Chapter 50: Weblogs and Collaborative Web Publishing as Learning Spaces

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Weblogs have received a great deal of public attention recently, accompanied by a certain degree of hyperbole. Software designed to maintain weblogs is little more than a simplified content management system. The excitement surrounding weblogs has less to do with flexible systems that ease the process of web publishing, and—like many technologies that allow for virtual interaction—more to do with the cultural practices that have evolved using these technologies as a foundation.

As with any other educational technology, the success of weblogs and other web publishing technologies in an educational setting depends heavily on the specifics of their implementation and use. The following pages explore the exciting potential of weblogs and related tools for student-centered education, provide some indication of how they might be used most effectively to meet the needs of learners, and discuss the inevitable difficulties of engaging the kinds of radically open and democratic education that collaborative web publishing engenders within existing institutional spaces. The assessment of such approaches remains guardedly optimistic, and it is hoped that readers will actively contribute to refining these technologies to allow for more effective and rewarding future learning environments.

1.   COLLABORATIVE WEB PUBLISHING AS A TECHNOLOGY
         AND A PRACTICE

It seems clear that weblogs existed well before they were named. These days, there are nearly as many definitions of weblogs as there are weblogs. Most of these relate to the formal presentational structure of a genre of web pages. Jill Walker's (2003) definition, for example, notes that:

> A weblog, or blog, is a frequently updated website consisting of dated entries arranged in reverse chronological order so the most recent post appears first (see temporal ordering). Typically, weblogs are published by individuals and their style is personal and informal.

While Walker goes on to suggest some of the behaviors and motivations that lead to this formal presentation, as with most weblog definitions, the focus is

on the web page itself. Such definitions certainly capture many of the features that are frequently found on weblogs, but by no means are these observable attributes always present or clear.

Rebecca Blood's (2000) history of weblogs describes what sort of material is usually placed on such pages. The original weblogs, according to Blood, were websites created to keep track of and publicize other pages found on the web. In some ways they resembled public, annotated "bookmark files", cataloging and identifying websites that the author thought were particularly interesting in one way or another. At least one of these sites also linked to other sites with a similar aim, and this cross-linkage is what would later evolve to become a "blogosphere" of interlinked blogs.

A second type of blogger then emerged, growing rapidly in numbers by 1999, according to Blood. Rather than the outward focus of the public link-ers, these weblogs were composed of short diary entries in which authors would make note of their thoughts and experiences, sometimes several times throughout the day. In order to support these new bloggers (and helping to drive the development of blogging) a number of content management systems were developed that aimed to make updating a weblog easier. Naturally, there is no clean line between these two types of blogging; those who primarily provide links often provide reviews of the sites to which they link, and those who publish essays or their short observations often accompany them with linked materials. Rather, these two pure types of blogging help define a spectrum of approaches.

These two ways of identifying weblogs—by their formal organization and by the kinds of content that they contain—may have been adequate during the earliest days of blogging, but as blogging has grown as a phenomenon, it has become clear that part of what makes a weblog is whether and in what ways it is linked to other weblogs. What drove the rise of weblogging was not just a desire to increase the frequency with which personal web pages were updated. When weblogs began to link to one another, bloggers were increasingly able to self-identify as a group, and—potentially at least—as a community. Weblogs exist chiefly as a part of a larger "blogosphere", a term that has been employed in various ways (cf. Hiler, 2002) to describe this collective hyperlinked subweb. That is, one of the most important ways of discovering whether a page on the web is a weblog is whether it links to other weblogs and whether other weblogs link to it. Unlike the earliest examples of weblogs, more recent examples engage in an exchange with some subset of the millions of other weblogs being published.

This focus on the aggregate nature of weblogs begins to indicate that blogs are more than simply a genre of web content, they represent a social practice. Restricting the definition to purely a description of the web sites generated is difficult because it misses so much. The only seemingly vital element of weblogging is a public forum (the World Wide Web) in which bloggers are able to associate and self-assemble into groups. The attraction to weblogging

has less to do with the software involved and more to do with the kinds of social groups that emerge from interactions among weblogs and their authors. These practices provide for serendipitous, unstructured learning, as differing perspectives and discourses come into contact with one another.

In our discussion we should include tools that perform similar functions, and provide for similar venues for social interactions. Wikis, for example, are web pages that are easily updated by (usually) any person who encounters them on the web. While not as familiar as weblogs, the success of projects like Wikipedia—an online collaborative encyclopedia project with nearly a quarter million articles in English alone—has brought collaborative hypertexts like wikis wider recognition. Related systems that allow for the sharing of personal information among networks and friends, often referred to as "social networking systems", as well as machine-readable forms of weblogs, wikis, and social network information, form a larger information ecology that allows for the traffic of ideas within a community.

