THE FUNDING CONNECTION: PUTTING MIDI IN THE SCHOOLS

HARDWARE REVIEW:
Alesis SR-16 Drum Machine

SOFTWARE REVIEWS:
For Macintosh, IBM and Amiga

PROGRAM:
A High School Magnet's Success Story

RESOURCE GUIDE:
Fund Raising Organizations

Visions

By Gene Aiken

To be a participant in the educational process, there's a good probability that both the educator and the student of tomorrow will have to be computer literate. In a teaching environment, students learn faster by being actively involved and can retain more information if images such as video, graphics and animation are used in the learning process. To students, learning by visualization is commonplace, whether through videos, movies or some popular visual game that invites their participation.

With multimedia hardware and software tools readily available, we educators now have the opportunity to use audio, video, graphics, animation and text in our teaching. Any combination of two or more approaches means that we've entered the multimedia arena. The interactive part means that the students can *actively* participate and control, via the computer, the amount of information they want to learn and the speed at which they learn, and they can do so in a platform that is familiar to them. Teachers can then serve as guides or coaches with a curriculum that is learner-driven and provides students with individual assessment. The potential of incorporating multimedia in education is extremely exciting: teachers can now turn low-tech classrooms into stimulating learning environments to meet the needs of our hi-tech students.

Optical Disc

Among these powerful tools are multimedia optical disc programs. Many have already been developed specifically for Macintosh computers by companies such as ABC Interactive and the Voyager Company. Programs like the "Great Quake of '89," "Martin Luther King," "Van Gogh

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Revisited" and others offer teachers a chance to step into the future, but in a friendly and comfortable environment, usually with just their computer, a computer-controlled laserdisc player, the Voyager Video Stacks, a television monitor and a software program called "HyperCard."

The "HyperCard" program allows the user to set the parameters of what is seen and heard on the optical disc. The segment could be an individual frame (a Van Gogh painting or a freeze frame of a movie, for instance) or a short motion video of some event. In addition, the Macintosh computer can display supporting information, graphics and animation about the event. With the press of a button on the computer screen, the user moves forward to the next segment or has the option of reviewing the previous one. At the end of a teaching module or chapter, the computer can present the user with questions about what has been seen, heard or read, and provide the responses.

Video Tape

In the video tape domain, NEC Technologies has just released the *NEC PC-VCR video cassette deck* and the *"NEC Multimedia Toolkit"* software. This innovative hardware/software combination allows users to put time code on a *previously recorded* VHS or S-VHS video tape, without using an audio channel. For the educator, this means that educational video tapes currently on the market can be used in interactive multimedia presentations and learning environments. The equipment used is similar to the optical disc medium and involves a Macin-

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tosh computer, the computer-controlled NEC PC-VCR, the "NEC Multimedia Toolkit," a television monitor and "HyperCard." Before the video tape can be controlled by the computer, however, the user must lay time code on the tape–easily accomplished with the NEC PC-VCR. Although this device rewinds at what seems like Mach speed, the search to location time is slower than with optical disc. But the value of providing students with interactive programs outweighs this slight inconvenience. If the user wants to have an optical disc made from a tape, assuming all copyright clearances have been requested and approved, the cost of making a "check" optical disc from video tape is around $300.00–with a 24-hour turnaround. Similar technology exists for the IBM through Sony, and Hitachi also expects to enter the market soon.

CD-ROM is perhaps the easiest and most inexpensive platform in which to develop multimedia programs. The hardware/software requirements are a Macintosh computer, a CD-ROM drive with a SCSI interface, audio speakers, the Voyager "CD Audio Stacks" and the "HyperCard" software. With the Voyager program, the user can locate any point on a commercially available CD within 1/75th of a second, and additional information can be written on the computer screen supporting the CD example. When the student presses a button on the screen, the CD-ROM drive will lay a certain segment of the CD. The possibili-

ties are endless: students can review, proceed to the next lesson, take a test or repeat parts of the program.

Two companies have developed CD-ROM interactive programs, Warner New Media and Voyager. The former's titles include Mozart's *The Magic Flute*, Beethoven's *String Quartet #14* and Brahm's *German Requiem*; the latter's include Beethoven's *Ninth Symphony*, Stravinsky's *Rite of Spring* and Mozart's *The Dissonant Quartet*. These programs are educationally outstanding, excite the imagination and offer a glimpse of what is yet to come. Computer-controlled CD-ROM, laserdisc and video tape players (usually through an RS-232 interface) have dropped in price and can be easily and inexpensively obtained through educational audio/video outlets.
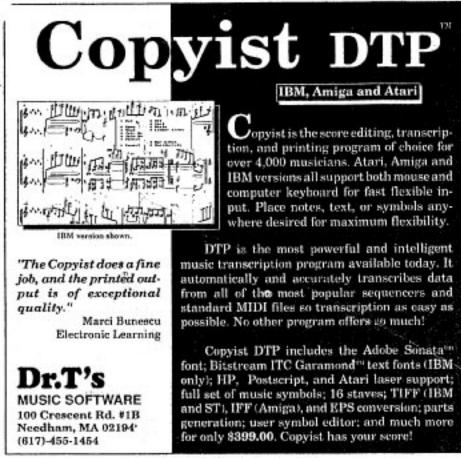
Developing Multimedia Programs

One of the best ways to learn multimedia is by studying existing multimedia programs. This allows teachers to see the potential and to personally experience the excitement of exploring and learning through visualization and participation.

Authoring programs such as "HyperCard" (which allows individuals to manipulate information and how it's presented) are available to help teachers design and create their own learning packages. In addition, using programs such as Voyager's CD audio and

video stacks will help teachers enhance and add interest to their lectures and presentations. They can add graphics to lessons and learning packages by incorporating user-friendly paint programs. Finally, adding animation and transitions (once the domain of the movie industry) can be easily accomplished with programs such as "Authorware" (Authorware), "MediaMaker" and "Director" (MacroMind) and "FilmMaker" (Paracomp).
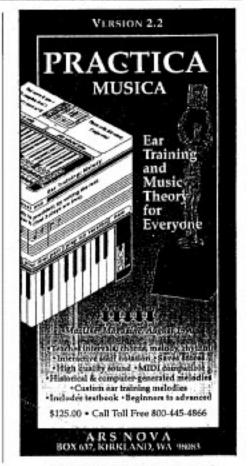
Another way to develop multimedia is to involve students themselves in the design and creative process. Who knows better than they what they want to learn, how they want to learn and what multimedia elements to use. Students like to be involved and can grasp concepts quickly and be of tremendous value to teachers whose schedules are already full.

The Future

This coming decade and into the 21st century will be a *learning* age, not a teaching age, for all of us. Hardware is getting smaller, faster and more affordable. Software is becoming more plentiful, easier to use and relates more to our specific interests and areas of teaching. But most important, multimedia will help create a renewed enthusiasm for teaching and learning. The Industrial Age has passed and the Information Age is here. We teachers have the opportunity to provide value and depth to that information. □