)

The second idea relates to selecting teaching strategies that have been proved effective. *Classroom Instruction That Works* (2001) distills decades of educational research findings into nine research-based teaching strategies, listed in descending order of their impact on student learning:

1. Identifying similarities and differences
2. Summarizing and note taking
3. Reinforcing effort and providing recognition
4. Homework and practice
5. Nonlinguistic representations
6. Cooperative learning
7. Setting objectives and providing feedback
8. Generating and testing hypotheses
9. Questions, cues, and advance organizers

Many of these strategies appear in our snapshots, but “intentional” curriculum design means that these are used explicitly and systematically in every unit or project. By planning backward and using effective instructional strategies throughout a project or unit of study, then assessing and documenting the results, the independent school librarian can be certain of enhancing learning for students and teachers, whether online or face to face.

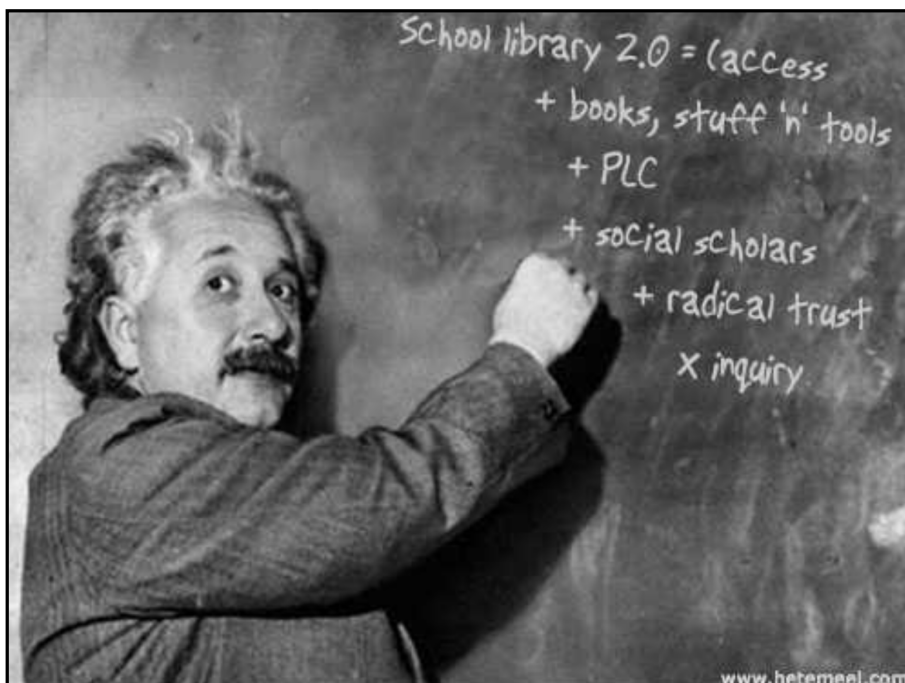
Conclusion

Social technologies and participatory culture stand to transform how students, teachers, educational technology professionals, and librarians work together in libraries. Interaction, rather than information, is emerging as a primary driver of collaboration for learning. In untested waters, independent school librarians are thoughtfully choosing technology to improve their services and instruction. A few are using tools in ways that destabilize their authority and power with the goal of reinventing their school libraries as dynamic learning commons. As librarians negotiate their online presence, balancing privacy, responsibility, and free speech, they must be willing to expose their experiments, reveal their tacit knowledge, and honestly assess their efforts. Through informal networks, sharing strategies and insights, independent school librarians can identify best practices of social scholarship.

Interaction, rather than information, is emerging as a primary driver of collaboration for learning.

We return to the beginning to reiterate the sea changes that technologies are bringing. In independent school libraries, teaching, learning, and research are increasingly:

- **Participatory**—Experiences both inside and outside the curriculum are designed for inquiry and collaboration to promote knowledge creation and global citizenship.
 - **Integrated**—Learning with new and traditional sources and formats is both multiliterate and multidisciplinary.
 - **Experimental**—A beta-tolerant culture allows for the assimilation and frequent assessment of new technologies that are deployed to enhance learning.
 - **Ethical**—Issues like plagiarism, privacy, and copyright are discussed as ethical dilemmas involving the public good, economic incentives, transformative online creation, and scholarly attribution.
 - **Independent**—Students and teachers become independent, self-reflective learners, whose learning is “transformational” when they can “find, understand, evaluate, and use information in various forms to create for personal, social or global purposes” (Abilock 2007).
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Elisabeth Palmer Abarbanel is in her thirteenth year as Librarian for the middle and upper schools at Brentwood School in Los Angeles, California (www.bwscampus.com—school; www.bwscampus.com/academics/library_east.aspx-library). She has worked at two other Los Angeles independent schools and as a public librarian in both adult and children's reference. Elisabeth writes about her school library experiences and issues relevant to school librarians in her blog, Archipelago (www.archipelago.blogspot.com).

Debbie Abilock is Editor-in-chief of Knowledge Quest, the journal of the American Association of School Librarians, and co-founder of NoodleTools, Inc. (www.noodletools.com/debbie/bio/), which designs Web-based tools to support students' academic research. She received an American Memory Fellowship and Time Magazine's Grand Prize for innovative online curriculum, and is a Library Journal Mover & Shaker. She has conducted workshops and given presentations throughout the United States and Europe and works with schools and nonprofits on inquiry teaching and learning based on her experience as a teaching librarian, director of a unified library/technology department, curriculum coordinator, and school administrator.