The Woodwind Warrior

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Woodwind Tone Production and Intonation

Flute Tone Production Tips

1. Need to make the smallest possible aperture (opening) to focus the air
2. Start with lips relaxed and *slightly* pursed
3. Start breathing out through the mouth and use the *smallest* amount of muscle control possible to restrict the opening to a very small hole right in the center of the lips. (Student's with a Cupid's Bow will, of course, have to be slightly to one side.)
4. Play on the headjoint alone and try to make a focused, sustained tone. You will probably find that you have to move your lower jaw forward and/or protrude your lower lip slightly to get the right angle for the air to create the Bernoulli Effect required for tone production, **but don't let that change the size of your aperture**.

The better focus you have, the better tone, control, projection, and volume you have. Period.

Flute Intonation Tips

1. DO NOT USE THE 1-0-0|1-0-0 FINGERING FOR B♭. Just don't do it.
2. **I repeat**: DO NOT USE 1-0-0|1-0-0 FINGERING FOR B♭. I know you're thinking about it… I know your fingering chart and book said to… But only use it if you're going from a B♮ to B♭ or vice versa. Use the thumb B♭ in all other instances – particularly if you're tuning the instrument to that note. It's superior from both a technical and intonation standpoint.

   Now that that's out of the way…

3. For low notes, they will respond better when you direct the airstream slightly *downward*, and higher notes respond better when you blow *across* the hole. That's what you should tell beginner students to get the notes to sound, initially. HOWEVER…
   a. Low notes will tend to be **flat**, therefore you'll have to blow more *across* the hole to raise the pitch
   b. High notes, on the other hand, will be really **sharp**, so you'll have to blow more *downward* into the hole to lower the pitch
   c. You can accomplish this by rolling the flute in and out, but it is not the best way to go - it can affect your technique, since the flute is moving. Better to use the lips and lower jaw as much as possible.
4. RH 4, or the right-hand pinky key, is only really necessary for D♯/E♭. However, most people hold it down out of convenience for other notes as well. **Please note, however,** that it will actually affect the intonation of E♮ (i.e. if the pinky key is not held down for E♮, the pitch will be flat). For short durations, though, such as a fast G major scale with no RH pinky, you won't hear the pitch discrepancy.
5. Problem notes:
   a. High D above the staff will be a little flat, so blow more across the hole
   b. C♯ in both the middle and high octaves tends to be quite sharp, so put down RH 1-2-3 and/or blow downward to get it in tune

Clarinet / Saxophone Tone Production Tips

Embouchure

1. The embouchure should be formed thusly:
    a. Teeth on top on the mouthpiece
    b. Lower lip should be stretched firmly over the lower teeth
    c. Tongue should be brought to the center and you should feel the edges of along your inside gum line approximately where your soft palette meets your hard palette (Like the position for long "E," as in the word "tea."
    d. "Eee" "Ooo" "Nuu" as a general shortcut
2. Your lower lip should be hitting the reed just about where the reed starts to touch the mouthpiece.
3. The tongue position described above is ***very*** important – it focuses the tone, as well as provides control over pitch in the upper register.
4. The embouchure shouldn't tighten that much as you go higher on the instrument. The tongue does the work of focusing the air for the higher notes. (higher/more forward tongue position = higher notes)
5. The only difference between the clarinet and the saxophone embouchure is that the saxophone embouchure is *slightly* more relaxed and the tongue *slightly* more relaxed (flattened out).
    a. For classical saxophone playing, it feels nearly identical – except for the mouthpiece size.
    b. For jazz playing, a *less* focused sound is preferential, so the differences outlined above will be more pronounced.
6. As far as equipment is concerned, the quality following things will impact tone quality in this order, descending:
    a. Reeds
    b. Mouthpiece
    c. The instrument itself

Reeds

What strength reed to use depends on few different factors:

1. How experienced is the musician?
    a. In particular: how strong is their embouchure? Stronger embouchure can use a stronger reed and not be fatigued as quickly
2. What mouthpiece are you using?
    a. If the tip opening is larger, use a slightly softer reed
    b. If the tip opening is smaller, use a slightly harder reed
3. What kind of sound quality do you want?
    a. For classical playing (like for concert band) slightly harder reeds are generally preferred for a cleaner, more resonant, stable sound
    b. For jazz playing, you want a reedier, fuzzier, more flexible sound; slightly softer reeds are the way to go

All of that reed stuff is nice, but how do I apply it practically?

