

The Humanities in Cyberspace

How the Internet is changing teaching and scholarship in the humanities

by Charles Deemer

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On a winter afternoon in a small eastern Oregon town I'll call Rural, Tom, a high-school junior, boots up his computer. As he waits for the operating system to load, he stares out the window at the snow, piled in drifts after the recent storm, thankful that he doesn't have to go out into the weather to the library, even though he has a research paper to write. It's the same paper, he remembers, that gave his sister, Sue, fits last year.

The assignment is to write an analysis of Arthur Miller's play, "The Crucible," which has been required English class reading for years in Rural (the battered old school texts show it). Last year, by the time Sue got to the school library, and later to the small community library, the few books of commentary on the play were already checked out - if they weren't lost. Like many students before her, she found herself calling everyone she knew to find out who had checked out the precious reference material and what it would take for her to spend an hour with it.

This year Tom begins his research much more leisurely. When the computer is running, he loads a CD-ROM "electronic book" version of ["The Crucible"](#) recently released by Penguin, a product that demonstrates the extraordinary way in which technology is changing the way this play and other subjects can be studied. On a snow-bound afternoon in the middle of nowhere, with nothing more than a computer and CD-ROM drive, it's as if Tom suddenly has the resources of a major library right at his fingertips.

Much more than the text of the play is included on the CD-ROM. A coding system called ["hypertext"](#) links each part of the script to a vast world of commentary and enrichment, which Tom can access by clicking his computer mouse on appropriate icons and menu items. The result is as dazzling as it is educational and captivating.

Click! On the computer screen appear the pages of an open book, the script of the play shown in easy-to-read type.

Click! Now a window pops up, in which a video of a London production of the play can be watched, picking up the action at where the "electronic book" is open on the computer screen.

Click! In another video, the actors discuss their roles in the play.

Click! In still another, Arthur Miller talks about writing the play.

These are resources seldom available to anyone, let alone a high school student, but more traditional materials are available as well. For example, Tom can bring up a bibliography of criticism about the play, a breadth of scholarship usually reserved for the better University libraries. Moreover, he can click on items on the list to go directly to the individual articles themselves. Or click to material about the Salem witch trials and the 1950s House Unamerican Activities Committee scare, both important backdrops to the play.

All of this is available to Tom in his home on a single CD-ROM. But even more powerful and dynamic is the way education is changing in schools that have access to the [Internet](#), the international network of computer resources. The traditional boundary between urban and rural school districts - giving educational advantages to larger communities with greater budgets, more resources, and a wider variety of cultural activities - is disappearing as the Internet revolutionizes the way the humanities will be taught in the future.

Technology and the Humanities

Teaching and research in the humanities have always responded to changes in technology. As human clans evolved from being strictly oral to being both-oral-and-written communities, the transmission of information - teaching and learning - changed in kind. Over time the Text gained precedence over the Sage (the person who recites the Text), which in turn elevated the cultural importance of keeping the Text in a safe place.

The invention of the printing press made written information - books - easily duplicated and text less sacred. The storage house of knowledge (where the Text is) moved out of the religious sanctuary and into the private library, which political and cultural changes eventually redefined into the widespread public library of this century.

Today the computer creates a dazzling electronic space - cyberspace - within which information is transmitted almost instantly and with almost no regard to boundaries. Nowhere is this profound change in the storage and dissemination of knowledge more impressive than on the Internet's [World Wide Web](#).

Classroom Without Walls

The Internet is a network of networks of global computers that can talk to one another and exchange all kinds of information - from electronic texts of classical literature to current periodicals; from bibliographies to library indices; from formal scholarly papers to personal electronic mail; from text to graphic images, sound and even video.

Most of what the humanities scholar can do in the classroom, the office, or the library can be done more efficiently on the Internet. Computers linked together by the Internet are found in both urban and rural areas - at universities, government agencies, corporations, and private homes. About 20 or 25 million people have [access to the Internet](#), and this figure is growing rapidly.

There are many ways to get around on the Internet, linking from one computer on the network to another, but the fastest growing and most powerful resource tool is called the World Wide Web. Using the same "hypertext" coding principle found on multi-media CD-ROMs, the Web permits rapid movement between different documents at different sites, literally moving the researcher between different libraries around the world in a matter of seconds.

For example, a researcher logged onto the Web can immediately move from a document at one location, the University of Maryland, to a corroborating document (or part of a document) elsewhere, say at a company in Sweden, then to a relevant commentary at UCLA, and finally back to the original document - all in a few minutes.

The tool making this rapid interaction possible is called hypertext - a nonlinear interactive electronic text that has become the primary language of the Internet and may well become the test of literacy in the twenty-first century.

Jane, a student in a small suburban high school, is assigned a research paper on the history of hypertext and its new applications in hypertext fiction.

After connecting to the Internet, Jane instigates a ["veronica" search](#) for the word "hypertext." In a matter of seconds, her computer screen shows a list referencing every menu on the Net that mentions "hypertext" (a menu is a "table of contents" at an individual Internet site, telling what is available there and elsewhere and providing the links for accessing the material).

Following electronic links that begin at each menu, Jane is led to relevant documents about hypertext. She learns that hypertext has a very long history. The concept was first presented in a 1945 **Atlantic Monthly** essay by Vannevar Bush called ["As We May](#)

[Think,](#) which is available in its entirety on the Internet. Jane electronically mails the article to herself so she can read it later.

