

COMMENTARY

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From "Paperless Classroom" to "Deep Reading": Five Stages in Internet Pedagogy by **Grover C. Furr III**

I began using the Internet in my literature classes in 1992, before the advent of the World Wide Web. Over the past 11 years, my use of the Internet for pedagogical purposes has passed through four major stages, and has recently emerged into a fifth stage that I call "Deep Reading." In this article, I outline and illustrate this progression, with primary emphasis on the latest stage. I not only discuss the "what" and "why" of Web-enhanced instruction, but also provide some practical suggestions on how to employ it successfully. I hope that this account of my experience may inspire other instructors to use digital technologies experimentally in their teaching, and that the specific techniques I describe may save some colleagues from having to start from scratch, as I did.



INTERACT!
with this article!

Stage 1: Class Management

The term "paperless classroom" can be used to encompass all the ways in which classes can be taught and managed with the latest technologies. However, most writers use it only to refer to the management of classroom instruction: the collection, correction, return, and/or storage of records of attendance, assignments, examinations, and grades (Robb, **1997**; Damery, **1998**; Keller, **2001**).

In my first stage of technology integration, I developed a set of techniques to streamline these activities. I began by requiring that students submit all assignments by text-only e-mail, copying and pasting their work from a word processing program with the text appropriately formatted. I established a consistent format for the e-mail "subject" line so that I could file assignments by class, date, and student and then easily retrieve a particular message with the search function of my e-mail client. I discovered that spreadsheet programs can be easily adapted to grading. (Instructors can readily obtain help with even complex formulas—for example, averaging a series of assignment grades while dropping the lowest several grades—by posting questions on "expert" Usenet newsgroups such as

comp.apps.spreadsheets and **microsoft.public.excel.misc.**) With the use of a personal digital assistant loaded with an Excel-compatible program (e.g., **Quicksheet**), I simplified the process of gathering and storing attendance records.

Stage 2: Interactivity

More fundamental than the transition from paper to electronic format are the pedagogical changes that electronic technologies make possible, particularly in terms of interactivity. E-mail and mailing lists, threaded discussion forums, and real-time chat make student/teacher and student/student interaction possible outside of class, which in turn makes new kinds of activities and communication possible in face-to-face sessions.

In my second stage of technology integration, I adopted interactive tools. Classwide mailing lists or—as I have come to prefer—lists for small discussion groups can be set up easily with free software like **Lyris**, which I run on my employer-provided office PC. **Microsoft FrontPage** provides a fine threaded discussion forum feature. For real-time discussions, I use the Internet relay chat (IRC) server that my university provides, and I instruct students to use either the free **mIRC** client or a simple Web browser to access a Java-enabled IRC server interface. When a family emergency called me out of state a few years ago, I taught an entire week of classes in real-time chat this way.

Transforming pedagogy through experimentation and the development of interactive modalities is more of an ongoing process than a finite stage in realizing the potential of Internet technologies. I think of it as a second stage mainly because it marked my own recognition of a qualitatively different advantage of technology. Adams and Jansen (**1997**), Deacon (**1998**), Thomas (**2001**), and Slowinski (**2000**) have published noteworthy articles on technology and pedagogical innovation; important work in this area continues.

Stages 3 and 4: Digital Texts and Multimedia

In my third stage of technology integration, I began using online rather than printed texts. In many historically oriented subject areas like my own (Medieval literature), digitized texts can replace printed textbooks in large measure or even completely. Electronic texts also make new types of textual analysis possible, from simple key-word searches to complex linguistic analysis. In addition, students save money—a Chaucer or Shakespeare text can cost \$60 or more. I have now taught three courses entirely without textbooks, using only texts that are freely available on the Web (**Exhibit 1**).

In my fourth stage, I investigated the possibility of replacing in-class lectures with streaming audio; I discussed my trial-and-error learning process and the techniques I developed in a previous article (Furr, **2001**). The results have fully repaid the 2 years I devoted to this exciting technology. Students can listen to lectures (either mine or those of guest speakers)

at home—pausing, backing up, or repeating part or all of them at will—and then complete a related homework assignment. I often create Web pages that students consult like handouts to accompany the lectures. In case Web access is very slow, I post a link to the lectures so that students can download them to their own hard drives, which allows the audio files to be played on the students' computers with perfect smoothness.

