

# Who Can Be a Composer: New Paradigms for Teaching Creative Process in Music

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## **Introduction**

You get a strange set of reactions when you ask a college music student to compose. They protest that they are not creative, that they have no original musical ideas, or that they don't possess the skills needed to assemble a convincing musical utterance. When pressed they will reveal their belief that it is senseless to compose anything but a masterwork and that all the really good composers are dead white men. Unless they have been very lucky, this is the subtext that traditional music education has given them.

## **The New Folk Instruments**

In the days before recorded music our only venues for experiencing the art were our churches and concert halls, our town bands and choruses, or our front parlors. We have all seen those four-hand arrangements that line the dusty storage rooms of our music libraries. Some of us have had the joy of hacking out melodies and harmonies while sitting hip-to-hip with family or friends on a narrow piano bench. Edison changed all that. For most of us, music has become something to be consumed. The performance of music is left largely to professionals. The composition of music is the province of a small group of "geniuses" who exist on a remote alternate plane.

With the advent of computers and synthesizers, many of us have found ways to return to those early days of active participation. We can perform pieces with less than flawless technique, we can arrange our favorite tunes, and we can compose our own music working directly with sound. Technological media have given us new folk instruments.

## **Musical Preparedness**

With current tools of music technology we come face to face with a startling reality. A teenager in a basement or garage can make an interesting musical statement without knowledge of music notation or theory and without years of instrumental practice. This finally exposes the myth that a composer can only function in the possession of facility on the black and white keyboard and mastery of the printed score. A good ear coupled with imagination, industry and curiosity seem to be enough. What then constitutes musical preparedness for students entering or leaving college?

In my department at Oberlin, we augment the traditional training in music history and theory with courses in computer science and the visual arts. We are particularly interested in teaching problem solving skills and fostering the ability to look at conventional situations in decidedly unconventional ways. We believe that both of these goals meet in computer programming and similar activities that demand the making of plans, the acquisition of discipline, the organization of thoughts, the exercise of logic, the attention to detail, and, above all, the ability to be self-critical in the most positive way. Focusing on this set of skills in the environment of web page and CD-ROM design seems to give the balance between technique and creativity that is essential to the making of art.

## **Tools for Writers and Visual Artists**

If you are a visual artist or a writer you can find a wide variety of software with which to ply your art. Thinking with words and images is much closer to our common experience and is, perhaps, more intuitive than thinking with sound. As a result, software focused on graphics or text is more easily understood and less prone to procedural or stylistic bias.

Word processors don't insist that poetry rhyme. Graphics programs don't insist that images be representational of landscapes or the human figure. Large collections of fonts and the possibility of inventing new ones encourage concrete poetry and text music. Grammar and spelling checkers can be creatively ignored. Image processing programs provide vocabularies of objects, drawing methods and visual effects and the possibility of adding to the vocabulary. They leave open the door to future expansion by artists of vision. At the same time, this software is hospitable to the nonprofessional who needs to make a newsletter or the hobbyist who simply wants to make a greeting card to share with friends or family. In short, these are tools that make few assumptions about how they will be used or what might be made with them. As a consequence they reach a wide audience.

### **Tools for Musicians**

Commercially available software and hardware for music almost exclusively address the paradigms and presuppositions of traditional music making. Music software businesses are almost exclusively run by musicians. This has obvious advantages but many of the developers have artistic agendas and prejudices that restrict the capabilities of their products. Sometimes they simply don't know enough about music making on a broad plane. To accomplish wide sales within a small marketplace, they force their products into three main genres: programs that model pen and paper, programs that model the multitrack recording studio, and synthesizers that model familiar musical ensembles.

Music printing programs impose the view that notation, like the tax code, is something that is fully defined at some point in time. It is frozen in a product that seldom offers the possibility of further development or alternate interpretation. Is music only music if you can write it down? As music educators, we know the answer to this question but we often ignore it. We need only point to traditions of improvisation in most of the world's cultures - including our own.