While several alternative labels for these technologies have been suggested, all represent some form of collaborative web publishing; that is, all support the addition and editing of relatively short pieces of text, sometimes images, audio, and forms of media, in a way that invites multiple authors to link their ideas together. Of course, while these changes may be small (resulting in what is sometimes referred to as "microcontent") the impact is often anything but. As the example of Wikipedia above demonstrates, in the aggregate, such efforts can yield a substantial collaborative text. Nonetheless, because the text can be addressed and constructed in very small pieces, it allows for the kinds of communicative give and take that are more often associated with synchronous environments.

It would be a mistake to assume that there is a single culture that pervades the blogosphere to the exclusion of all others. Indeed, the variety of bloggers allows for niche communities of interest that would be far more difficult to maintain without the openness of the blogosphere. Bloggers have inherited a core set of values, common to the early computer hackers, and passed on through earlier virtual environments. Pekka Himanen notes in *The Hacker Ethic* that hackers' (and here he means computer enthusiasts) relations to the idea of networking, though present in the 1960s, "received a more conscious formulation in recent years" (2001: 86). He traces some of the virtues cultivated by hackers, including passionate engagement in their work, autonomy from government and others, pursuit of social position (sometimes to the exclusion of financial gain), and perhaps most importantly, an active and caring approach to communication on the Net (pp. 139–141; Levy, 2001, lists similar attributes).

These virtues are not difficult to identify within the blogosphere. Mutual aide and open exchange of information are encouraged as norms. Although the commercialization of blogging recently has begun in earnest, many tools remain freely available. The Creative Commons movement, an effort to provide

a more flexible intellectual property regime to encourage the sharing of information, has enjoyed a warm welcome from many in the blogosphere. Many of those who engage in blogging become interested in extending and changing the tools they use, and this kind of amateur tinkering is at the heart of the hacker ethic. Respect from one's peers is highly valued. In many ways, the practices of the blogosphere resemble nothing so much as the scholarly exchanges common in academic settings, and the number of professors and students that choose to take up blogging is therefore not particularly surprising.

Given the nature of collaborative web publishing, it is sometimes difficult for non-participants to understand. Of course, all technologies have considerable social components, but a television, for example, has a fairly limited and easily described range of uses. Weblogging is essentially an evolving collective and social practice, and therefore easier lived than described. In what follows, we will examine ways in which the social technologies that drive collaborative web publishing may be effectively leveraged in educational settings.

2.   WEBLOGS AS REPLACEMENT TECHNOLOGY

Technologies provide a "valence" of potential uses, to borrow the terminology of Carolyn Marvin (1990), writing in the context of the early adoption of the telephone. What we think of as the telephone today is the result not only of the initial development of the technology, but a complex evolution of social practices over time. Examples of telephone systems used for news broadcasting, or Edison's decades-long delay in accepting the use of the phonograph for music recordings, remind us that a technology does not choose its own use, though it may suggest some uses. In part, this is because new communication technologies are inevitably initially fit into existing ideas of how communication takes place. Depending on the metaphor with which blogging is approached, it may seem fairly obvious how such a technology is to be employed. Nonetheless, new communication technologies also have the capacity to violate our expectations, and usually do (Nord, 1986). Having our expectations disrupted need not be a bad thing; indeed, it is central to the process of learning. Nonetheless, the earliest applications of collaborative web publishing in educational contexts have aimed to replace existing analogues.

Despite the range of ways in which weblogs might be employed, the two general types of weblogs identified by Blood, above, suggest the most obvious potential uses. Diaries and journals are a longstanding fixture of writing and foreign language classes. Journals are also commonly employed in other subjects, including lab notebooks in the sciences, and sketchbooks and portfolios for teaching the arts. Teachers often encourage students to keep notes of their own, and sometimes use these notes as an additional indicator of their progress. The earliest uses of weblogs thus far have been as replacements for

writing journals. Despite difficulties, there are several advantages to the use of weblogs in this setting, especially in that they provide a more immediate and social environment for writing (Kajder & Bull, 2003), which when combined with the improvements to student writing that seem to accrue simply by moving to a computerized form of journals (Goldberg et al., 2003), represents an obvious area for experimentation.

There has been a move over the last decade toward using portfolios of student materials to improve evaluation and learning. Such portfolios not only provide a richer understanding of student abilities and progress than do narrower evaluative approaches, but also provide a way of allowing students to better monitor their own progress and become more active in the learning process (Frazier & Paulson, 1992; Lamme & Hysmith, 1991; Tierny et al., 1991). The involvement of students in their own education, not surprisingly, often results in a better understanding of the material, when compared with traditional evaluation methods (Finlay et al., 1998). Portfolios can also be used to communicate progress to parents and others (Flood & Lapp, 1989), and to help teachers evaluate their own efficacy (Hiebert, 1992). There are a variety of ways in which portfolios may be organized. Some students assemble their best work, and provide an overarching narrative to frame that work in a "showcase" portfolio. Others use learning portfolios: Records of progress and achievement in a field of study. Portfolios have gained ground in areas outside of education as well, and much of the work relating to school portfolios applies equally to professional and personal portfolios.

