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What's with the Web?

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WHAT’S WITH THE WEB?

The World Wide Web is being used more and more as a teaching tool. How can it be useful? Will the Web gradually supplant the teacher in the classroom? Will the Web help to redefine the word learning?

At Cyberspace University there are no tree-lined lawns with benches dedicated to the “Class of ‘46,” no classrooms or dormitories, no libraries with dusty shelves and no basketball—all of which may make some Kentuckians feel downright bewildered by the ruckus caused by computers.

Thanks to the World Wide Web (WWW), the modern university is extending electronically across the globe so that now research labs can share their latest findings instantaneously. Anyone at the tap of a few keys can find Web sites dedicated to the popular or the arcane, and foreign exchange students on American campuses can stay in touch with family and friends from around the world.

For a new generation of college students—many of whom began to go on-line almost as soon as they learned to read—the personal computer may be as familiar as a well-thumbed dictionary and as intriguing as Captain Kangaroo’s magic drawing board was for kids a generation ago. On today’s increasingly electronic campus, there is nothing unusual about browsing the library’s circulation catalogue from the comfort of a dorm room or e-mailing composition themes to instructors across campus.

Universities have both largely contributed to, and been the beneficiaries of, the World Wide Web, but government offices, commercial industries, entertainment companies and thousands of at-home network subscribers have made the Web a sort of universal coffee shop, electronic newspaper and classic Greek symposium all in one. In terms of sharing ideas and information and communicating with far-flung colleagues, the Web does resemble the traditional university: there are a vast number of “rooms,” from libraries, research outlets and academic offices to social hangouts, TV and music lounges and spots to hear news, sports and the latest gossip.

GETTING LAUNCHED INTO CYBERSPACE

In the King Library’s computer microlab, WWW resources librarian Rob Aken works with about 15 students, each of whom is seated in front of a computer terminal. The students are enrolled in Communications 449, “The Social Processes and Effects of Mass Communication,” taught by communications professor Ramona Rush. Aken, a librarian at UK for 12 years, regularly introduces students to the library’s computer resources, including how to access and navigate the World Wide Web. The Web, Aken tells them, is basically an “interconnected collection of networks.”

In conjunction with instructional sessions, Aken sometimes works with professors from departments throughout the university in designing and creating a “Home Page” — a specifically designed site on the UK server that acts as a doorway into the Web for each class. A home page resembles an illustrated library directory and class newsletter with direct links to a wide
array of information resources found by both the professor and Aken—resources that would take students working on their own hours to find. For the COM 449 home page, the resources available include information on the environment and the media which is gathered from government agencies, social and environmental watchdog groups and research, and not-for-profit organizations which actively publish on the Web. There's even a list of popular movies, such as "Blade Runner" and "Mad Max," having to do with "eco-dystopias."

"In the old library," Aken explains to the students, "you look up a catalogue number, then look on the shelf and, hopefully, find your book, which of course stays the same no matter how many times someone reads it. On the Web, items are catalogued via an internet address, and the 'books' can change every day."

While the sheer volume of information and resources on the Web may often be overwhelming, Aken explains that the technology behind it is still in its infancy. "In terms of a car," Aken says, "we're not to the Model T."

Nonetheless, Aken jokingly warns students, "keep your class schedule near you so you can remember you have class to go to." None of the students smile or look up when he tells them this: they are too busy looking at their screens and pecking away at their keyboards.

TEACHING THROUGH THE WEB

Ramona Rush, UK professor and former dean of the College of Communications, has studied and written about mass communications and the electronic media for more than 40 years. She has been an enthusiast of computers since the 1960s, when the first software packages were developed for the "big" computers at campuses all over the U.S.

Rush has seen computer technology change significantly, from the days when computer programming meant lugging around heavy trays containing hundreds of carefully ordered punch cards to be run through a card sorter/counter. Her "hands-on" experience with this now ancient technology included, as a graduate student at the University of Wisconsin, "spilling a whole shopping cart of punch cards in the busiest street in Madison."