Multitracking and sequencing software impose views from popular and commercial music that see musical structure in layers. Entire parts are to be composed and encoded before any consideration is given to other parts or how layers interact. Words and music, melody and harmony, rhythm and articulation are treated as separable elements. Questions like "do you record the piano, drums or bass first?" are considered pertinent and can be the cause of many a lively discussion.

Samplers and synthesizers impose the view that instruments of the past are sufficient for all present and future musical expressions. Alternatively they propose sounds that have current stylistic bias or limited utility. We have hardware that can make any imaginable or currently unimaginable sound. Even so, one commercial standard, "General MIDI," proposes that our timbral palette be frozen at 128 hues. After accounting for all the horns, guitars, keyboards and percussion along with a few "world" instruments, they inexplicably include "Bird Tweet," "Telephone Ring," and "Helicopter."

All of these products impose the view that music is metric, equal tempered, and scored for electronic instruments that clone their acoustic ancestors. They constitute a rein on artistic fantasy and a harness on new discovery when wild horses are called for.

Because of its reliance on traditional compositional paradigms and views of musical preparedness, most music software can only address a meager market. It caters to common denominators and imposes both procedural and stylistic prejudices. If progress is to be made in bringing more people in to the realm of sonic creation, there must be a dramatic shift in paradigms found in music software. Reliance on notation, performance facility, and music jargon must be eliminated. In their place we must find ways to focus on the broader common experiences of eye and ear. Software that allows us to use familiar words, images and gestures to shape and transform sound will increase the number of people who can experience music as participants rather than observers.

### **Creative Process**

I will not attempt to define creative process except from my own experience as a composer and teacher. As a composer I have always taken the most difficult course often swimming against the current. I have

written my own software and participated in the design of new hardware when creative urges pointed that direction. As a teacher I have encouraged my students to do the same.

We don't know where an artistic idea comes from and we are always surprised when one comes from an unexpected source. We do know that we are more likely to encounter the interesting and unusual artistic ideas if we hang out in interesting and unusual places. The other arts and sciences are viable places to start. The practice room and the music theory classroom are not. Lateral thinking, brainstorming, and sometimes general silliness lead the way to new insights about existing tools and techniques and beyond to the discovery and application of unimagined processes.

### New Paradigms

Some pedagogical models are already available in the work of people like Orff, Kodaly and Suzuki. It is unfortunate that such effective techniques for making music are abandoned after the most formative years in favor of more intellectual and less experiential "adult" approaches. However, these models focus ultimately on mastering performance technique. None have the making of original music as their primary focus.

A few alternate models for musical composition hover from time to time around the edges of the marketplace but fade because their paradigms are unfamiliar or misunderstood. In particular I would like to cite the work of Morton Subotnick, Joel Chadabe and David Zicarelli as champions of new paradigms. In *M*, Zicarelli and Chadabe define a world where musical process supersedes the laborious placement of individual musical events. Musical material is subjected to many methods of transformation. On its own, each method is simple and intuitive. In combination, these methods produce wonderfully complex music.

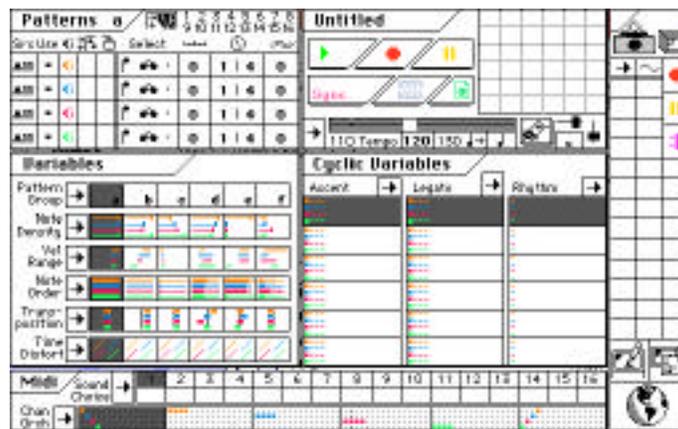


Figure 1. M

Zicarelli's earlier program, *OvalTune*, allows the composer to paint music with the mouse. Sounds and visual images are created simultaneously with physical gesture.