There have been various efforts to move portfolios online and create electronic portfolios, or e-portfolios. This has been particularly popular at the tertiary level, with a number of universities promoting e-portfolios for their students. E-portfolios provide the advantages of traditional portfolios, but in many cases also provide a way of moving beyond the student-teacher dyad. When a portfolio is placed online, it provides an opportunity for parents, friends, and others to view the work of the individual. Making the portfolio electronic has the further advantage of allowing for a variety of multimedia and interactive content, depending on the skills of the student both in creating such material and, not insignificantly, making it available via the web. While there is much excitement over e-portfolios at the moment, and a number of incipient projects, it seems that effective supporting software remains a stumbling block (Young, 2002). Moreover, the approach is much more akin to traditional publishing models: Portfolios may be updated, but rarely incrementally.

Weblogs are a natural extension of online portfolios. As noted above, weblog software is little more than a simple content management system, a way of placing work online with little effort. Such software can provide an easy way of managing online portfolios, and often the term "e-portfolios" is now used in the same breath as "weblogs" (or as "blogfolios"; Levine, 2003). While it does, at some level, provide some of the same functions as an online journal or portfolio, generally, an implementation using weblog software will bring with

it certain expectations in terms of the length and permanence of the materials, the connection to the audience and other online content, and the motivation to publish.

Before examining some of those differences in more detail, we might turn briefly to the other form of blogging: Those websites that focus on selecting and annotating links to information found on the web. In 1945, Vannevar Bush described what many have suggested is one of the earliest visions of hypertext, and suggested that mapping information space would be a primary way of transmitting knowledge in the future. He writes that the associative process of research through the literature of the world could be recorded as a "trail" of a researcher's linkages and annotations, "and his trails do not fade". The processes of discovery, as well as the records that make up that discovery, are easily recalled in this "enlarged supplement to his memory".

Students at all levels often turn first to the web when called upon to do research, only later reverting to the library, if at all. Given the increasing availability of authoritative information available on the web, using this information effectively is a worthwhile skill. The process of annotating their search, using a weblog or wiki, provides a window on research, an opportunity for teachers to intercede in the process, and for the student to be more reflective about their own efforts. Students can use this process to learn to manage information effectively. Also, linking to their sources helps to avoid problems of plagiarism and provide a venue for understanding copyright, as students come to a greater appreciation of the originality of their own work (see Oravec, 2002).

Finally, especially at the college level, teachers have experimented with using weblogs for course management. Because of the flexibility of many weblogging systems, they may be customized to this end relatively easily. Readings, handouts, and assignments may be distributed through a weblog, but weblogs are even better suited to providing a central location for news and discussion related to the course. Many of the large, commercial course management systems have been experimenting with collaborative web publishing systems of various sorts. It remains to be seen whether such systems will retain the cultural practices that have led to the success of weblogs and wikis.

To draw on a metaphor already applied elsewhere in the context of blogging (Frauenfelder, 2000), the automobile began as a replacement for the horse-drawn carriage, and was for some time the "horseless carriage" before it was clear that it not only provided for new kinds of uses, but shaped social interaction, the built environment, and a national culture. Weblogs can certainly serve as replacements for existing educational technologies, but their potential reaches far beyond this. Weblogs provide an environment amenable to decentered, distributed, experiential learning. One of the greatest differences between collaborative web publishing and other computer-mediated forms of educational interaction is that weblogs, wikis, and similar technologies

encourage public engagement, interaction with a broad community, experiential learning, and an extension of the learning process beyond the physical and temporal boundaries of the classroom.

Etienne Wenger describes what he calls a "learning architecture", based upon certain needs:

1) places of engagement
2) materials and experiences with which to build an image of the world and themselves
3) ways of having an effect on the world and making their actions matter.

(1998: 271)

The following sections suggest that collaborative web publishing can help to provide for these three needs. By creating virtual places of engagement, and in combination with directed self-discovery, students can use weblogs, wikis, and related technologies to engage in an active, communal learning process.

3.   THE OPEN CLASSROOM

The most obvious difference between keeping a traditional journal or portfolio of work and keeping a weblog is that the former is likely to remain relatively private—shared between the author, a teacher, and perhaps friends, parents, or in some cases an employer. Weblogs have the potential of being far more public. In the extreme case, a weblog entry might attract millions of readers. But it is not quite right to place these two media on opposite sides of a public/private dichotomy. Weblogs exist in a gray area, the unfiltered expressions of a private individual, within reach of a broad audience. Some have compared their role to the salons of 19th century France: A fundamentally public sphere, but relying on personal interactions and dialogue to arrive at understanding (Habermas, 1991; Mortensen & Walker, 2002).

The word "public", especially in contemporaneous usage, suggests some form of broadcasting is taking place. A better word might be "transparent". The interactions between the teacher and the students, and among the students, are radically open to observation. For those students who are already steeped in a culture of open discussion in the classroom, this might feel familiar, but especially within large universities, this openness of exchange is a relatively novel and exciting experience for many students.