Stage 5: Deep Reading

Stage 5 was a direct outgrowth of Stage 3 (the use of digital texts). It was inspired by my desire to give students online access not only to the primary academic text, but also to the sources on which it is based.

Regardless of what I taught (Medieval literature, American social protest literature, or history of journalism), in the past I felt limited by the fact that so many works were out of print or available only in large, research-oriented libraries. In some cases, texts were available only on microfilm—which meant that they were slow to retrieve and often in bad condition. I typically had to spend considerable time and money making photocopies for class distribution. In 1992, I began retyping shorter, out-of-print texts that were in the public domain (free of copyright) and e-mailing them to my students.

Today, digital media generally (and the Internet specifically) offer a qualitatively new form of publication. New methods of scanning and publication make it possible to digitize long works relatively quickly. Undergraduates now have access to works that were previously available only to advanced graduate students or scholars at research libraries. Once a text has been digitized, it should be available all the time, to everyone, and forever.

Digital technologies proved immensely helpful for my spring 2002 course on great books and ideas from 1550 to 1800. As a text for the course, I used a new work on this period: *The Many-Headed Hydra* (hereafter *MHH*), by Linebaugh and Rediker (2000). *MHH* draws upon many texts that are old enough to be in the public domain but that have been published in old or rare books or journals, not anthologized. Academic neglect of the topic—the history of the lower classes in the Atlantic world—has been prolonged by the inaccessibility of the texts.

In constructing the course, I followed a series of steps. First, I selected the primary documents cited in *MHH* that sounded the most interesting to me, ordered them through interlibrary loan (ILL), and then scanned them. I also obtained a number of secondary sources—research articles cited in the notes to *MHH*—that seemed important and useful to understanding the primary sources. A few of these articles were available through databases like **JSTOR**, to which many universities subscribe. But in most cases I had to get them through ILL or, if my own university library had them, in photocopy form.

I then tried different ways of digitizing the texts for electronic distribution:

- I retyped them.
- I scanned them with optical character recognition (OCR) software and encoded the results to produce Web page documents in HTML.
- I used OCR scanning to create documents in **Adobe Acrobat 5.0**.
- I used Acrobat to create graphic portable document format (PDF) files.

The most worthwhile procedure is described in more detail in **Exhibit 2**. By the end of the course, I had digitized more than 30 primary and secondary texts.

The results were good. My students were able to study the chapters of *MHH* as well as a number of the primary and secondary documents cited in each chapter. I call this "deep reading": reading beyond the text into the sources on which the text is based. We discussed some of the documents as a class; others I divided among four discussion groups so that we could at least touch on a greater number of them. Every second week, one discussion group was responsible for reporting on selected documents that the rest of the class had not read. In this way, my class of mostly freshmen—admittedly, honors students who were accustomed to hard work and who had above-average reading and writing skills—had access to scholarly studies that, due to their unavailability, I previously could not have assigned to undergraduates.

I did not lecture, though I had plenty to say in class by way of providing historical context. I promoted student engagement with the documents by assigning debates over different interpretations, requiring students to disagree with each other. Having them explore primary and secondary sources on their own—rather than listen to me explain it all for them—proved fruitful. I tried only to point out connections among the sources in order to encourage a dialogue among the readers. Students should not be taught to rely upon "authorities." I much prefer being a mentor or guide.

FTP: Ideal for Distribution of Digitized Texts

All noncopyrighted materials can be made freely available on the Web, the feature of the Internet with which students are most familiar (aside from e-mail). However, very large files—such as long Adobe Acrobat image files—download slowly on a Web browser. One solution to this problem is to burn large files on CDs and distribute these to the class, but obvious costs are incurred.

I needed a different method of electronic distribution—one that would be fast and free, and one that would not constitute "publication" so that, if a work I believed was in the public domain should actually be under copyright, I would have credible legal protection. I chose FTP, or file transfer protocol (**Exhibit 3**).

