

Surfing the information highway

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powerful computers, students are able to dissect a cadaver, become immersed in a foreign language, or compose and play back music on a laptop.

"We'll use the multimedia PC technology to create new types of learning environments that make you, the student, more the center of things, that create for you microworlds or that immerse you in learning environments," says William Graves, associate provost for information technology at the U. of North Carolina. Graves is also a fellow at EDUCOM, a consortium of nearly 600 colleges in Washington, D.C., that promotes technology in higher education.

At James Madison U. in Virginia, students can take Psychology 160 in the Blackwell Auditorium, a \$200,000 attempt at creating the classroom of the 21st century. The auditorium has two large screens, which the professor controls with computers to provide a visual representation of the lecture. Students use keyboards, located at each seat, to answer questions and the results are tallied *Love Connection*-style and displayed on screen.

"It was a little bit awkward when I first went, but I got used to it," says JMU junior Cheyenne Surber. "I wouldn't describe the class as more personal, but you had more interaction."

Interactive programs are used to study foreign languages at Georgetown U., Cornell U. and UNC, physics at Rensselaer Polytechnic Institute and the U. of Maryland, medicine at the U. of Iowa and UCLA, and chemistry at the U. of Illinois.

"We can now capture, store, retrieve and analyze more and more of the human experience in digital form," Graves says. "You can use that technology to submerge yourself in a learning context where you have control. Instead of teaching at you, it puts you in a learning environment and it gives faculty more ways of being effective with you."

WHO'S FOOTING THE BILL?

When the state builds a highway, somebody gets the shaft. Whether they pave some poor sap's front yard or hike your taxes, the ax comes down. The construction of the information superhighway is no different, and the costs are human as well as financial.

Currently, many students get free access to the Internet through their universities, which receive subsidies indirectly from the National Science Foundation.

But the NSF has proposed privatization of the Internet within four years. Access to the network would then be provided by the private sector — most likely the phone companies — which are salivating at the thought of getting in on the action.

Bob Wade, a graduate student at Purdue U., says he is concerned about the future of the Internet. "Companies will try to gain control and limit access in order to gain profit and wield control," he says.

But GWU's Maltese would rather see private interests running the network. "Technology's not something the government is very comfortable with," she says. "I don't like the idea of somebody who doesn't like the Internet running the Internet."

The computer lab is another area where your pocket connects with the information superhighway. Only about 20 percent of college students own computers, so many schools are charging for access.

At the U. of Arizona an increase in tuition covered institutional computing costs, and the U. of Utah recently charged a \$50 computing fee per quarter. The fee hike has helped improve a dimly low computer/student ratio; Utah now has one computer for every 20 students.

THE HUMAN COSTS

Any discussion over the price of technology must examine the human costs. Some have speculated that high technology will make our society more divisive. Will the information superhighway be open to everyone? Or will these advances only create a wider gap between those who can afford access and those who cannot?

"There are many social issues that are difficult to overcome," Graves says. "There's still an equity issue, that technology does not separate us. It's the obligation of our institutions that those questions are addressed."

And, in the end, the greatest danger is that multimedia presentations and electronic communication will completely remove human interaction from the college experience.

"Sometimes it's cool to have the huge screens and keypads, but sometimes it kind of dehumanizes the whole process," says JMU sophomore Andrew Miller, about the classroom of the 21st century. "You walk into the class and plug into a keypad."

But Graves argues that the relationship between student and professor will be improved by introducing high technology.

"We want to protect a very basic component of higher education, which is human interaction," Graves says. "There's no replacement for that. [Professors] provide the glue that ties together subject matter. That's what faculty do that you can't get from a box."

Ultimately, Graves says, colleges must answer these questions to give students what they paid for. "I think students will be entering a work place that is already technology-dependent," he says. "The obligation for universities is to include technology so students won't be entering the work place blind." □

Cyberglossary

- **Electronic mail (e-mail):** E-mail allows users to send messages across their office or across the country. Correspondence can be sent through local area networks (LANs), such as connected computers in one office, or through a modem to other computers around the world.
- **Internet:** An electronic network that provides users around the world with e-mail, news, file trading, games and other services.
- **Multimedia:** Computer-generated text, audio and video. Multimedia has unlimited possibilities for education, especially for presentations which allow students to interact with the subject matter.
- **Information Superhighway:** The Clinton administration has proposed the construction of an electronic communication network as the key to global competitiveness.

INFOTAINMENT

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Laserdisc (12" Video CD)

PURPOSE: Laserdiscs offer a picture 60 percent sharper than VHS and the same sound quality as CDs. Plus, when you watch *Young Guns* 20 years from now it will look as good as the first time you savored it.

USEFULNESS TO STUDENTS: This one is mostly for the hard-core movie fans, but you can't argue with the picture quality and sound. And you won't have to screw around with that "tracking" button anymore. Laserdiscs also play conventional CDs, so it won't be the next 8-track, but proceed with caution. Remember Beta? Me either.

AVAILABILITY: Last time you were at Blockbuster, did you see a lot of movies on laserdisc? There you go.

COST: Players range from \$400 to \$1000 and the discs range from \$25 to \$70.

WORTH IT? A good CD player costs more than \$200, so if you rationalize enough, you might be able to swallow the laserdisc. Wait until your local video store starts carrying them. If they don't, pass.

Personal Organizers/Newton

PURPOSE: Most personal organizers, up until recently, were little more than computerized address books. Apple's Newton is the first handheld computer to at least try to translate your handwriting. You can send faxes (with an add-on modem) of anything you scribble on its screen with a stylus or communicate without wires by "beaming" information to another Newton up to a meter away. It also has the capacity to receive wireless paging messages.

USEFULNESS TO STUDENTS: The Newton is really better suited to the tasks and expense accounts of corporate America. The organizer is a lot of fun to play with, but are you prepared to skip your next two spring breaks to pay for it?

AVAILABILITY: About 2,000 computer and electronic stores have carried the Newton since September.

COST: Ouch. Apple sells Newton organizers for \$699 to \$949 based on the number of bells and whistles you add.

WORTH IT? You're better off with a laptop. The ability to write with a pen is attractive, but you can type a lot faster and, for now, the Newton is basically a computerized Day Runner.

High-Tech Petpourri

The Recordable CD is available but used mainly for commercial purposes and is out of the price range of the deepest student pocket. Buy a Honda instead.

3DO promises to be to Nintendo what Nintendo was to Atari. (Remember Asteroids?) 3DO is a CD-ROM format that provides video games with richer colors, better graphics and blinding speed. The multimedia player may also play movies in the future. Panasonic has a model out now and they're selling briskly — at about \$700.

Interactive TV: Cable operators and phone companies are racing to be the first with a TV that you can bond with. You'll be able to select movies, shows or educational programs from an extensive video library. Some day, you may even be able to go shopping in a way that's more interactive and less annoying than the Home Shopping Network. You can also expect an increase in channels, from the paltry 50 or so you're receiving now to 500.

Virtual reality: Hey! Is that me beating up elves and saving the fieldom? Put on a virtual reality helmet and it is. VR games can already be found at video arcades (for about \$4 a shot) and Sega will release a VR headset for their Genesis system by spring for under \$200. □