This transparency is initially and primarily among the students in a class. In many cases, despite public accessibility of course websites, dialogue with those outside the class is comparatively sparse, especially when students are just getting started. It might seem that a student would be most concerned with what a teacher thinks about her work, but students are often far more concerned with how their peers view their work. In some cases, of course,

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this can be a difficulty. A student may be apprehensive about sharing her own work with her classmates, but the advantages to open work can be enormous. Students are generally interested in helping one another succeed, and when presented with assignments that invite collaboration, they find the work both enjoyable and fulfilling.

Some see the absence of school walls as removing a protective barrier to the outside world, particularly for younger students. Clearly, students should be made aware of dangers in their environment, and guidelines should be established to ensure their safety and privacy. Since the protective walls (and firewalls) of the school are only temporary, it is important that students learn the skills needed to protect their privacy online and off. At the beginning, students may not realize how widely their voices carry, and the influence they can have. With that power to influence comes the responsibility to wield it appropriately. One way to protect students' privacy is to make certain topics or identifiable information off-limits. A further measure is to have students create an alternative identity. This comes at the cost of making the virtual environment even less real and more virtual, but in order to maintain the safety of students, this may be a necessary price to pay.

4.   TRIPS WITHOUT THE FIELD

In early 2004, Elizabeth Lane Lawley toured Japan and China with her son, and he brought his fourth-grade class along virtually through his weblog. He described visiting the *dai-butsu* in Kamakura, and a night of *kabuki*, while his class commented and asked questions. These kinds of virtual field trips have a bit of a history, and a number of initiatives aim to make virtual field trips more easily accomplished (see, for example, the Remote Accessible Field Trips project: http://www.raft-project.net/). Having a student or group of students act as the agent of a larger class provides a unique translation of the world to the classroom. Students exposed to these kinds of hybrid field trips have a special advantage of being able to interact with their environment in a very social way, and likely took much more from their experience because of it.

Naturally, one of the reasons to remove the walls of the classroom is because it provides the opportunity for students to experience the world more directly. That experience can mean a number of things. As Rousseau noted in *Emile* (1979), we learn from nature, from other people, and from things, and only when these three masters are in harmony do we gain understanding. Experiential education is most often seen as somehow distinct from more academic kinds of classes and confined within service learning experiences, internships, practica, and outdoor adventures or museum trips. The ways people learn outside of classes is different from the ways they learn within traditional classrooms, and instead "tend to emphasize wider goals better captured by

terms like enculturation, development, attitude, and socialization" (Schauble et al., 1996).

The bridging of public and private engendered by collaborative web publishing provides a unique opportunity for students and teachers to actively engage global, networked communities while remaining on school grounds. As much of our work continues to involve the manipulation of text and symbols, and as our everyday social lives become entangled less within local physical communities and more within global networks, the kinds of interactive experiences to be had online constitute a valuable and expansive space for learning.

While writing in a personal journal represents an exercise of a particular skill, it does not reflect the experience of using that skill; studying French conversation is not the same as having a conversation in French. Some have suggested that what is vital about a "real world" experience is that it has consequences, often in terms of connections or relations to those outside of the classroom (e.g., Bell, 1995). Others take the view, originating in part from Vygotsky (1980), that all knowledge is an internalization of interactions with others, and that a broad exposure to such interactions is thus beneficial to learning. Those who take a more psychological than social approach to cognitive constructivism might favor experiential learning because it connects education with physical involvement. For Vygotsky, a pioneer of social constructivism, using language as a tool is the defining characteristic that makes us human, and through the exercise of conversation we learn about our world.

Interacting with people in places other than the classroom, people who live in different circumstances and different cultures, provides an opportunity for students to engage in expansive social networks, and by doing so become more self-aware and self-reliant. While it may be counterintuitive, it is through these interactions that students become more self-directed and seek out autonomy. As Robert McClintock (2000) notes, today's youth live within a globally interconnected network, where the urban connections of the past are brought together in the new form of networked communications:

> As the oldest of the new media, the city is the place where people form and exercise their powers of choice. "Stadt Luft macht frei". Youth, coming of age within the city, has this task of forming distinctive powers of choice, building chosen skills and preferences, making a place within the great mélange of human achievement. The city concentrates together human possibilities. The young must choose and master, exercise their elective affinities. In this process, they strive to achieve a persona, a recognizable presence accorded to them by a community of peers. In the city, people shed ascribed characteristics, striving instead to take on acquired, achieved ones.

To place them within an institution that artificially keeps them cloistered for many of their waking hours does them an extraordinary disservice. While there is certainly a need for formal instruction in certain areas, the balance that Rousseau speaks of is lacking in education at all levels. The interactive nature of collaborative web publishing provides the opportunity to engage the global community, and to learn by *becoming* a member of that community rather than by learning *about* that community.

