

Understanding and Using

CD-ROM in Jazz Education

By Gene Aitken

The field is now open for jazz educators to design and develop CD-ROM programs.

Interactive multimedia is here . . . and it is here to stay. With multimedia hardware and software tools readily available for jazz educators, it means that we, as teachers, now have the opportunity to use audio, video, graphics, animation and/or text in our teaching. Any combination of two or more such tools means entering the multimedia arena. The interactive part of the term means that students can actively participate and control, via the computer, the quantity of information they want to learn and the speed at which they learn. And in a platform that is familiar to them. Jazz educators can then serve as guides or coaches with a curriculum that is learner-driven. The potential of incorporating multimedia in education is exciting! We now have the opportunity to turn low-tech classrooms into high-tech learning environments to meet the needs of our high-tech students.

Two pitfalls jazz educators may face in the area of music technology are (1) not entering the arena at all or (2) trying to grasp so much, that it is impossible to get a handle on anything. Perhaps one of the easiest ways to get started in interactive



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multimedia platform is for the jazz educator to design a very simple application using CD-ROM. Most educators have CDs and most have several segments or tracks of a particular CD they believe are interesting and important and have an educational value for students and/or other jazz educators. In addition, they probably have information that could be written down about these segments or tracks that will add some specific or general depth and/or background to the recording.

Many CD-ROM titles are now commercially available for just about every subject area except that of jazz. The Voyager Company will soon release a Macintosh HyperCard stack and recording on the tune *Body and Soul*, but at this time it's anyone's guess regarding the content. This means that the field is now open for jazz educators to design and develop CD-ROM programs. Designing uses for CDs other than for what they were intended is identified as the process of *repurposing audio CDs*.



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EQUIPMENT

Both the Macintosh and IBM platforms support some type of hypermedia authoring programs such as LinkWay for the IBM and HyperCard for the Macintosh. Since the University of Northern Colorado is Macintosh-based and since HyperCard is an authoring program for Macintosh, comments in this discussion are specific to Macintosh. In most cases, remarks can apply to the IBM platform as well.

Any Macintosh computer can interface with a CD-ROM player. A CD-ROM player is nothing more than a sophisticated CD player that communicates with a computer. It has stereo outputs which connect to a stereo system the same as any CD player. The only requirement is that one should have a Macintosh with a 20 meg hard drive and at least 2 megs of RAM. In addition, a CD-ROM player such as the ones manufactured by Apple or Chinnon would be excellent. Street prices are now under \$500 per unit. A final piece of necessary hardware is an inexpensive SCSI cable that allows the computer to communicate with the CD-ROM player. For software, the latest releases of HyperCard and the Voyager Audio-Stack are excellent. The Voyager stack costs approximately \$99.00, and the HyperCard program comes with the Macintosh. Both of these software programs are easy to learn and are essential for the development of the repurposing process.

REPURPOSING AUDIO CDS . . . THE FIRST STEP IN THE MULTIMEDIA PROCESS

Repurposing audio CDs is a process of creating a computer software program to access and use specific segments or tracks of an existing audio CD in order to develop a new application. CDs are designed primarily for listening. How-

ever, the CD will now serve another purpose than that for which it was intended. Access to the CD will now be controlled by a computer. In addition, the computer will use text to provide information about the music, artist, group, composer or any other area the educator considers to be important. Other multimedia components such as photos, graphics, sound and animation may also be included, but for the purpose of this article, only text will be added. Before beginning to use Voyager and HyperCard, a plan must be developed which will help the author to organize the multimedia material. Part of the repurposing process involves identifying the following:

1. The needs of the students.
2. The CDs that are available to fit those needs.
3. The segments or tracks of the CD to be used.
4. The informational text used to support the Audio CD segments or tracks selected.

THE NEEDS OF THE STUDENTS

Whether students are in a small jazz ensemble, a big band, a vocal jazz group or in one of the academic areas such as jazz history, jazz improvisation, jazz arranging or composition, there is an important need for them to listen to recordings. Many years ago, students had the opportunity to attend, listen and participate in live jam sessions on a regular basis. Today that is no longer possible due to the decreasing number of jazz clubs and after-hours jam sessions. However, there is a vast quantity of high-quality recordings that are available, and with the right kind of directed listening, a student can gain valuable insights, concepts and learning experiences.

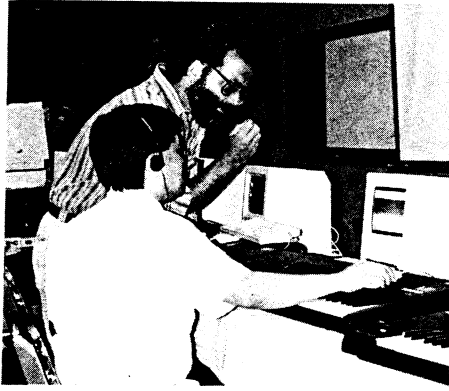
Guidance and direction given the student in the listening process might include but not be limited to:

1. Listening to the specific sound of an artist.
2. Transcribing a short section of a jazz solo.
3. Identifying certain characteristics of a group.
4. Comparing styles of different periods in jazz.
5. Providing historical information on an artist, composer, recording date, etc.
6. Selecting segments of a track and pointing out how a particular artist uses turnarounds.
7. Identifying specific nuances used in jazz.
8. Playing a segment or track of a tune a student is performing so that the student has a reference point.
9. Listening to specific comping patterns an artist may use over and over.
10. Supplementing a class presentation where CD-ROM is used to enhance the presentation.
11. Creating ear training exercises.