With FTP, a login and password are required to download any document. No search engines

or "spiders" index FTP sites, so it is unlikely that anyone other than my students would ever find these documents. Still, I cannot recommend distributing copyrighted texts in this way, since it is not clear at this time whether such distribution would be protected under the "fair use" provision of the copyright law. This remains an issue even though one recent article suggests that the use of "nondramatic literary and musical works" under copyright is permitted for online courses (Carnevale, **2002**, ¶3). More information is available through a Yale University guide to **copyright resources online**.

Conclusion

At present I have a methodology, sustained by a series of well-tested practices, for enhancing the ways in which I teach a class, the texts that I choose to assign, the interactivity among students and between students and me, and the course management tools that I need. Although I will struggle for a long time to fully assimilate the potentialities of what I have called here Stages 1 through 5, I anticipate with excitement my next new qualitative innovation—the future "Stage 6"—so I may cry, in the words of Chaucer's Wife of Bath, "Welcome the sixte, whan that evere he shal."

[Editor's note: This paper is modified from a presentation at the 2002 conference of the **Marxist Literary Group/Institute on Culture and Society** at Carnegie Mellon University, Pittsburgh, PA.]

References

Adams, W. J., & Jansen, B. J. (1997). *Information technology and the classroom of the future*. Retrieved August 30, 2003, from <http://www.viu.unive.it/tedis/oslp/resources/papers/adams.htm> [Editor's note: The electronic version of this file is in .zip format. A cached version of this page is also available at

<http://216.239.39.100/search?q=cache:bxuL4abcFJ4C:jimjansen.tripod.com/academic/pubs/site97/site97.pdf+%22paperless+classroom%22&hl=en&ie=UTF-8>]

Carnevale, D. (2002, October 8). Congress eases copyright restrictions on distance education. *Chronicle of Higher Education*. Retrieved August 30, 2003, from <http://chronicle.com/free/2002/10/2002100801t.htm>

Damery, D. T. (1998, April 16). *Developing a paperless classroom: Fundraising through instruction, a case study*. Paper presented at the 1998 UMass Instructional Technology Conference, Boxborough, MA. Retrieved August 30, 2003, from <http://www.umass.edu/bmatwt/publications/articles/>



[developing_paperless_classroom.html](#)

Deacon, A. (1998). *Exploring intersections of technology and writing assessment*. Retrieved August 30, 2003, from <http://www.uwm.edu/~abd/grading.html>

Furr, G. C., III. (2001, January/February). The educational applications of streaming audio: Accessible, do-it-yourself multimedia. *The Technology Source*. Retrieved August 30, 2003, from <http://ts.mivu.org/default.asp?show=article&id=826>

Keller, D. (2001, February 5). *Thoughts on the paperless classroom*. Manuscript in preparation. Retrieved August 30, 2003, from <http://www.keller.com/~dsk/PaperlessClassroom.html>

Linebaugh, P., & Rediker, M. (2000). *The many-headed hydra: Sailors, slaves, commoners, and the hidden history of the revolutionary Atlantic*. Boston: Beacon Press.

Robb, T. N. (1997, November). The paperless classroom? *TESL-EJ*, 3(1). Retrieved August 30, 2003, from <http://www-writing.berkeley.edu/TESL-EJ/ej09/int.html>

Slowinski, J. (2000, April-June). If you got IT flaunt IT: Construction of a paperless classroom. *WebNet Journal*, 2(2), 31-35. Retrieved July 20, 2002, from <http://ts.mivu.org/resource/papers/01033-Slowinski.htm>

Thomas, D. A. (2001). American legal education: Moving from the classroom without paper to instruction without the classroom? *JILT: Journal of Information, Law and Technology*, 1. Retrieved August 30, 2003, from <http://elj.warwick.ac.uk/jilt/01-1/thomas.html>

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Exhibit 1. Selected Course Sites

I have taught the following "textless" and "paperless" classes:

Introduction to Literature (spring 2002)

[**http://chss.montclair.edu/english/furr/i21/i2102.html**](http://chss.montclair.edu/english/furr/i21/i2102.html)

Middle English Literature (fall 2001)

[**http://chss.montclair.edu/english/furr/mel/mel01.html**](http://chss.montclair.edu/english/furr/mel/mel01.html)

Chaucer (fall 2000)

[**http://chss.montclair.edu/english/furr/chaucer/ch00.html**](http://chss.montclair.edu/english/furr/chaucer/ch00.html)

[\[CLOSE WINDOW\]](#)

Exhibit 2. Recommended Procedures for Finding and Digitizing Important Documents

By trial and error, I spent a lot of time learning the best, most time- and labor-efficient ways of scanning and formatting texts. I offer the following recommendations to other instructors.