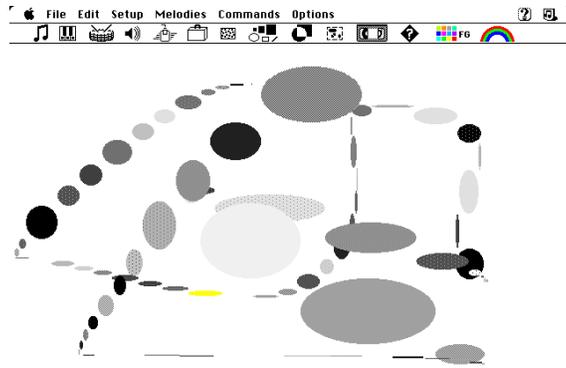


Figure 2. OvalTune

Subotnick's *Making Music* is a foray into the realm of early music education. The box proudly proclaims "no reading required." Subotnick provides several different paradigms for creating music but the most interesting and most powerful involves a "piano roll" where a composer can "paint" notes into a sequence.

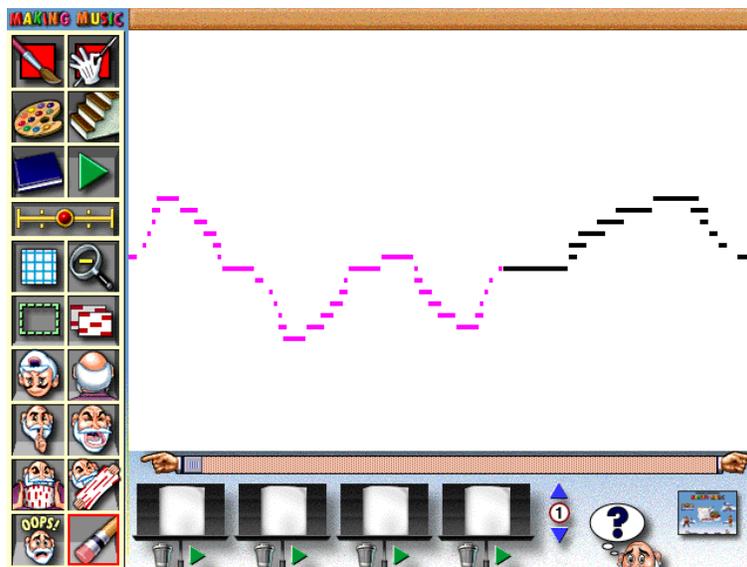


Figure 3. Making Music

After painting, sections of the music can be selected, copied and transformed to create larger structures much as one might build with Legos. One of the most interesting features of *Making Music* is seen in the lower left corner of Figure 3 where Subotnick uses cartoon images of himself to convey concepts like retrogression, inversion, augmentation, diminution, and dynamics.

Although these are certainly trailblazing efforts, each piece of software represents a particular paradigm that reflects the designer's view of how music might be made. They are wonderful ways to make music if they resonate with your own creative urges. If they don't, they inflict the same bonds on creatively as do the tools that are based on more traditional paradigms.

Clearly, we need tools for constructing and implementing paradigms. We can look to Subotnick's *Interactor* and Zicarelli's *Max* for the best examples of such tools. *Interactor* and *Max* are modular programming languages that offer a graphic interface for constructing interactive musical environments.