With the help of Aken, Rush developed a home page on UK's computer network where students can easily access the various electronic resources available to them, including the Web. First used for COM 453, Mass Communication and Social Issues, and CJT 619, Global Information and Communication Perspectives, Rush says the home page evolved over two years. Aken says this home page is a model for other courses taught at UK.

Rush describes Aken as "our guru on the Web. He works at the Web far more than I can. He keeps up with new resources appearing every day. I'll check them out and if they're good for my courses, I'll put them on the home page."

Rush believes many college students today are caught in a "computer gap"—between an older generation forced to become computer proficient at a relatively late age and a younger generation that has been exposed to computers since toddling off to grade school. "Students today have to be exposed to the Web. They have little brothers and sisters going to computer camps."

In addition to traditional materials such as books and periodicals, Rush requires her

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students to use electronic sources when writing class papers. "Students didn't take me seriously when I told them I wanted them to use the home page to locate their electronic sources," Rush says. "Then they became really interested once they started to use it. Now they say, 'You won't believe what I found'"

Eventually, Rush sees a day when the home page will evolve into a hypertext, multi-media college course. "It'll bring video, film, audio, all the printed material I want them to read, everything they need in one place. It's all there."

**BIOINFORMATICS**

The School of Biological Sciences' Chuck Staben represents a newer generation of college professors who have been using computer network resources since their own graduate school days or earlier. Staben came to UK in 1989 after receiving his doctorate from the University of California at Berkeley in 1984 and doing postdoctoral work at Stanford.

Energetic and talkative, Staben admits to occasionally "fooling around on the computer when I should be home with my family." In addition to using the computer in his molecular biology research, Staben utilizes it in teaching and advising his biology students.

For example, Staben has used resources on the Web to develop "demos" to show in class. One such image, published by the National Institutes of Health, is a detailed, full-color "virtual DNA molecule." In one of Staben's classes, DNA molecules and proteins are colored, moved, and rotated by students so that they better understand these structures. Using a computer projector in the School of Biological Sciences microlab, Staben also projects large-scale images of these molecules during class lectures.

In addition to finding resources for his students, Staben has used the Web in his research, developing professional contacts in his own fields of mycology and molecular biology, using bibliographic search services and accessing a variety of biological data bases.

One of the most important tools available on the Web is a vast library of DNA sequences, protein sequences and analysis programs (WWW address: www.ncbi.gov). Some information is "too large" to be published in books, and cannot be manipulated or analyzed easily without a computer, Staben explains. "Around 1980, biologists started archiving genetic information, making it available on computer networks. This information has been accessible to biologists for years, but the amount of information has mushroomed and access has improved," Staben says. "Some labs are even putting their protocols on the Web," he adds, referring to the carefully designed research methods and investigative procedures labs use to conduct their studies.

Staben also wrote the department home page for the School of Biological Sciences (WWW address: www.uky.edu/ArtsSciences/Biology). "Now undergraduates and graduate students can find out about our programs and faculty on the Web," Staben says, a handy information-gathering method he uses himself. "Before giving a seminar at Georgetown University not long ago, I realized I had no idea who I was going to talk to," Staben says. "I got on the Web and looked up the microbiology faculty so I'd know who they were."

For the last year or so, Staben has been preparing to teach a new "Web intensive," computation-based course at UK called "Bioinformatics," which is listed in the class catalogue as Arts and Sciences 500. Staben will be teaching the course, which will combine modern molecular biology with information-gathering and networking techniques, this fall.

There are only about 10 to 20 such courses world-wide right now, Staben says, that specialize in bioinformatics. He hopes to teach a diverse mix of undergraduate and graduate students majoring in the physical sciences, and also cross-disciplinary students interested in innovative methods in scientific research.

