Opinion

Published Wednesday, December 8, 1999, in the San Jose Mercury News

MAX NIKIAS

Make computers work for schools

BY MAX NIKIAS

IT is especially ironic that California stands so tall in science and technology, but falls so far in making computers really work for us in the classroom.

We built a strong state economic infrastructure, the storied ``California Miracle,'' mostly through science and technology, but for the classroom we've ended up with multimedia software that almost never rises above the role of ``supplemental material.''

These thousands of CD-ROMs and Web sites are no more useful than a lot of electronic textbooks -- the same story with text and pictures in a different container. And a good number of teachers find that the software is not easy to use or modify and too expensive. As a result, educational software plays the role of a helpful, but by no means necessary, part of the curriculum.

We are stalled here because of a number of formidable barriers. First, textbook companies treat multimedia as supplementary to their books because they fear it as a threat to their well-being. Second, most educational software developers do not use scientific methods, such as classroom assessments. Third, venture capital firms choose not to go after the school market, but instead aim at parents, believing that selling to the state education bureaucracy involves too much effort. Fourth, some federal government agencies stipulate that grantees developing educational software must work with an established publisher, thus locking them into working with publishers who resist innovations in teaching with new technology.

Yet, if we can break through these barriers, we can employ emerging multimedia technologies to unlock a vast potential for multimedia software to actually change the way teaching is done. To realize this potential, we need to produce low-cost, educationally sound digital curricula designed with rigorous studies that include actual classroom use during the development process.

California Gov. Gray Davis should create a ``Digital Curriculum Research Institute'' that would organize teams of specialists in curriculum design, multimedia technology, and evaluation and assessment from California universities, state curriculum bodies, the teaching profession, and private industry to develop digital curricula for all subjects in K-12. The institute would be able to rely on the large pool of talent in education, science, and technology in California.

Not only would the institute's work revolutionize our use of computers in the classroom, but it would bolster the state's economy by creating additional jobs, new business opportunities for small firms, and even entirely new companies in the form of spin-offs.

The institute's teams would have the advantage of powerful new multimedia technologies just coming out of the research labs, such as new ways to compress and render video and deliver better sound. They would design subject matter modules of the digital curriculum to be extremely flexible and work well even on the low-end computers in many

classrooms today. The modules would be repeatedly tested in the classroom during the development process.

As an example, at the Integrated Media Systems Center at the University of Southern California, we are developing a fully integrated module for high school biology that includes such lab tools as a virtual microscope and a virtual reagent kit. In one exercise, students first study how poison ivy affects the body and then decide on possible treatments, using interactive animated storyboards and other innovations. And, when the students bear down too hard on a slide in their virtual microscope, they even hear the crunch of glass breaking -- that unmistakable sound for countless generations of budding biologists.

With such a far-sighted initiative, California has the opportunity to once again show its strength in science and technology. By stepping forward to create the first full-scale digital curriculum, the state would accomplish the most difficult and rewarding challenge facing technology in K-12 education. And, in leading the drive, Gov. Davis would create a legacy in technology that would reverberate across the nation.

Max Nikias is director of the University of Southern California's Integrated Media Systems Center, the National Science Foundation's research center for multimedia.

▲ Back to top | San Jose Mercury News | Home | Site Index | Search | Feedback | Help | Customer Service