5.   NEW APPRENTICESHIP

There is something inherently different between the "student" and the "newbie". Even in the most democratic classroom, social roles introduce discontinuities between the student and teacher that remain static. The newbie is simply a less experienced person within a particular field, a neophyte, a temporary category that applies only while someone learns the ropes. The student, no matter how familiar she becomes with the material, is always a student. Weblogs allow for learners to engage a larger social network, and to participate actively within that network, and to become localized experts.

As noted above, to a greater or lesser extent, weblogs provide the opportunity to link to source information and ideas. But linking to ideas in the massively collective hypertext of the World Wide Web often means linking to individuals as well (see Nilsson, 2003). The brief, timely pieces of text that make up collaborative web publishing encourage engagement by neophytes. Collaborative web publishing allows those who research within a narrow academic specialty to more easily cross traditional disciplinary boundaries (Aïmeur et al., 2003). Because it is so difficult to determine the audience for a particular short entry, the author must assume very little context. As a result, even the weblogs of experts in the field provide links and explanations that might not appear, for example, in a scholarly journal within their own field. This ease of entry also encourages students to become involved as producers of knowledge from an early stage, and to make provisional statements of ideas and knowledge with the hope that these will be engaged, challenged, and worked out in dialogue. That is, the newbie makes knowledge, even when she only makes mistakes.

Apprenticeship, abandoned at the end of the 19th century in favor of mass schooling, emphasized learning by doing. The vision many associate with apprenticeship—in part because this is where apprenticeship remains strong—is craft skills like masonry or cabinet-making. Plato's use of dialogue to teach, or to learn together, also represents a form of apprenticeship. This approach to learning was all but eliminated in the United States at the turn of the last century in favor of homogenized education for immigrants, standardized curricula, and credentialing, especially at the college level (Popkewitz, 1987). Large schools also came to reflect the bureaucratization and Fordism of mass

industrialization. As part of this transformation, empty exercises have come to replace "authentic activities" that reflect the kinds of tasks found outside of the classroom. The process of reading about a skill and then taking a standardized test relating to that skill has replaced the process of exercising a skill and gaining proficiency.

There are a number of factors that make an activity "authentic"; here we examine three (Honebein et al., 1993). Authentic activities imply students' ownership of their own tasks. The nature of many exercises in a school setting implies that the student is doing something *for* the teacher, who then signals her approval or disapproval. One of the ways in which collaborative web publishing provides students with ownership, ironically, is by making them answerable to a larger audience. When students put their name on an exercise for a teacher, they are identifying themselves, but when they post to a weblog, they own their words and are making a gift of their work to the community. Authentic activities are usually project-based, and the complexity of the activity represents the kinds of tasks that are often undertaken outside of the classroom. Rather than simply demonstrating that they are familiar with certain reified facts or operations, students must demonstrate mastery over a more global task, within a larger context. Collaborative web publishing allows for and encourages links between assignments within a class and items in the larger information environment. Finally, the work should embrace multiple alternative perspectives. The open nature of collaborative web publishing means that everyone's assignments must not only be different, but must highlight how they are different and complementary to those of their peers. Not only is work marked by the personal voices of its authors, by hyperlinking to alternative perspectives, it situates itself within an ongoing conversation, representing a multiplicity of viewpoints.

The idealized vision of a student in the blogosphere is one in which the student moves from specialist to specialist, drawing from disparate sources to assemble their own base of knowledge. Achieving this ideal requires a period of practice within the classroom in order to become competent in sharing information. While this might seem to be something that is inherent—all students naturally know how to share information—the idea of knowledge transmission that is at the root of most schooling has trained students to expect knowledge to be fed to them by experts. They are not familiar with the idea of engaging in dialogue to co-construct understanding.

Partnering with those outside the classroom should be modeled with information sharing and peer mentoring within the classroom. The creation of environments that allow for information sharing requires coordination between assignments, the research process, and informational give-and-take among peers. The course assignments and the evaluative procedures should focus on the outcomes of these collaborations, but they should also be designed to encourage such collaboration. Working in a group is a learned skill, and since many students will have had unfortunate experiences in the past with group

work, it is important to provide some process-related instruction. But even more important is setting clear proximate objectives for the groups to achieve (Brown & Campione, 1996).

Often, by presenting expectations and then establishing an environment in which peers feel free to discuss the issues, students will establish their own patterns of understanding. Jim Gibbons discovered this while teaching an engineering course at Stanford University (Brown & Duguid, 2000). When engineers from Hewlett-Packard found it difficult to come to campus to attend lectures, Gibbons had the lectures taped and the engineers watched the tapes together on the HP campus, stopping at various points to discuss the issues and come to consensus before moving on. The students who were afforded this discussion space were better acquainted with the material than those who had attended the lectures in person. Certainly, there are things that can be done to encourage discussion (particularly by modeling such discussion in other contexts), but it is often enough to simply provide what Erving Goffman called "open regions, where participants have a right not only to engage any-one present but also to initiate face-engagement with self-introductions ..." (1963: 135).