**WEB 102**

Some students enrolled in English 102—the traditional second-semester composition class endured by generations of college students—are experiencing a new spin on an old theme. Several course sections offered by UK's English department are now designed to introduce students to writing on the Web and creating their own home pages.

Second-year English master's student Gardiner Rogers is one of the graduate students teaching the new course, first offered by UK in the spring 1996 semester. "We spend a lot of time looking at Web pages. We ask students to incorporate the writing skills they learn into their own pages," says Rogers, who made the 1996 List of Excellent Writing Program Instructor (compiled by the English department) with the special distinction of being the only instructor ranked excellent in every section he has taught.
In addition to the time-honored challenge of developing and refining their writing skills, students in Rogers' class must learn to use the Web and write in a new language called "Hypertext Markup Language." HTML, as it is referred to, is an interactive computer language that organizes and links text and graphics on a page. HTML, used universally throughout the Web, allows a reader to electronically skip over a page, from text to graphics and back, and even to jump ahead to other related ideas and sources.

"Basically, it's easily learned," Rogers says. He assures his students that "it's a class in English and not computer science."

So far this semester, Rogers says the class is "an interesting mix. Some students are really excited about the Web and looking forward to it and some students are intimidated."

This summer, Rogers says, the English department's Writing Program intends to set up Web pages so that students can go look up course materials and examples of papers required in a course. Also in the works is an on-line writing lab, "This is the work of Gail S. Cummins, head of the Writing Center," Rogers says, "and is something we've seen other universities do. It'll give a real presence to the Writing Program at UK." Rogers adds, "We won't be confined to a little bound Source Book the students buy.

"The underlying assumption for the future is that the World Wide Web is here to stay," Roger says, "and the Writing Program sees writing as a very necessary skill."

COURTROOM SLEUTHING ON THE WEB

When Sheila Donovan, a first-year student in UK's College of Law, was assigned a paper in her contracts class, she wasn’t sure where to turn for information. The case involved a recently filed lawsuit by Brown and Williamson Tobacco Company of Louisville against former industry executive-turned-whistle-blower Jeffrey Wigand—a case so current that Donovan feared traditional library resources would prove unhelpful.

A further complication was the typical behind-the-scenes legal maneuvering going on between the two parties. Rumors had it that Wigand had secretly cooperated with the Mississippi State Attorney General's Office and filed a deposition claiming Brown and Williamson had known for 20 years that cigarette smoking was harmful—evidence the state was planning to use to file a massive lawsuit against the tobacco company. In response, Brown and Williamson sued for an injunction in a Louisville court against Wigand who, as a former executive of the company, had signed an agreement never to disclose company secrets.

At issue in Donovan's law class was the rights of industry to protect trade secrets versus the protection of public safety. Her personal feelings to the contrary, Donovan

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was assigned to argue on behalf of the tobacco company "to protect its trade secrets and have litigation resolved behind closed doors and not in the public eye."

Unsure where to begin, Donovan began checking sources on the Web at the suggestion of a fellow law student. To her surprise, she found more than she expected. First, on the "Court TV" Web site, she found a complete copy of the actual court document filed by Brown and Williamson seeking an injunction against Wigand. "I would have had to go to Louisville to get a copy," Donovan says, "which I doubt I would have done." By having a copy of the injunction, she now knew the arguments and previous court cases the lawyers for Brown and Williamson were using to block Wigand's testimony. But she didn't stop there.

Browsing the Web even further, Donovan found a copy of Wigand's original deposition on the "Wall Street Journal" Web site, secret testimony that was not intended for public consumption. "The deposition was supposed to be confidential," Donovan says. "Obviously, somebody in Mississippi that was pretty high up let it get out because it's the complete document."

"The funny thing is," Donovan adds, "one of the last things on the deposition was the question someone asked, 'Can we trust this not to get out?' You know, there's a roomful of lawyers and stenographers and court employees. And someone says, 'No, these people can all be trusted.' Now any-

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one who wants to get it can. It's floating around in cyberspace."

