MIDI Sequencing and the National Standards

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In 1992, the National Council on Education Standards and Testing attempted to bring a halt to our deteriorating educational system by recommending the establishment of (minimal) national standards to upgrade performance in each subject area. As a result, representatives from every segment of the arts world - dance, music, theatre, and visual arts, developed national standards for the arts. In January 1994, the standards were published and were met with approval from all quarters of the arts and educational communities.

The standards committee agreed on nine standards for music education. Although each standard represents a measurable objective, the committee did not prescribe methodology for implementation, nor did it prescribe evaluative criteria. These were left to the teacher's skill, taste, and creativity.

In this brief article, I will approach the nine standards listed below using technological devices rather than conventional devices such as acoustic pianos, manuscript paper, chalkboards, etc. In order to simplify the process, I will focus on one technology tool - a MIDI sequencer.

What is a Sequencer?

A sequencer is not a tape recorder, even though it can perform similar functions such as record, playback, and edit. By comparison the tape recorder is a primitive device that records and plays back sounds. The sequencer, on the other hand, is an extremely flexible and versatile device that records and plays back performance information. Some sequencers can record and play back acoustic sounds in addition to performance information. Performance information can include information such as the specific notes played, the dynamics of each note, the use of controllers such as sustain switches, volume pedals, and more.

Sequencers also make it possible to change or to edit almost any aspect of the performance information. For example, most sequencers will allow you to correct wrong notes, to change tempo, to play back a song in a different key, and to change instrumental sounds. A sequencer also makes it possible to save or to store performance information, usually on a computer disk. This storage capability allows you retrieve the data and play back the song at a later time without having to re-record the music. A sequencer, therefore, is a device that can record, edit, store, and play back digital data that represent a musical performance.

Using A Sequencer To Implement The National Standards

Standard #1 - Singing alone, and with others, a varied repertoire of music.
Teachers can use a sequencer to create minus-one accompaniments for any song in a variety of musical styles. Sequencers offer the ability to play a song back in any key and at any tempo. This means that song keys and tempos can be optimized to meet the needs of all students. Multi-part arrangements of many sequencer songs can help students to sing 1) in rhythm (by following the sequenced percussion parts), 2) on pitch (by listening to the chordal accompaniment and optional melody doubling), and 3) with expression (by following the phrasing and dynamic levels of the accompaniment.)

Teachers can learn the basics of sequencing and create their own songs and arrangements. In addition, pre-recorded songs for sequencer playback can be purchased from publishers such as Alfred, Hal Leonard and Warner Brothers. Other sequencer song files can be found on the Internet and downloaded into the sequencer.

Standard #2 - Performing on instruments, alone and with others, a varied repertoire of music.
For elementary and middle school students, sequencers make it possible for the teacher to provide a variety of accompaniment styles for classroom instruments such as recorders, Orff instruments, guitars, and keyboards. A sequencer accompaniment allows the teacher to circulate within the classroom and to join in the musical performance.

At the high school level, teachers or students can create minus-one recordings for practice - for example, a blues accompaniment that can be played in any key and at a variety of tempos.

Standard #3 - Improvising melodies, harmonies, and accompaniments.
A sequencer has the capabilities of a tape recorder, a sound mixer, and word processor in addition to other unique capabilities. The great advantage of a sequencer is its ability to record various musical parts on individual tracks. For example, the melody line, the harmony parts and the bass line of a song can be recorded one at a time on separate sequencer tracks. With teacher guidance, students can isolate and study the various tracks of the song to understand the function of each component. When the student has become familiar with the song's melodic and harmonic structure, he or she can begin to create simple embellishments or improvisations on each component. Pre-recorded examples of improvisations can be stored on other sequencer tracks to serve as models or to stimulate creativity.

Standard #4 - Composing and arranging music within specified guidelines.
Using the improvisational skills introduced in Standard #3, students can attempt to compose simple songs of their own. Some might begin with a melody; some might begin with a set of lyrics; and others might begin with a chord progression. It doesn't make much difference how they begin as long as they complete a song within the specified guidelines.

Sequencers can be used to record student compositions. Students with no performance skills can enter notes using a feature known as step time entry, which makes it possible to enter notes and chords using the computer keyboard and a mouse. The multitrack capability of sequencers makes it possible for students to create multi-timbral arrangements of their songs.

