



Broadening The Circle

BY JAMES SCHULTZ

By the spring semester of the year 2003, Old Dominion University's entire undergraduate computer-science curriculum will be available over the Internet. Students won't need to be physically present inside a classroom to earn credit for some 30 courses, from software engineering to database design and management.

The university's Interactive Remote Instruction program, or IRI, is part of a spectrum of Old Dominion distance-learning options that permit students to learn "remotely": sometimes at their own pace and other times as part of a greater, virtual community, where interaction is instantaneous and encompassing. For those pupils using personal computers as part of their instruction, vast amounts of information will be literally within fingertip reach, including real-time access to data, software programs and audiovisual information.

Sometimes, says Kurt Maly, Kaufman professor of computer science and chair of Old Dominion's Department of Computer Science, IRI-related instruction will be self-directed; pupils will need only to individually interact with computer-resident coursework. At other times, and depending on the specific course, IRI mandates "synchronous checkpoints," scheduled Internet interactions between a computer-using student, his or her peers and the instructor.

"The active-learning paradigm is one wherein people learn by doing. You live out the knowledge," Maly explains. "Interactivity is therefore very important. Interactivity on a computer network leads to back-and-forth communication. It allows interactions of all types: audio, video, data and programs. Feedback is the crucial component."

Delivering The Goods

A quarter century after the introduction of the personal computer, colleges and universities are just beginning to capitalize on the technology potential of the Information Age. As yet incomplete is the comprehensive integration of information technology with education's core processes. Old Dominion is among those universities nationally leading the way, in particular with its critically acclaimed project TELETECHNET.

TELETECHNET debuted in 1994 as a partnership between the university and Virginia's network of community colleges. The program utilizes television and computer technology to provide students in remote areas the opportunity to obtain baccalaureate and master's degrees in such disciplines as engineering technology; nursing; criminal justice; education; professional communication; taxation; business, public and health sciences administration; and human services counseling. TELETECHNET also offers courses to a number of military bases, corporations, the Library of Virginia and other institutions around the country. Community colleges, hospitals and businesses host the 40-plus sites across the United States where students may enroll in classes.

For its part, IRI, like TELETECHNET, requires more than electrons to succeed. IRI's physical needs in its first years of full operation will include six satellite sites to house high-performance computing and telecommunications equipment. Up to 100 users will be able to participate simultaneously in a given virtual course.

Eventually, Maly says, students will be able to "attend" IRI classes from home — but only when the higher rates of data delivery and access to powerful computers that can quickly deliver the sights and sounds of instruction become widely available. Given the exponential rate of personal computer development, he adds, that time should not be far off.

"A sophisticated technology needs a lot of pampering, control and steering to deliver material dependably over vast distances and over many modes," Maly attests. "People underestimate its complexity. At the moment, the behavior of the Internet is not predictable. You have to prepare for that."

Books Still Required

IRI was born in January 1995 with an initial National Science Foundation (NSF) grant of \$100,000. An additional, larger NSF grant of \$800,000 was augmented by \$700,000 in university funds and donations from two industrial partners, Sun Microsystems and Cox Cable, which enabled Maly and his colleagues to fully develop the program's first phase that ends this July. The university is seeking more funds to ensure the program is fully implemented by its target date of 2003.

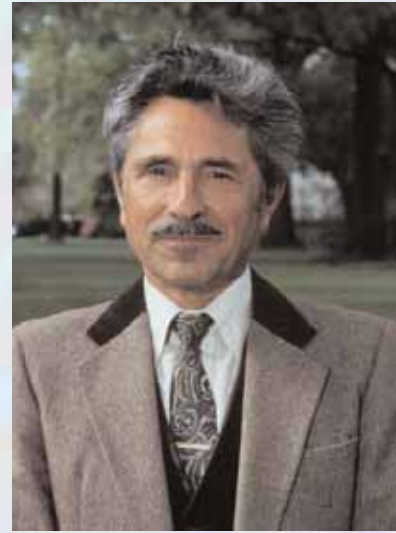
As IRI is put into place at Old Dominion, commercial versions may be developed and sold. Maly believes that IRI's strengths — its ability to bridge distance with large amounts of constantly updated information and to deliver that information effectively to individuals — would interest anyone who has ongoing need of Information Age-style communications, such as corporate and military training or business-oriented service and product updates. "There are competing products. We are not the only ones in the game," he says. "But this is something so good it ought to be commercialized."

Even as IRI matures, Maly doesn't believe its success will signal the death knell for more conventional educational techniques. Despite innovation, Maly believes that books remain central to instruction. IRI augments but does not replace.

"Computer technology is an enhancer, not an enabler," he contends. "Learning doesn't take place with computers in the same way learning takes place with books. The idea is flexibility and time convenience for the student. It is then up to the student to decide how to proceed."

As for the belief that ventures like IRI may contribute to computer-induced social isolation and dysfunction, Maly points to the rise of so-called Internet cafes. There, consumers buy not just inexpensive access to data, but coffee and sociability as well. It isn't likely that anyone, IRI user or not, will opt to remain cloistered, hermitically sealed from the hustle and bustle of the world at large. Academic and life success, he observes, appear to be predicated not on exclusive reliance on any single technology, but the integration of many.

"We are not going to the science fiction world where everyone is in a cocoon, looking passively at a video screen. The physical experience has got to and will stay," Maly insists. "A learning approach like IRI simply broadens your circle. You'll be able to reach the greater world. That's the difference computer technology makes."



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