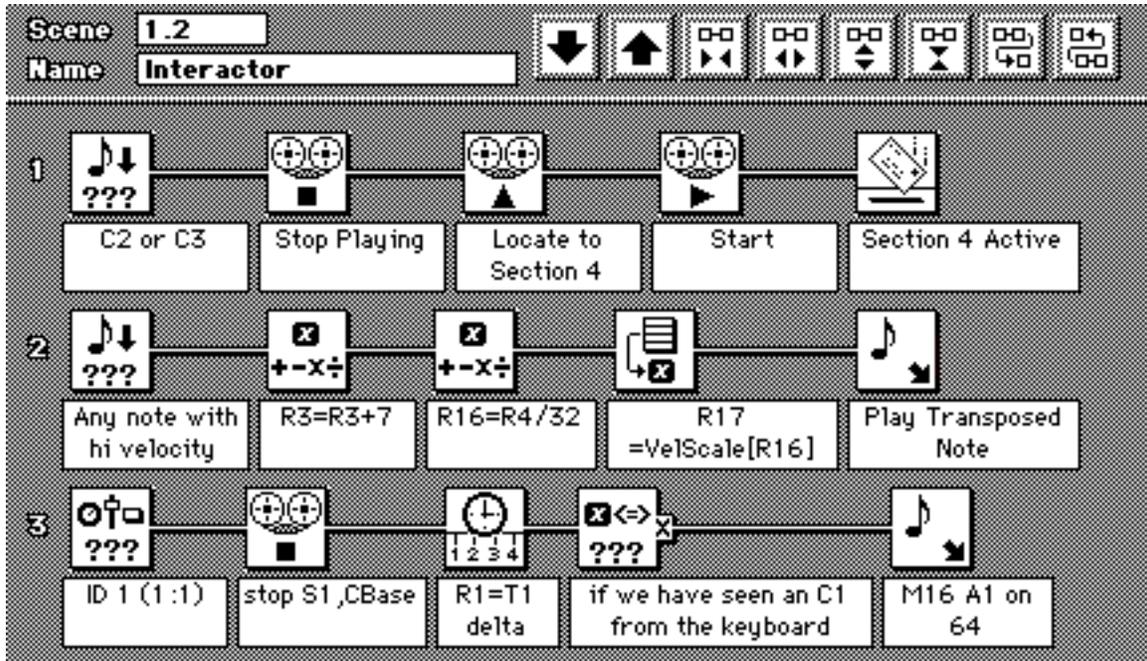


Figure 4. Interactor

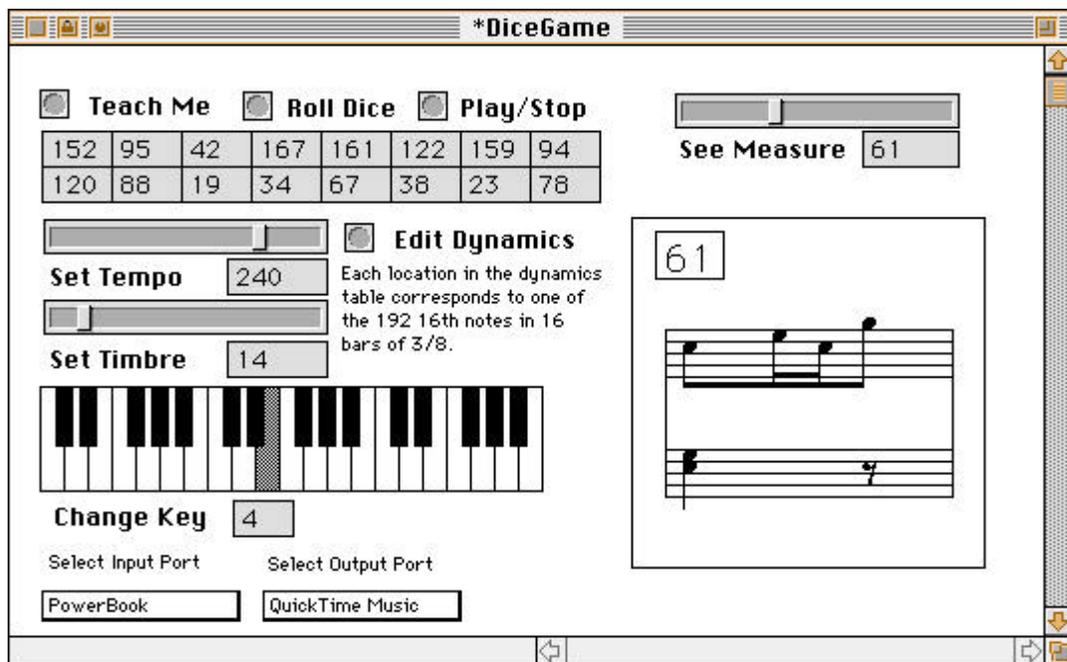


Figure 5. Max

In addition to the power that *Interactor* and *Max* give those of us swimming against the current, they make it possible for the silly among us to pass along our crazy ideas. I offer as an example a program I am developing to use genetic algorithms to "breed" musical compositions that I call "sonomorphs."

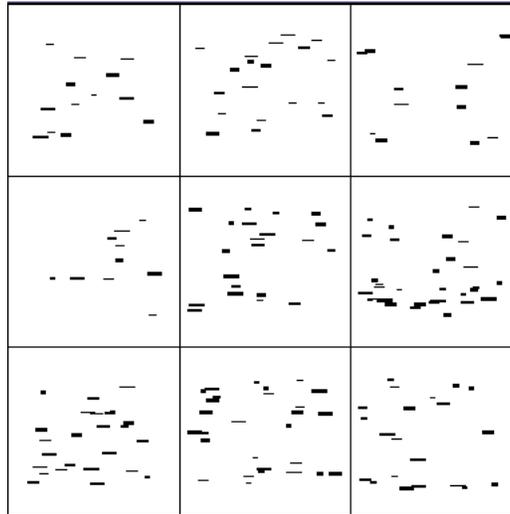


Figure 6. Sonomorphs

Like the piano rolls in previous programs, musical phrases can be constructed by drawing in each of the nine boxes. The composer may also choose to begin with nine randomly composed phrases. Command-clicking replaces a phrase with a newly composed random phrase. Option-clicking on a box causes the phrase to play. By shift-clicking, two of the boxes can be selected as parents for a subsequent generation of phrases. The numeric data that describes the pitches, rhythms and dynamics of the parent tunes are treated as the genetic code to be inherited from the parents in measured fragments by nine new "child" phrases. The composer can edit the results and breed again until a satisfactory result is achieved. More details of this research can be found in papers on my web page.

#### **Ramifications for Music Curricula**

More and more institutions will come to the realization that the act of cutting an original piece of music from whole cloth is not only a desirable but also an essential component in bringing a student to a state of artistic and esthetic sensibility. Furthermore, this attitude must propagate down into the lower levels of our music education curriculum as our college graduates carry the torch beyond our campuses.

We have lost sight of what music was before recorded media. A glance at our current music curriculum makes it clear that we see music as something we study and perform, not something we make for ourselves. Accrediting agencies like the National Association of Schools of Music are already making rumblings in the direction of new requirements in technology, composition and improvisation for every college music student. My home institution is on the brink of approving a graduation requirement that every music student must compose and perform at least one original work during their four years on campus.

But this broadening of view within the conservatory is not enough. We must look outside to the sciences, to the visual arts, to theater and dance. We must look for unexpected connections and influences if we are to keep the art alive. Music is no longer just sound.

We are not far from the breaking of traditions that are barely 100 years old. We are on the brink of a new era where music will become participatory again. Our course structure will soon be forced to reflect this more progressive idea. Music is not something to be consumed by listeners and performers but a thing to be crafted for the sheer joy of personal expression.

### **Conclusion**

Availability of music software with unusual paradigms and more intuitive user interfaces will not increase the number of fine composers. It will, however, enrich us through the only means of really understanding art, making it ourselves.

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