Once groups have become comfortable interacting with one another and doing collaborative research, they are much more likely to approach special-ists. This became obvious to me while teaching an undergraduate course on communication theory. Without prompting (at the time, I had no expectation that our work would carry beyond the classroom), two of the student groups writing textbook chapters as their final assignments in the class contacted theorists associated with the theories they were explaining. They most likely would not have considered doing this if they were reading a textbook and had a question, but two factors made it easier for them to approach the subject ex-perts. First, they were confident of the knowledge they had assembled on their own. Other members of the groups served as checks, validating one another's understanding of the topic. They felt, if not equals to the researchers who had written on these theories, at least that they were well-informed acolytes. They could be confident in their knowledge because they had developed it interac-tively by questioning each other, the teacher, and the literature until they felt they had some fluency. Second, they knew that their product—a chapter for a textbook had the potential at least of being read by others and aiding their understanding. As translators for other students like themselves, they felt that they were doing more than seeking knowledge selfishly, they were helping their community.

The ability to work in global teams becomes increasingly important in a global knowledge society, and the skills required for this kind of distributed collective work are best learned through practice (Knoll & Jarvenpaa, 1995). Moreover, the kind of grassroots politics and social ties that once could be assumed to be local are more and more played out in global networks (Castells, 2000; Garrido & Halavais, 2003). Knowing how to use these networks is,

naturally, an important skill. But more important is for students to understand how they might affect institutions and social relations. The Deweys saw this as a vital part of educating students for industry: "Unless the mass of workers are to be blind cogs and pinions in the apparatus they employ, they must have some understanding of the physical and social facts behind and ahead of the material and appliances with which they are dealing" (1915: 246).

6.   TIMELESS EDUCATION

The weblog extends education beyond the school in time as well as in space. Already, many have begun to talk of a record that is self-managed, and records important (and unimportant) segments of one's life over decades. One effort toward this end is the Minnesota eFolio project (http://www.efoliominnesota.com/), "a multimedia electronic portfolio designed to help you create a living showcase of your education, career and personal achievements". E-portfolios are available to all Minnesotans, student or not. This raises interesting questions, from a technical perspective, but also provides an exciting connection between education, career, and community. With a similar goal in mind, the University at Buffalo's School of Informatics, when creating a weblog system for their graduate program (http://blogs.informatics.buffalo.edu), decided that students should be allowed to keep their weblogs indefinitely. The hope was that this would establish an electronic network that connected alumni to current students, to the benefit of both groups. Already, some graduates have taken on a mentoring role, helping new students to follow in their footsteps.

As with the removal of the classroom walls, the record without end comes with a potential price. There is the potential for ideas recorded as a student to then return to haunt the graduate. Recently, a former graduate student in the informatics program requested that his blog be removed in its entirety. As a student, he had written about what he saw as deceptive practices of a particular marketing firm. He had recently been hired by a company that counted the marketing firm among its clients, and they asked that he remove the site. There is sometimes a virtue in forgetting. While a weblog makes plain growth and learning, it often presents a balanced picture of the individual. Later, when a more favorable image is desired, mistakes—especially those taken out of context –can be ripped from the past and brought to the present.

This difficulty can be mitigated entirely by pseudonymous publishing, as noted above. And students should always have the ability to edit and remove their own work. However, the best way to avoid the problems of a public record is to place student bloggers in the shoes not only of their audience, but of their future audience. Would you publish something that you didn't want to see a decade or a century in the future? Naturally, we cannot always predict what our future selves will be proud or ashamed of, but by blogging for an

audience that may include their future selves, the authors once again place their learning within a very broad context.

7.   SOME PRACTICAL IMPLEMENTATION ISSUES

I have been using weblogs and wikis in my courses since early in 1999. Over the last five years, I have used weblogs, in various configurations, for under-graduate and graduate courses of a couple dozen to a couple hundred students. None of these courses were exclusively online; all had a significant face-to-face component that included some form of in-person group discussion. None could be considered an entire failure, and none could be considered a com-plete success. Overall, however, students have responded favorably to these collaborative web-publishing systems by the end of the course, and many con-tinued using similar systems professionally and personally after completing the courses. This section will address some of the approaches taken and the lessons learned.

Collaborative web publishing brings with it some of the same problems that e-portfolios do. Trent Batson (2002) writes about its greatest drawback: "Moving beyond the familiar one-semester/one-class limits of managing stu-dent learning artifacts gets us into unfamiliar territory". With that unfamil-iarity comes a certain degree of confusion and frustration, both antithetical to educational aims. Encouraging self-directed learning does not mean setting students adrift. They should understand the objectives at hand, and partic-ipate in the process of identifying these objectives. Successfully teaching with collaborative web publishing means changing what is taught, how it is taught, and how students learn. Simply "adding" blogging to an otherwise unchanged class is unlikely to produce anything other than confusion. How-ever, using collaborative web publishing-based approaches does not require a complete departure from the traditions and practices of existing institutions. Implementation will be impossible if the formal strictures of the institutional environment are not addressed, and more importantly, without some of those formal elements it will be difficult to ease students into new ways of thinking and learning. Good teachers know that students enter a class not as empty cups, but with the total sum of life experiences that they bring to the process of learning. It is important to remember that they have also had years of ex-perience that influences how they approach learning and their expected role in that process.

