

# A Multimedia Approach to Teaching Music

Ayers, Lydia

layers@ust.hk

Division of Humanities,  
Hong Kong University of Science and Technology

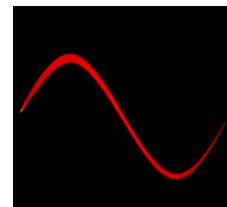
## INTRODUCTION

Giving Music lectures presents special challenges. The best way to teach music is to give private lessons on a musical instrument, starting in early childhood. But university students are already much older, and many have never studied music. So, of course, many don't play musical instruments or read music. Since we don't have the resources to give all the students private lessons, I developed a multimedia approach that crosses the border between Humanities and Technology, using PowerPoint slides, digital tapes, videotapes, musical scores, and live demos. The **PowerPoint** slides use exciting pictures, animations, music notation graphics, listening guides, and other graphics and beautiful backgrounds, first to teach music basics and then to present the music studied in the various music classes. These PowerPoint slides appear on the Web after each class as a study aid for the students. I have used this approach for three music classes, *Music Appreciation*, *Music of the World* and *Computer Music*.

I find CD examples of music that I want to present in class, and synthesize other examples, and transfer them to digital tape collections to make them easier to play efficiently. Using the same idea, I make video collections from my personal collection, the collection in Media Resources and field recordings that I videotape on my holidays. Listening guides explain important parts of the music in "real time" while the music is playing. Other techniques include show and tell with live demos, often with me wearing costumes from the same country as the music presented, and surprises.

## Animations

Acoustics, the science of sound, explains why harmony works the way it does. In this lecture, I use **Animations** to explain ideas in a fun way. For example, former student Edward Wong created an animation of a sine wave that helps the students to understand how the graph represents the changing amplitudes of the waves. For other lectures, I have found animations on the Web and created them myself.



## FYP Teaching Projects

The FYP teaching projects allow the students to learn by creating a project that contributes to teaching other students. An ongoing project is to create some music applications in Java using a special tuning system called just intonation. The first of these applications was the Java Just Intonation Calculator, which allows students to study various scales and their tunings using several different measurements (frequencies, cents, etc.) and string lengths. Here is the URL:



<http://www.cs.ust.hk/~layers/comp342/software/javajcalc/index.html>

## Synthesize Sound Examples

I **Synthesize Sound Examples** to illustrate musical and music synthesis ideas, especially for the *Computer Music* class. One example demonstrates my synthesized voice singing the “unsingable” high E from the end of the “Bell” aria in Leo Delibes’ *Lakmé*.

## Show and Tell

I **Show and Tell** musical instruments from various countries, such as a *dizi* from China. I show the special feature of the instrument, which is the cane membrane over an extra hole.



## Live Demos

I use **Live Demos** to explain some parts of the recorded selections for the students. For example, I actually play a musical selection on the *dizi*, such as the beginning of *Springtime in the Pamirs* from Western China.

## Student Interaction

I like to inspire the students by letting them touch and play the instruments. For example, we pass around a set of Balinese bamboo *anlung* shakers and have the students play a simple melody in class.

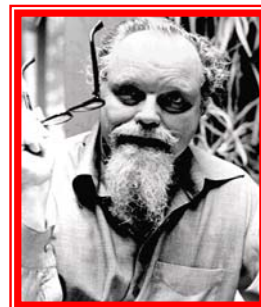


## Listening Guides

The PowerPoint **Listening Guides** are a visual aid that helps the students understand musical selections while they listen to them. The guides range from vocal translations side by side with the original language to slides which use words and even music notation to show important points in the music without me speaking over the sound.

## Videos

I use many **Videos** so that the students can see who is playing the instruments and which instruments they are playing and how they play them, or to make a composer seem like a person they know instead of an abstract idea.



## Field Video Recordings

Seeing the performance of many kinds of music is so important that I have even made **Field Video Recordings** at conferences and during my holidays. For example, I videotaped composer Lou Harrison's keynote speech at MicroFest 2001, and used a small clip of it where he explained the tuning system he used in the piece that I played in class.

## Listening Guides Over Videos

Usually I introduce the video before I play it, but sometimes I want to show the *Music Appreciation* class a listening guide during the video, as I would with recorded music, so we have used the same technique that works for subtitles to **Overlay Listening Guides Over Videos**. In addition to the ordinary use of subtitles, this technique works to put anything on a video, as shown in the example with vocabulary explanations on the field recording of Lou Harrison's speech. Joaquin Rodrigo was a blind Spanish composer who composed a beautiful and famous piece called *Concierto de Aranjuez*. The video editing on this piece is a special example that illustrates many techniques. The original video is a documentary that contains a lot of talking, but also contains some footage of a good performance of the piece. We edited the video to replace parts of the soundtrack with a CD recording of another performance, replace parts of the picture with pictures of the composer, his wife and scenery from Spain, and add a listening guide over the whole thing.



## Surprise

It's always nice to end with a surprise. I made sure to sit in the front row while I videotaped the Water Puppet performance in Hanoi for my class. I conclude with an example and a **Surprise!**