Sequencers offer the ability to re-arrange a song 1) by changing the song's structure (using the cut-and-paste feature to add or remove song sections) and 2) by changing the song's orchestration (assigning different instrumental sounds to individual sequencer tracks). These features enable students to better understand some of the variables in music composition and orchestration.

Standard #5 - Reading and notating music.
Sequencers can help students learn how to read and notate music. For example, the teacher can teach students a simple melody by rote. The students can record the melody into a sequencer. Many software sequencers can display note information in standard musical notation. In this way students can view a notated representation of their performance and, with teacher guidance, begin to understand notational elements such as staves, clefs, time signatures, key signatures and note durations. Sequencers with notation capabilities make it possible for beginning music students to produce professional looking notation in a fraction of the time needed for them to learn how to notate music

themselves. In addition, many sequencers have the equivalent of a word processor's "spell checker" feature, and will not let the students start a new measure until the current measure contains the proper number of beats.

Standard #6 - Listening to, analyzing and describing music.
Sequencers can be an aid in teaching students how to listen to, analyze and describe music. When we listen to music, we all do not hear the same thing. Some listeners can be classified as gestalt listeners; they perceive music as a whole entity rather than the sum of individual parts. Others perceive music as separate, identifiable strands of sound woven together to achieve a specific sonic blend. In analyzing and describing music, the gestalt listener might be at a disadvantage because of the way he or she perceives music. However, if the music were sequenced with individual parts recorded on separate tracks, then any part could be isolated or amplified for analytical or descriptive purposes. For example, a musical motif that recurs subtly in various voices might pass unnoticed without the aid of a sequencer playback to highlight various parts. Sequencers can also slow down a frenetic section of music, enabling the listener to analyze the melodic, harmonic and rhythmic interplay that creates a specific musical or emotional effect. With a powerful tool like the sequencer, a listener is in a better position to analyze, understand and describe the components that work together to create music.

Standard #7 - Evaluating music and music performances
Sequencers can be used to dissect and to analyze the interplay of musical elements in a way that is impossible to do with any other recording medium. For example, the teacher could take a well-known melody and record it into the sequencer so that every note has precisely the same volume, timbre, and duration, and rhythmic value. Musical elements such as rhythm, dynamics, tone color and tempo could be introduced one at a time, making it easier for students to hear and to understand how each element contributes to a musical performance.

Standard #8 - Understanding relationships between music, the other arts, and disciplines outside the arts.
Music has a one-to-one relationship when compared to art forms such as painting and architecture. For example, music and painting both share elements such as composition, form, color, and texture. Both art forms act as a vehicle for the expression of an artist's thoughts and feelings - painting offers visual representation, and music offers aural representation.

Music has a complimentary or supplementary relationship with other art forms such as dance, theatre and movies. In movies, for example, music becomes an integral part of the movie experience by heightening the emotional response of the viewer/listener. Sequencers are ideal tools for creating movie and video soundtracks because: 1) students can create multi-track compositions without the need for advanced performance techniques, and 2) students can heighten an emotional response to visual imagery by using the synthesizer's wide palate of instrumental sounds and sound effects.

Standard #9 - Understanding music in relation to history and culture
Sequencers can be used to help students learn many aspects of history and culture. For example, the teacher could change the playback sound for a Bach prelude from acoustic piano to harpsichord, then from harpsichord to pipe organ and then to a synthesizer. This could lead to a unit on the development of keyboard instruments. The unit could include topics such as the evolution of each keyboard instrument and could address questions such as: what historical and social events dictated the design, construction and evolution of the pipe organ, the harpsichord, the piano, the electric organ, and the synthesizer? In a similar manner, the history and development of all musical instruments can reflect the

historical and social climate of almost every culture. With teacher guidance, students can learn to use appropriate sounds in sequences to emulate musical textures of other cultures and periods of history.

It would seem that gaining proficiency in the use of sequencers requires no more effort that learning to use a word processor. Keyboard skills are helpful but are not necessary in order to create musical sequences. Music educators at every teaching level can make their teaching more effective and more enjoyable for students by harnessing and using the resources of technology to implement the National Standards in music.

(Note: for additional information about the National Standards, visit the website for the Music Educators National Conference: www.menc.org.)