It is possible to adapt collaborative web publishing in small steps, but each of these small steps must be carefully thought out and integrated with the rest of the class. Simply providing a collective weblog, and urging students to make use of it, will likely produce little in the way of results. It is the virtual equivalent of attempting to have a discussion in person without any ground rules and little guidance from the teacher. Changing the focus to

student-centered learning requires that the teacher take on a role as facilitator (Collins & Berge, 1997). That means preparing students before engaging in collaborative web publishing, acting as a model for their work, and guiding interaction. It also means planning to include weblogs or a wiki in such a way that it is more than an auxiliary to the main content of the course. For it to be valued by students, you must demonstrate its value.

However, beyond this initial introduction, the teacher must be willing to serve in a supporting capacity, as a resource for students who are seeking out knowledge. The continuing authoritarian presence of the teacher in online discussions at some point serves to inhibit engagement. As soon as practicable, students should be placed in the role of moderator and facilitator. Rourke and Anderson (2002) discuss the advantages of placing peers in the position of leaders in online discussions. In addition to this process, students should be provided the opportunity to seek out their own discussion leaders and engage in their own online communities. Learning is most likely to occur at the juncture of these communities, where differences in perspective are most likely to lead to critical thought and interactive understanding.

Given that the technology is still in its earliest stages, there are a wide variety of ways in which it is being implemented. Many early implementations of weblogs make use of the software simply to host the materials of the class and to make announcements, with the added ability of students to comment on these announcements. While a simple first step, this can be a powerful way to encourage interaction and increase communication between the teacher and students. In smaller classes, it may also be possible for students to play a more active role in managing content on the weblog, or helping to edit it. As a replacement for existing course (or learning) management systems, the weblog represents an interesting alternative. By opening the course weblog to the world, the teacher opens a window on the world of collaborative web publishing and models the kind of open interaction that can take place.

To realize the more extensive benefits discussed above, the students need to have more direct access to the tools themselves. Many instructors have now experimented with moving discussions onto public weblogs rather than closed discussion boards or e-mail lists. The advantage, beyond the open engagement, is that it encourages an ongoing dialogue on particular topics. There is an upper limit of perhaps twenty students beyond which these unthreaded discussions become unwieldy, and the advantages of discussion are lost; as David Weinberger has noted, "on the web, everyone will be famous to 15 people" (2002: 104). While there is some hope that collaborative filtering like that found on large public weblogs like Slashdot might be one way to manage these large discussions, experimenting with such systems so far has led to only limited success (Halavais, 2001, 2002).

Increased involvement in large classes usually means providing weblogs for individual students or student teams. Both have advantages. Individual blogs may provide students with an opportunity to extend blogging beyond

the classroom and engage in self-organized learning. They also allow students to integrate their work from other classes. I have encouraged this in my classes, suggesting that assignments and research done for other courses, if identified as such, is included in my evaluation of their work. Students have found this integration with other courses to be very helpful, and I have received comments from instructors in other courses indicating that the students become more active and interested in their work in those courses when they can share knowledge between classes.

This can also occur with group blogs, though these are likely to be abandoned at the end of the course unless the groups are fairly permanent. There are several ways to allow students to comment on other groups, while encouraging participation within their own groups. When combined with group assignments, and a chance for peer group discussion during the class, this can be very effective. Aggregation systems (which collect recent entries from each of the weblogs and present them in a single web page), allow the teacher or students to track all of these conversations, and concentrate on those that are of particular interest.

Wikis also represent an opportunity, both in large and small classes, to contribute to a collective work. In several of my classes, I have asked students to collaborate on an open textbook for the course, based on their research and on lectures. In others, I have had them participate in creating an encyclopedic reference of terminology, legal cases, and communication technologies. The likelihood that they may gain an audience larger than just the professor has led to consistently better written and designed work in each of my courses.

Moreover, there is the impression that there is at least the possibility that the work is not "disposable"—that it will live beyond the end of the semester. As noted above, beginning last year, graduate students in some of our programs receive a weblog when they first enter, and continue to update it throughout the program. One intention was to create a more cohesive cohort experience. The weblogs have allowed students to provide help and encouragement to one another, and share events and news of interest. They also serve as a collection of work from which they can draw when working toward their culminating projects.

For blogging or wikis to work, students must be provided a good introduction to the technology, as well as to the social practices. The software that supports blogging changes constantly, but there are a wide range of systems available, many of them inexpensive or free, and some more complicated than others. No matter which software is chosen, it is vital that students become familiar with the technology itself before engaging in assignments or learning tasks. In many cases, teachers wrongly assume that students of a certain age must be thoroughly familiar with computing and networking. While they may be familiar with using computer networks within existing institutional and social frames, collaborative web publishing represents challenges to their existing understanding of how computers are used, and the time invested in

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preparing them use a weblog or wiki, will be time well spent. Failure to do so will lead to significant student frustration and disengagement (Hara & Kling, 1999). This is particularly true when these technologies are used in a distance education setting.