1. Select the most important primary and secondary documents for your lesson or course.

If your campus does not have a large research library, you may have to obtain these documents through interlibrary loan. Some sources may already be available on the Web; use a powerful search engine to look for them. I use **AltaVista** when searching on a specific server. For most other searches, I use **Google**, which will convert portable document format (PDF) files into HTML. This valuable function allows you to access and evaluate sources more quickly. If you find a URL that is no longer valid, you may be able to locate the original page in one of the following ways:

- Copy and paste the original URL into the Google search engine box. Google sometimes keeps pages in cache (storage) after they have disappeared from the Web.
- Copy and paste the original URL into the Wayback Machine at **The Internet Archive**. This wonderful resource often lets me retrieve "dead" pages.

*2. Get **Adobe Acrobat** and the fastest scanner you can find, preferably one with an automatic document feeder (ADF).*

I used text-scanning, optical character recognition (OCR) software and a flat-bed scanner until my Great Books course was almost over. This procedure worked but was very time-consuming. Texts that I scanned with OCR, converted to a word-processing program like Microsoft Word, and then converted to HTML or PDF files were up to 75% smaller than texts that I scanned as images using Adobe Acrobat 5.0. However, hard drive storage space is cheap and plentiful; most computers come with 40 Gb or more storage. For this reason, I suggest that you proceed directly to step 3.

3. *Using Acrobat, scan the original texts as image files.*

This is what **JSTOR** does. When considering a secondary source, check to make sure that it is not already available on JSTOR.

Sammons (2002) provides an excellent introduction to Acrobat and text creation. **Acrobat Distiller**, an integral part of the program, permits users to create files of varying size and resolution, from quite small ("screen," suitable for quick download from a Web server) to very large ("press," preferred for commercial print reproduction). One good supplement to Adobe's "help" feature is Smith and Cox (2002).

References

Sammons, M. G. (2002, June 2). Using Adobe Acrobat in writing classes. *Computers and Composition Online*. Retrieved April 15, 2003, from <http://corax.cwrl.utexas.edu/cac/online/02/sammonsacrobat/index.htm>

Smith, C., & Cox, S. (2002). *SAMS teach yourself Adobe Acrobat 5 in 24 hours*. Indianapolis, IN: Pearson Education.

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Exhibit 3. Using FTP to Distribute Documents

File transfer protocol (FTP) is a very powerful facility for uploading and downloading large files. Internet veterans will remember that FTP was the main means of file exchange, along with Gopher, before the advent of the World Wide Web.

To use an FTP server, you will need a permanent Internet protocol (IP) address. If your office computer does not have such an address, ask the information technology (IT) department staff to set one up for you. This is an easy step, and it saves IT time since you become your own server administrator.

Initially, I downloaded and installed a free FTP server—QVT/Net—from **Tucows**, a major software download site. I then created a folder (directory) on my hard drive, set up a login and password, and put into the folder all the documents that I had digitized that were legally covered by copyright. (In the US, the statute covers most materials created and published since 1923). This procedure worked fine, though the free version of the software allowed only one login at a time and the creation of only five different accounts.

Eventually I bought an inexpensive but far more powerful FTP server: **Serv-U**. For \$49, I have virtually unlimited logins and accounts, all of which I can control completely. I never enable anonymous FTP, so only those persons that I authorize can log in.

In addition to the usual Web browser and e-mail clients, those using FTP will need the following:

- **WinZip** (or another unzipping program);
- an FTP client (I use the free, easy-to-learn **WS_FTP**); and
- **Adobe Acrobat Reader** (note that some PDF files cannot be seen with older versions of this software).

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