Listening is key! If you can diagnose what the problem is, the solution will follow easily…
(for each example, assume that the embouchure looks generally good)

1. If it sounds like the student is putting a lot of air through, but there's no sound coming out (except maybe an intermittent, loud honking noise…), the reed is probably too hard for them.
2. If the student seems to produce a tone easily, but the pitch wavers substantially and sounds very kazoo-like, then the reed is probably too soft.
3. If the student's high notes are very flat, then the reed is most certainly too soft.
4. If the student's high notes are very sharp, AND their low notes are very flat, then the reed is probably too hard.
    a. Keep in mind, though, that it takes a while to gain the control to play high notes without pinching and making them sharp. The instrument itself may be tuned flat, and the student either pinching or not appropriately adjusting the pitch down (more on that phenomenon below…)

Reeds that are too hard can be easily adjusted by taking fine-grit sandpaper or any sharp blade, such as a razor blade, to the vamp of the reed (the part that slopes down toward the tip – about a finger width in length). Sandpaper is easier if you've never adjusted a reed before. Just take a little off and play often in between, so you don't take off too much. Reed adjusting is easier than you think!

<u>*Clarinet Intonation Tips*</u>

1. Don't bite down for higher notes – it will make them run sharp. Instead, keep your tongue high in your mouth to focus the airstream
    a. Beginners will think that for higher notes you will have to apply more pressure, but it really is only a slight voicing difference. This is particularly pronounced when students are first learning to go over the break, and when they first start playing in the altissimo register. To show this to your student, have them play low chalumeau F and then press the register key yourself, so that they don't know when it's about to happen (and have a chance to tighten up). The C will then pop out without them having to do much of anything, and this will help them get the feel for how to voice it correctly. (This makes a great individual warm-up)
2. Resonance Fingerings
    a. Second-space A, A♭, and third-line B♭ will all usually both sound really terrible *and* be really sharp, a double-whammy… How to fix this? Resonance fingerings!
    b. You can look up really complicated ones online, but I usually just experiment with putting down all of the right-hand fingers, including the lower-inside pinky key (the one for F/C), and then adding LH 2-3 if it's still sharp. This will both make those notes sound better and be more in tune.
3. Don't forget to add RH 4 for notes past altissimo C♯! (It's on all of the fingering charts, but it's still easily forgotten and will cause them to be really flat…)

<u>*Saxophone Intonation Tips*</u>

1. If your second-space A is flat, you can add the G♯ key to raise the pitch.

2. Third-space C♯ is often flat, and it's common to use LH 3 and the register key to raise it a bit. You can also try adding the middle RH palm key instead.
3. You can add RH 1 to the high D (above the staff) to bring the pitch down, if it's sharp.
4. High C♯ is also often notoriously sharp, and people generally add RH 1-3 and pinky C to bring it down.

General Thoughts on Intonation and Tuning Process in Action

Mouthpiece Tunings

This is a guide for what note your student should produce when blowing on the mouthpiece alone for clarinet and saxophone. This is the single fastest way to solve puzzles like: "I wonder if he/she is just out of tune because of his/her embouchure or tongue position…" by eliminating the embouchure setup as a variable. **Basically, if you're blowing and getting these notes – plus or minus a semitone – out of the mouthpieces, then you have a good basic setup going on.** (All notes are given in concert pitch)

Bb Clarinet (and Soprano Sax) – C
Eb Alto Sax – A
Bb Tenor Saxophone – G
Eb Baritone Saxophone – E (some say concert D)

Protip: Try having the students do a siren up and down with the mouthpieces (brass, too!) as part of your warmup, to get them to start engaging the embouchure tongue, and throat (in ways they probably haven't before, if no one has brought it up yet). This exercise correlates with the ability to flex the pitch to fix intonation when playing, as well as being able to play with a characteristic tone quality.

How to "Tune Up" Before Playing

"Better [to be] sharp, than out of tune…"

- Charles West, DMA
Clarinet Professor Emeritus, Virginia Commonwealth University

This rather paradoxical quote from one of my college professors provides a critical window into woodwind instrument tuning that may change the way that you and your students think about intonation. Dr. West is not trying to say that being sharp sounds "in tune," he is referencing the fact that it is incredibly difficult to *raise* the pitch of a note with your embouchure to correct for tuning discrepancies, but it is more than possible to lower the pitch of a given note quite substantially using just your embouchure and oral cavity. Therefore, for the advancing student, it is useful to make sure to tune your instrument so that the naturally flattest note can be played in tune, since you won't be able to do much about it otherwise. Then, if your other notes are sharp, you probably need to adjust your *voicing*, which concerns your tongue, oral cavity, and embouchure (and on the flute, your airstream).

So here is a good process for tuning your woodwinds after they've gotten the instruments warmed up to playing temperature:

Clarinet

1. Tune second-line "open" G. This is a very stable note and should give you a good idea of whether your clarinet is in tune or not.
    a. If it's sharp, you should pull out **between the barrel and the upper joint** until it's in tune.
    b. If it's flat, and the barrel and mouthpiece is pushed all the way in, then you're either on too soft of a reed, or the student is not forming a correct embouchure (in extreme cases, you may have to purchase shorter barrel)
2. Now, tune third-space C.
    a. If the third-space C is sharp, then you may have to pull out **between the upper and lower joint**, but this usually doesn't have to happen with proper voicing.
3. Keep your embouchure relaxed and your tongue in a raised "Eee" position when you play in the altissimo register, and you're good to go!