A SMALL WORLD
As is the case with many of UK's graduate programs, students at the Martin School of Public Policy and Administration come from all over the world. With the crumbling of the Iron Curtain and the opening up of Eastern Europe, students from countries such as Poland and the former Czechoslovakia are taking advantage of educational opportunities in the U.S.

Initiated by Congress in 1989, the East Central European Scholarship Program was designed to promote privatization and democratization in these countries. So far, the ECESP has brought several hundred local democratic leaders, rural managers and small businessmen to U.S. campuses on scholarship.

Arriving at UK in January of this year, Tomas Vlasak of the Czech Republic, and Igor Otenas and Stano Kosima, both of the Slovak Republic, are enrolled in the Martin School on ECESP scholarships. In addition to adjusting to the rigors of university classes and acclimating themselves to a different culture, the three men will be without their families while in the U.S. Fortunately, all three are able to keep in touch with their families, friends and colleagues back home through the World Wide Web.

While finding a computer linked to the Web at UK is no problem, on the other end resources are much more limited. Otenas says computers in the Slovak Republic are considered a luxury. The limited government resources required to buy computers for schools and businesses are needed to provide basic health services and safety programs. In addition to computers, money is lacking to develop computer networks and purchase modems and telephone service.

Otenas, who lives in Bratislava, is a former journalist and now an executive for a firm that produces and distributes films and videos. He estimates there might be "1,600 people with access to the Web in a country of five million people."

Also from Bratislava, Kosima, who "teaches computers at the Academia Istropolitana," or Institute of Advanced Studies, is a bit more fortunate when it
comes to computer access. At the institute where he works, Kosima says there are 60 computers among the 20 employees there.

Originally trained as a physicist, Kosima switched to computers due to the lack of funding traditionally available for scientific research. He remembers “smuggling my first computer from Germany in the gas tank of my car 15 years ago” because computers were not available in the former Czechoslovakia.

“I bought my first PC in 1988,” he says.

Before he left, Kosima hooked up his computer and a new modem in his home in order to stay in contact with his family. He is also able to communicate over the Web with his colleagues at the institute.

Vlasak, a magistrate in the city of Pardubice in the Czech Republic, left behind a three-month-old baby girl when he came to the U.S. in January. Using the Web, he manages to stay in contact with his wife and six-year-old son through “a friend of the family with a modem” and computer. While acknowledging that computer networks are often limited to a “special, small group of friends,” Vlasak estimates there are at least 60 e-mail addresses and network sites in the Pardubice city hall alone. He also knows of two professors at the nearby university who use the Web.

In addition to keeping in touch with family, all three students hope to use the Web to transmit and share what they are learning in the U.S. with colleagues, public officials and business associates back home. Ocenias, using e-mail, sent an article he wrote for the Martin School to his native Slovak Republic. Kosima plans to use the Web to research issues concerning public safety administration. “I use the Internet in Slovak, but it often takes too much time to reach the U.S.,” he says. “Now, I can get more information and get data to write a paper on public safety.”

The World Wide Web also contains many popular “non-academic” features, including specialized “chat rooms” where people with common interests can talk to each other on-line, share new information and generally point each other in new and related directions across the Web. There can also be found a variety of on-line magazines written by students and faculty. In fact, the Web seems limited only by what people can download onto computers—an electronic cornucopia that currently includes film, three-dimensional video, music, music videos, sound, speeches, whole libraries of books, encyclopedias, periodicals and reference materials, accurately colored and detailed images of paintings, photos and graphics, mega-databases, interactive communication tools and on and on.

Some worry that not so far in the future the traditional university may be competing with the Web for the attention of students and faculty. Others insist that the intimate, flesh-and-blood contact that universities were founded on can never be replaced by interactive networks, no matter how innovative and exciting the technology may become. While the argument goes on, the new-age love affair between universities and the Web continues.