

THE MUSIC WORKSTATION
A POWERFUL TOOL FOR TEACHING AND PERFORMING
©1988 by Don Muro www.donmuro.com

In the past ten years, the electronic music industry has experienced a period of unprecedented growth. Rapid advances in technology during this period resulted in a succession of new instruments with more features and, in many cases, a lower retail price. One of the most important advancements in the evolution of electronic instrument design is the music workstation. In this article I will attempt to answer the two questions most often asked about the music workstation.

1) WHAT IS A MUSIC WORKSTATION?

The music workstation can be described as a portable electronic music studio. The workstation combines the basic functions of a *synthesizer* (it creates different timbres), a *sampler* (it can call on and manipulate sounds that have been digitally recorded), a *drum machine* (it can record and play rhythm tracks), an *effects device* (it produce ambient effects such as reverberation and delay), and a *sequencer* (it can record, store, and recall the digital data that represent composition). In its most common form, then, a music workstation is an electronic keyboard that contains all of the basic components needed to compose, to arrange, and to realize a work in the electronic medium. To qualify as a music workstation, an instrument should have the following features:

1) *a velocity and pressure sensitive keyboard* - Velocity sensitivity is a type of touch sensitivity that measures how quickly a key travels as it descends to the key bed. This measurement is converted into an electronic signal that can control various properties of sound such as loudness or timbre. Pressure sensitivity makes it possible to change various properties of a sound by pushing downward on a key after it has reached the key bed. The amount of pressure on the key determines the degree of change in the sound.

2) *a wide palette of synthesized and sampled sounds* - A workstation's sound-generating capabilities should contain dozens of digital waveforms representing synthesized and sampled sounds. These waveforms should include a wide variety of electronic sounds as well as samples of pianos, guitars, bass guitars, strings, brass, woodwinds, and percussion. In addition, the workstation should be able to access additional electronic sounds and sampled sounds from storage on magnetic disks or cards.

3) *at least one effects processor* - This device is used to enhance synthesized and sampled sounds in almost every type of electronic music produced today.

4) *a multi-track sequencer* - On most sequencers it is possible to edit the pitch, timing, duration, loudness and timbre of any note in a composition.

5) *an inexpensive and reliable means of storing work* - A workstation's operating system should include a simple method of saving and recalling sounds and sequences. Most instruments use an internal 3.5-inch disk drive for this purpose.

2) HOW CAN THE MUSIC WORKSTATION BE USED IN THE MUSIC PROGRAM?

The music workstation can be used at any level of the music program as a teaching tool, a compositional tool, a rehearsal aid, or a live performance instrument.

As a Teaching Tool

The synthesizer function of a workstation can be used to demonstrate the properties of sound. The teacher can set up a series of programs that would show the sonic result of changes in a sound's pitch, loudness, timbre, duration, and location. The sample function can be used to demonstrate fundamental differences in sound between a harp, a pipe organ, a harpsichord, and other traditional instruments that are not readily available in the classroom. The effects processor could be used to demonstrate the important role that acoustical ambience plays in the perception of sound.

In a music history class, the variable tuning feature found on several workstations can be used to demonstrate the effect of alternate intonations on early music. The sequencer can be used in general music classes to demonstrate the basic concepts of multi-track digital recording. A teacher can show how an entire song can be created by entering the musical parts into the sequencer, selecting different sounds for each part, adjusting the volume levels for each sound, assigning sounds to different speakers for stereo, and adding echo from the effects processor. The sequencer can be used at the secondary level to realize theory and harmony exercises. The sequencers in most workstations have a "step" entry mode, which makes it possible to type note data and performance data instead of playing the parts on a keyboard. This feature is especially useful for students who do not have keyboard performance skills.

As a Compositional Tool

Using the techniques described above, students at the secondary and college level can use the workstation to create complete realizations of their compositions. Since every detail of the composition can be edited, it is possible for non-performing composers who understand the variables of musical interpretation to create dynamic recordings of their works.

As a Rehearsal Aid

Many ensemble directors are already using sequencers as an aid in rehearsals. For example, a choral director who rehearses without an accompanist can record a song accompaniment on the workstation and play it back during rehearsal - in any key and at any tempo. This enables the director to concentrate on conducting rather than on

accompanying the group. Even if the director must accompany the group in concert, the students will have benefited from the gestures and visual cues the director was able to execute during rehearsals.

A band director can use the sequencer's step entry mode to record the percussion parts of a difficult band piece; the students in the percussion section can practice their parts by playing along with the sequencer. The director of a jazz band can create "minus-one" accompaniments for the members of the ensemble; a soloist can then practice his or her solo with the accompaniment, which can be transposed at will and played at any tempo.

As a Live Performance Instrument

In addition to producing traditional synthesizer sounds and sound effects, the workstation can produce imitative sounds in situations where acoustic instruments are not available. For example, a choir or orchestra might use a workstation in an accompaniment to simulate instruments such as acoustic piano, harpsichord, pipe organ, and acoustic guitar. A show choir or jazz band might use sounds such as electric piano, clavinet, electric guitar, bass guitar, and percussion.

As technology continues to advance, music workstations will become even more powerful. As they become less expensive, music workstations will become more accessible. And ultimately, for many educators at every level of instruction, music workstations will become an integral part of contemporary music education.