The ideas are endless. Whether the CDs are used as support in a class setting or for students to explore on an individual basis, educators can now add value to the recordings by providing information before, during and/or after the student is actively listening. It is important at this juncture to define what those specific learner-needs are before going to the next step of searching for CDs to meet those needs.

IDENTIFYING THE CD THAT WILL FIT SPECIFIC NEEDS

From all the CDs that are available, a CD should be selected that will have significant potential to meet learner needs. This may require some research on the part of the jazz educator. The disc could be a recording of one artist or one group, but it could also be a collection of several artists or several groups. It is important in this process, especially if one



is new to the area of authoring, to select one CD and a small number of learner needs so that a project has an end in sight. Once successful, the educator can begin a second project that has a more complex design.

IDENTIFYING THE SEGMENTS OR TRACKS OF THE AUDIO CD

This is when the fun begins. Using a setup such as the Macintosh computer with a CD-ROM drive, HyperCard and the Voyager HyperCard AudioStack, allows the author/designer/educator to locate the minute, second and block on the CD to start and the minute, second and block to stop. A block is 1/75th of a second. This means that within a given segment or track, the starting and ending point can be indicated as accurately as 75 parts per second. And that starting and ending point will not change over time unless the location numbers are changed in the HyperCard program.

There is tremendous value for any music educator using this process. In a given solo phrase, the CD could begin precisely on an eighth or sixteenth note pickup and end where the artist takes a breath. The segment could be played over and over again by merely clicking a button on the screen. Precision of this calibre can be a very valuable asset when used for ear training, transcribing, calling attention to specific patterns an artist is using and many other uses. An example of a specific command for playing a segment in the Voyager HyperCard AudioStack is:

CDPlay 23, 24, 55, 23, 34, 45

Using this command means that when a button is pressed on the computer screen, the CD player will begin playing at exactly 23 minutes, 24 seconds and 55/75 of that second and will end exactly at 23 minutes, 34 seconds and 45/75 of that second. And it will continue to play that segment when the button is pressed until the numbers are changed.

The minutes, seconds and blocks are encoded on every compact disc and remain constant.

In order to help the educator locate the segments of the CD, Voyager has included both an on-screen remote control and an Audio Event Maker. The remote control allows the individual to locate the beginning and ending minute, second and block while the Audio Event Maker allows the author to identify the minute, second and block information as well as the CD title and other necessary information. A button is then pasted on a card in a HyperCard stack.

INFORMATION AND THE HYPERCARD STACK

HyperCard, in a simplistic explanation, is a series of note cards that can be organized and accessed in many ways. On each of these cards, one can put text-information such as what to listen for in a specific passage, or directions to transcribe a segment of a solo. In addition, buttons can be placed on each card so that, when pressed, the computer will give a command to the CD player to play a certain previously programmed passage. The button can be pressed again to replay the segment or track.

It is possible to write an enormous quantity of information on each card, but it is recommended that less is better in the HyperCard environment. If one is specific and to the point with the information, the students can remember the information better. This will provide an opportunity for the students to focus on the listening example. After one card in the HyperCard stack is completed, proceed and design the next card. At the end of a learning sequence, the author can include a self-test where students can measure what they have learned. The computer can respond with a 'Congratulations' or a 'Please Review the Previous Section' comment.

It is important to involve students in

the design process. Who knows better how they want to learn than the students themselves? Students today are excited about the potential music technology can bring to learning. Technology is not designed to take the place of educators, but to help them provide students with the great amount of information that is available today.

THE POTENTIAL

As mentioned earlier, there have been very few completed CD-ROM jazz projects. In the classical area, several interactive CD-ROM programs such as Beethoven, Mozart, Stravinsky have been completed and are commercially available. Yet the commercial potential for jazz is real. Companies such as Warner News Media, the Voyager Company and UNC Music Technology Press are actively encouraging individuals to create programs. Technology offers the opportunity of adding value to information . . . and we have the opportunity to participate in an educational process that will help our students to learn and retain more information than we have dreamed possible.

Gene Aitken is Director of the contemporary UNC Music Technology Center which will house several state-of-the-art recording studios, video edit suites, interactive multimedia labs and several electronic keyboard and computer synth labs. Opening of the new building is scheduled for Winter, 1993. Gene is also Director of the UNC Jazz Studies Program and Associate Director of the UNC School of Music.

The UNC Jazz Studies Program has received more *Down Beat* magazine awards than any other institution in the United States and the only institution ever to receive a Grammy Nomination in the Vocal Jazz area. The Program has produced thirteen record albums and seven compact disks and is currently under contract with two major recording labels.

In addition to many clinics and workshops in the instrumental and vocal jazz area in the United States and Canada, Gene presents seminars for Apple Macintosh, NEC and other companies promoting multimedia in education. He writes regularly for the *Music and Computer Educator* magazine and presents multimedia seminars at state, regional and international conferences. Each summer, the University of Northern Colorado presents an annual hands-on computer workshop, The Rocky Mountain Music Technology and Multimedia Workshop.