She learns that the guru of hypertext, who coined the term in 1965, is [Ted Nelson](#), whom she locates at the Xanadu Corporation in Australia, where many of Nelson's seminal articles are cited and his current work summarized.

Continuing her global research, Jane finds a wealth of introductory material at CERN, the particle physics supercomputer in Switzerland, including a [glossary of hypertext terms](#) and an essay, ["What is Hypertext?"](#) She mails both to herself.

She finds significant contemporary material at the University of Virginia, downloading essays with titles like ["The Rationale of Hypertext"](#) and ["Virtual Textuality."](#)

At the University of Ottawa Jane finds a journal, [The Hypertext Review](#). At Rice University she finds a "Home Page" (table of contents menu) maintained by a systems programmer (not a literature professor!) that contains links to numerous [examples of hypertext fiction on the Internet](#).

Her exploration takes her to the ["alt.hypertext" newsgroup](#), a forum where hypertext experts talk shop, and there she finds Mark Bernstein of Eastgate Systems, the country's leading publisher of serious hypertext fiction. She sends him an e-mail message, asking for an interview. He quickly accepts.

Only half an hour has passed, and Jane has mailed herself relevant documents from sites in Australia, Switzerland, and Canada, as well as from Virginia and Rice Universities. She has also scheduled an interview with one of the country's experts on hypertext fiction and located the guru of hypertext, Ted Nelson. Not a bad half-hour's start on her paper for a student who lives miles from the nearest college library.

Graphics, video and sound are available on the Internet to those with the proper hardware and software to access them. A student of art history can take the Internet's ["virtual tour" of the Louvre](#). A scholar can download sound files from the daily [Internet Talk Radio](#) program (patterned after National Public Radio) and listen to a book review or interview over her computer's sound card.

The humanities resources on the Internet are growing rapidly. [Project Gutenberg](#), for example, puts the full text of world literature classics online. Dozens of works are already available - philosophical treatises by Plato and Descartes; novels by Jane Austen, Mark Twain, and Dickens; poetry by Milton and Longfellow; the complete works of Shakespeare - with more texts brought online regularly by this and similar projects.

On the Net, students can join [electronic forums](#) and find contemporaries with similar interests, making "virtual classmate" friends around the world. They can practice their foreign language studies with native speakers. Students can even participate as equals in scholarly forums with professors - judged only by the quality of their ideas. (In a New Yorker cartoon, one dog at a computer says to another, "They don't know you're a dog on the Internet.")

The classroom that has access to the Internet is a classroom without boundaries.

Distance Learning

Rural communities have the same opportunities as urban ones on the Internet, as long as they have access. Even in areas without nearby colleges, "virtual classrooms" can provide disciplined and accredited course studies. "Distance learning" brings the school to the student, rather than making the student go to the school.

Mike is a recent widower. After retiring, he often thought of going back to college to pursue his lifelong interest in American history. But Mike has to use a wheel chair and isn't very mobile. When a friend tells him about distance learning, which would let him take accredited college courses at home on his computer, Mike decides to look into it.

On the Internet, Mike finds the [International Centre for Distance Learning](#) in the United Kingdom. He accesses their central electronic catalogue, which permits him to search for classes.

To his astonishment, his first search reveals that there are 7,833 accredited humanities courses offered by computer at colleges and universities throughout the United Kingdom. As he narrows his search to areas that interest him, Mike finds a course called "Origins of the American Revolution," which is taught at a University in New Zealand.

He is intrigued by the notion of getting a "foreign" point of view about his own country's origins and electronically sends for additional information. Within a few minutes, he receives an electronic brochure and application by automated return e-mail and decides to enroll.

A surprising number of degrees - including graduate degrees - are available by distance learning. Besides providing a greater choice for students who have difficult access to classrooms, distance learning also offers new and increasing opportunities for teachers.

Cultural Diversity in Cyberspace

The World Wide Web is an international phenomenon. Sometimes American researchers suddenly find themselves facing computer menus in Spanish, French, or Japanese (although an English translation is usually only a keystroke away). This international climate establishes a sense of intellectual community, bringing all the resources of the world into a common cyberspace, suggesting an emerging holistic organization of knowledge.

Vladimir, a Russian immigrant and poet in Portland, has been homesick ever since he arrived. When his new American friend introduces him to the Internet, gaining access at Portland State where he teaches, Vladimir's world changes dramatically.

Subscribing to personal access by his PC at home, Vladimir discovers the [Window-to-Russia Home Page](#) maintained by the Relcom Corporation in Moscow. Downloading free software to give his computer screen Cyrillic fonts for showing Russian, he is able to access literary archives at Moscow State University. He tours a "virtual art exhibit" at a gallery in Moscow, finding the work of several of his old friends.

Linking to the University of Pittsburg, Vladimir finds the ["World Wide Web Virtual Library for Russian and Eastern European Studies,"](#) an even greater resource of Russian documents. Here he finds numerous files of Russian literature, humor, myth, and music - all in his native language. He learns he can download a weekly digest of articles from Russian periodicals, giving him a way to keep up with intellectual and artistic news from home.

Vladimir also uploads several new poems into archives in Moscow, so that his former readers and colleagues can keep abreast of his recent work, despite the physical distance separating them. For the first time since coming to America, he has the sense of having an audience for his work again.

The [Web's Virtual Library](#) provides a starting point for research in all the disciplines of the humanities.