Students must be made aware of what the expectations are. Especially at the university level, many students are both familiar and comfortable with traditional means of assessment. Much of what has been learned in portfolio-based assessment can be applied here. At early stages, provide a set of requirements in terms of the quality and frequency of their participation, as well as the tone and boundaries of the discourse. As students become more comfortable with self-directed learning and writing for an audience larger than the classroom, they will begin to collectively establish new goals and objectives that move beyond the guidelines the teacher has instituted. This approach to learning will be unfamiliar to students, and with some preparation, the students will be motivated by the opportunity to interact with a wider group. To ensure this occurs you must be prepared, especially at the earliest stages, to help acclimate students to the environment and to the expectations.

The most enduring lesson of these last five years is that small changes have large impacts. The approaches here tend to take more time for both the students and for the instructors. As such, it is important that the objectives of the course, and the place that collaborative web publishing takes in that process, be clearly communicated to students. There is a natural tendency among students and teachers to rely on successful patterns, and introducing a new way of thinking about learning to a classroom can be expensive in terms of time and effort. Even minor adjustments to the way the technology is introduced, or the way the expectations are framed, can mean the difference between thrilling successes and chaos. When it works, the outcomes are sometimes staggering: I still receive comments from students in prior classes who have found their work in collaborative web publishing to have had an enormous impact on the professional lives. The hope is that by continuing to refine the use of collaborative web publishing and open learning, this kind of success will become the norm.

8. COLLABORATIVE WEB PUBLISHING IN A DEMOCRATIC
    KNOWLEDGE SOCIETY

We have moved from the most practical and direct applications of collaborative web publishing technologies as replacements for existing educational artifacts to an idealized vision of the blogosphere as a continuous collaborative large-scale conversation. A conversation entails a process of give-and-take, of co-learning. The technologies at hand provide tools for leveraging conversations over time, space, and scale. They are what Sebastian Fiedler (2003) has termed "reflective conversational learning tool[s]", encouraging a shift in emphasis

from teaching to learning, from lecture to conversation. But more than this, collaborative web publishing provides a set of tools for citizens, a way for individuals to engage more fully in a democratic knowledge society.

Paolo Freire recognizes the power of dialogue, the power of naming and understanding the world. "Only dialogue, which requires critical thinking, is also capable of generating critical thinking. Without dialogue there is no communication, and without communication there can be no true education" (1993: 73). Freire sees the process of learning how to communicate as coterminous with the ability to live justly in the world. To put this in a different way, there is a significant difference between *training* and *learning*; the latter implies that the subject maintains a stake in the process and the outcome. Democracy begins in the classroom and the community. Students who direct their own learning can do so only by engaging the community. Just as it is impossible to learn effectively without engaging in discussion, consensus, and collaboration, it is equally impossible to engage in democratic collective action without a learning community. As John Dewey (1916) notes, free interaction among social groups and an interest in mutual goals are integral to both good education and good democracy.

It is easy to ascribe power to new technologies. The current excitement surrounding collaborative web publishing, regardless of the ultimate place weblogs, wikis, and related technologies serve in education, appears at a certain moment. For now, the future form of these technologies is unclear and untethered. While it still remains to be seen whether the potential of collaborative web publishing will be realized, there is reason for hope. Ithiel de Sola Pool (1983) argues that certain communication technologies have more potential to be used in the service of freedom and self-government; particularly those technologies that encourage exchange and dialogue rather than amplify the voice of a small elite. One of the reasons that collaborative web publishing has received so much attention lately is because it has the potential of being a very powerful cultural tool, if appropriately wielded. Henry Jenkins sees it as the counterpart of, if not the antidote for, the concentrated broadcast media: "Broadcasting will place issues on the national agenda and define core values; bloggers will reframe those issues for different publics and ensure that everyone has a chance to be heard" (2002).

Many have decried uncritical descriptions of new educational technologies, technologies that are often presented as educational panaceas. The description presented here remains optimistic about the possible application of these new learning tools. The claims made here are not that the application of these technologies will yield a better learning environment. As we have seen repeatedly in the past, new technologies do little on their own to improve schools. It is suggested, instead, that these socio-technologies of collaborative web publishing represent tools that can be a part of an effective change in pedagogy, a change that focuses on dialogue and participatory engagement. Such changes can be accomplished without information technologies—and they

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should remain an objective apart from questions of educational technology – but collaborative web publishing may prove to be a useful tool to use in this transformation. The only way it will be successful is if it is employed and critically evaluated within teaching environments. Over the next few years, we must pursue refinements in the use of these technologies, and we must be as acutely aware of the failures as we are of the successes.

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