Saxophone

For me, second-space A is one of my flattest notes, so I always make sure it's centered in and not flat, then check my intonation with the rest of the group and if I'm sharp on some notes, I know that I need to correct for this with my voicing, not by moving the mouthpiece.

Flute

1. Unless you are a beginner using a very limited selection of notes, check low D and really blow across the hole as much as possible with your most focused airstream. If you're still flat, you probably need to push the headjoint in.
2. Always check every once in a while and make sure that the headjoint cork is in the correct place. You'll know by taking the cleaning rod that comes with it and putting the butt end of it in the headjoint until it touches the headjoint cork. The little hash mark that's on the cleaning rod should be in the center of the blow hole.

After you teach these processes, it should be expected that the individual students check tuning by themselves with their tuners or tuner apps before rehearsal or performances. Then, when you check intonation as a group, it should be pretty close and you won't have to take a lot of time to check all of those different pitches with different sections, unless you hear a major problem.

With any instrument, after it is determined where they should have their mouthpiece / tuning slide / headjoint, there is no need to start from scratch each time! They should take note of where to keep the tuning and start from there each time. Any adjustments to that are most often because of extreme temperature (cold = flatter, hot = sharper). A good way to remember where to put it is for the students to use their phone to photograph the headjoint / barrel / mouthpiece and refer to it.

Technical Trickery

General Ideas

1. Minimize the *distance* the fingers have to move by playing with proper hand positioning
2. Minimize *number* of fingers moving from one note to the next as much as possible, if speed is an issue
3. Depending on speed, you may have to sacrifice intonation or tone quality for facility via alternate fingerings

Clarinet

1. Try using a neck strap

This actually solves quite a bit of problems with squeaking as students are crossing the break. It alleviates the pressure on the right hand and allows more freedom of movement for fingers 1, 2, and 3. Most squeaks when playing middle line B♮ and above result from fingers not covering the holes all the way and not having to hold the weight of the instrument helps a lot with this.

2. Tell the student to reach *across* the tone hole

For students with skinny fingers, the struggle is REAL… Tell them to reach *across* to the opposite side of the ring make sure the fleshy part of the finger pad is covering completely.

3. When going over the break – up or down – you can keep right hand fingers (and even LH 3) down as needed

This means fewer fingers to move, which makes moving across the break less difficult. AND it usually doubles as a resonance fingering.

4. To play second-space A, *roll* LH 1 up onto it, as opposed to picking up and putting down the finger.

This keeps it as close as possible to first hole on the front, so that you can move easily and quickly between the two (as in A to F♯)

Saxophone

1. Take advantage of the articulated G♯ mechanism

Any passage that has G♯s in it can be played by simply holding down the G♯ key with the left pinky through the whole passage. If adjusted correctly, any right hand keys will close the G♯ pad even if your pinky is still holding it down.

2. Bis B♭

If you're not a saxophone player you may not know about this, but you can move your finger down to cover *both* the B key and the "bis" key (the bis key is the teeny pad between the B and A keys). This lets you automatically be playing B♭ in any key or passage containing only B♭s with no B♮s. This is a little weird to get used to, but is *highly* convenient for key signatures with flats.

Flute

1. Thumb B♭. (see rant on page 1…)

2. Three-point balance system

Holding the flute is hard. To avoid the instrument moving while you are playing, the RH pinky and thumb can't be the only thing keeping the flute in balance. Otherwise, when you're going from C to D, the instrument will move, resulting in an uneven tone and technical difficulties. So, the three points of contact that you should use to keep the flute in balance are: the lips, the space between the knuckle and first joint of the LH index finger, and the space between the knuckle and first joint of the RH index finger.

3. Despite what your fingering chart says, you don't *always* have to have the right hand pinky down.

For example, if you have a fast passage with E♮ and D♮, it's a *lot* easier to just leave the pinky up, instead of trying to only lift up your pinky on D♮ and put it down on every other note.

4. Harmonic Fingerings (cheater fingerings)

Ok… So if you have a lot of stuff in the third octave that moves around really fast and you can't get all of those high note fingerings in, you can substitute these fingerings. You don't want to *completely* rely on these, because the tone and intonation is very sub-par, but if it's fast enough you just can't get it, let 'em fly. Essentially, you just use the fingering for the note that is a perfect 5th *down* from the note you actually want to hit and then overblow it. (source: *The Woodwind Fingering Guide*)

T 123|---$_{E♭}$	D	Harmonic (G_4).
T 123$^{G♯}$|---$_{E♭}$	D♯	Harmonic ($G♯_4$).
T 12-|---$_{E♭}$	E	Harmonic (A_4); flat.
Bb 1--|---$_{E♭}$	F	Harmonic ($B♭_4$); flat.
B 1--|---$_{E♭}$	F♯	Harmonic (B_4); flat.
1--|---$_{E♭}$	G	Harmonic (C_5); flat.
---|---$_{E♭}$	G♯	Harmonic ($C♯_5$); flat.

Got questions? *Well who doesn't?!* Reach out with an email or through social media:

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