The Midwest Clinic

An International Band and Orchestra Conference

Ready, Aim, Fire: Tuning the Brain for Intonation Accuracy

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Featuring the Lakota West Symphonic Winds

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Thursday, December 15, 2011, Meeting Room W184

9:00- 10:00 am

Learning to play in tune should not occur accidentally, although that is how many musicians obtain the skill. It can develop in spite of lack of information and appropriate training.

Playing in tune is like (shudder) aiming a rifle at a target. You zero in the scope (a mechanical act) and then you aim before you fire. It is a practiced technique.

First things first: Everything that relates to the physics of tuning should be part of the instructional process in a hierarchical structure beginning with equipment in good playing condition and instruments set at the correct length as per manufacturer specifications.

Knowledge of how to produce a characteristic sound and all that entails including:

Correct embouchure formation, proper air support and concept based upon focused listening (something not done nearly enough)

Other concerns include: How to properly tune specific instruments, characteristic or idiosyncratic tuning problems on each instrument,—woodwind or brass (function differently), and an understanding of the harmonic series

In spite of all mechanical efforts, including correct and incorrect use of a tuner, students still play out of tune . . . in chords, melodic lines and in relation to a dominant pitch center.

Ultimately, the development of inner hearing or audiation (a more complex term) are required to solve most of the remaining problems. It is this last item upon which this clinic will focus. All that follows is based on the premise that successful professional musicians hear the correct pitch before they play it. They are able to "aim" the pitch before they "fire" their instrument. Most of our students do not do that. They . . . Ready, FIRE, aim (as noted in the first Ironman movie).

Singing is the best way to address the issue of developing inner pitch or what has been called "audiation." It often does not work because it is not approached systematically.

The following is a methodology that uses singing to develop the ability to pre-audiate as well as the following skills: aspects of music theory, articulation, style, attacks and releases, dynamic sensitivity, and heightened response to conducting gestures.

Most students can already pre-audiate to some degree but choose not to use the skill. It must move from intentional to intuitive (the 10,000 hour rule).

For the development of this methodology, I respectfully acknowledge "Echosessions" as developed by Dr. James Croft and numerous other sources including techniques forwarded by Ed Lisk (as well as others) and the concept of audiation defined for my generation by Edward E. Gordon in 1975. Professor Gordon proposed that audiation produces results beyond inner hearing and imitation (Kodaly et al).

For "tuning the brain" to be an effective methodology a commitment to daily use must be made. It is a sequential and methodical approach to improving overall musical sensitivity. Two to five minutes a day will produce significant returns.

Procedure

Day one:

Conductor sings an F (in the middle of most singing ranges)
Players sing the F
Players play F concert

If insecure, conductor may play a F concert on a calibrated pitch source (A=440 csp).

Guidelines:

Players may not hum or test for the note on their instrument
Players may not sing or play until the conductor specifies the attack
Pitches are kept within two octaves.

Next, conductor sings F G F
Players sing, then play (this sequence must be consistent)

Conductor sings: F E F
Players sing, then play. Several will play Eb
Conductor should stress that the first note is the name of the concert, major key to which the notes must relate.

The following considerations should be made:

Extension of stepwise motion (refer to pattern sheet)
Introduction of leaps, modulation, relative minor and specific intervals.

The conductor is free to create melodic and rhythmic patterns or to extract patterns from popular or familiar music.

Application in harmonic context

Treasury of Scales is a great resource that has become rather neglected of late. It can be used in this manner:
Play in a key previously explored with octave singing.
Hold last beat of chosen measure.
Have ensemble sing at-pitch the next measure
Play to confirm

Use the Circle of 4ths form from *The Art of Rehearsal Techniques* by Ed Lisk.
Students find the group by part they should play.
Assign pitches (group 4 play . . .)
Move around circle of 4ths or move chord up and down by half steps.
Sing chords before playing

Application in repertoire preparation

Sing melodies, difficult passages (interval-wise), and accompaniment parts. Continue application of singing the next measure before playing. When performing harmonic or melodic content, students should aim for the pitch center of the ensemble.The pitch center is best secured with the lowest voices of the ensemble (harmonic series model). If they move sharp, it is quite difficult to 'impossible for the ensemble to adjust even if they are skilled. If any player has a tuner on their stand for ongoing reference, it should be the tuba.

Important Issues

Cents

Generally speaking, many humans can differentiate pitch variations at around 5 to 6 cents. Timbre can play a part in how pitch variations are perceived (up to + or – 12 cents). In larger populations, normal humans can recognize differences reliably at 25 cents. A cent represents a ratio between semitones. There are 100 cents in a semitone.

Just versus equal-tempered tuning

Just tuning = whole number ratios
Equal tempered = identical frequency ratios (there will be numbers past a decimal point)

Amusia (a musical disorder broader than just pitch-matching difficulties). It may be congenital or acquired. Tone deafness reportedly affects 4% of the population. The threshold of pitch recognition is often 100 cents or larger.

Suggestions on working with students who cannot distinguish between pitches, let alone tune:

- ♦ Do it privately. In public, acknowledge that "not everyone is getting the correct pitch."
- ♦ Use a pitch source and teach students to use vocal sirens or roller coasters to match pitch. Model often.

Isomorphic Keyboard (capable of performing with just intonation)

Academic justification

The existence of performance-based ensembles in curriculum is being challenged not only by school districts and administrators, but also by music education professionals at institutions of higher learning.

The use of "Ready, Aim, Fire . . . Tuning the Brain," etc. can produce numerous assessment opportunities that may add defensibility to the curricular offering of band/orchestra. These would be measurable skills encompassing but not limited to acoustics, music theory, performance accuracy and improvisation.