Top Ten Tips for Happy Bassoonists!

Dr. Jason Worzbyt
Professor of Bassoon
Director of Adult and Community Bands
Indiana University of Pennsylvania
reedtip@iup.edu
724-388-6224

- In my almost 27 years as a collegiate instructor, I have had the wonderful opportunity to interact with a large number of bassoonists at various ages and stages of development.

- During these interactions, I observed that the students that were having difficulty with the instrument were struggling with many of the same issues.

- The goals of this clinic are not only to provide solutions to the most common challenges on the bassoon, but also to give music educators the confidence to identify, diagnose, and assist their students, leading to happy bassoonists and conductors!

Posture / Instrument Position / Seat Strap

- Have your students use a seat strap as opposed to a neck strap or shoulder harness. The seat strap takes the weight off the left hand, which greatly facilitates fingering in the second harmonic series of the bassoon. The notes found within this series require the use of octave keys and half holes, which require a great deal of finesse as they have very little tolerance for error in order for them to be effective.

- A properly supported bassoon should equally distribute the weight of the instrument between the hands, allowing the left and right thumbs to perform with maximum efficiency.

- If the student has large hands, a hand rest may be used to assist in supporting the instrument as well as preventing the right palm from getting too close to the boot joint.

- The seat strap is placed at the front quarter of the chair – allowing the elbows to be in front of the torso and the shoulders to drop.

- When possible, my preference is to use a seat strap with a cup, as it limits how much the bassoon moves from side to side. Also, some bassoons do not

have the holes drilled in the boot joint cup for a “hook style” seat strap, so using a seat strap with a cup will fit just about any bassoon.

- When seated, the player’s back should touch the back of the chair with their hips as far back in the chair as possible.

- Feet are flat on the floor.

- The bassoon should form half of an “X” across the player’s body.

- Always bring the bassoon to you, not you to the bassoon – the player’s shoulders should be parallel to the instrument.

- The bassoon, bocal, and reed are at the proper height when the reed touches the space between the players chin and lower lip as they are looking straight ahead.

- The player then dips their head to access the reed, slightly looking down at the instrument.

Embouchure Formation / Diagnostics

- Having students produce a low-pitched whistle, or an attempt to produce that sound, is an excellent way of forming the basic embouchure for the bassoon.

- Hooded sweatshirt/drawstring purse example also works well.

- Pull the corners of the mouth towards the center of the face, making the opening as round/oval as possible. The jaw will slightly be dropped.

- The goal of the bassoon embouchure is to gently hold the reed with equal pressure from all sides of the mouth.

- Equal pressure from all sides of the mouth allows the reed opening to be at its maximum, which is the ideal for the majority of bassoon playing.

- To assess if an embouchure is formed correctly (and also if the reed is adjusted correctly), insert the scraped part of the reed so that approximately 2/3 of blade is inside the mouth.

- Place the tip of the tongue on the tip of the reed, then, release the tongue letting the air into the reed. If the reed is properly soaked and adjusted, a mix of several frequencies will occur. The pitch of this “crow” can be anywhere from an Eb to a F.

- If the student can only produce a high pitch on the reed, check that their corners are pulled towards the center, their jaw is dropped, and that they are putting a lot of air into the reed (I often tell students to have the crow of the reed touch the opposite wall). If all they get is a high pitch, see **Reed Adjustments** below.

- If the student can only produce a low pitch, this in and of itself is not a bad thing – it just means that the reed is very soft and will not be reliable above the bass clef.

- Once the student can produce a crow on their reed, have them move it side to side in their mouth continuing to produce the crow. If they can perform this task, their embouchure is set!

- **The vast majority of embouchure formation problems are due to reeds that are poorly made and/or adjusted. Therefore, having a properly made and adjusted bassoon reed is paramount to a student's success.**

Articulation / Tonguing

- For the vast majority of tonguing on the bassoon, articulation is done on the tip of the reed just behind the tip of the tongue.

- One taste bud on the reed!" Many beginning bassoonists use too much tongue tissue to articulate, which will eventually compromise their tonguing speed and variety of articulation styles.

- Excessive jaw movement should be eliminated as it will rapidly change the aperture of the reed, as well as limit the velocity of single tonguing.

- Take care that the student is not "breath" tonguing or anchor tonguing.

- Legato / "Multipurpose" tonguing
    - "D" syllable
    - Depending on the register, this can take the form of "Dah, Deh, Dee, or Doh" vowel shape inside the player's oral cavity (see **Voicing**)
    - 99% air / 1% tongue
    - Can also tongue the bottom blade of the reed for a seamless legato stroke, as well as the corner of the reed.

- Staccato tonguing
    - Depending on the sound that is desired, it can be a "D" or "T" syllable with the vowel choices listed above.

    - When introducing staccato to a student (or any other style), be sure that they are not ending the note by placing their tongue on the reed. The tone should be stop by stopping the air with proper breath support.
    - Most students get into trouble with staccato (or other styles) when they use a "Tut – Tut" syllable, rather than a "Tah – Tah" syllable. A "Tut" syllable will create a loss of resonance, whereas a "Tah" syllable will leave more sound in the hall. Also, using multiple "Tah" syllables minimizes the amount of time spent on the tip of the reed.
    - The bassoon is capable of producing the shortest staccato of almost any wind instrument (think Sorcerer's Apprentice - Dukas), so care must be taken when playing a detached sound that contains more tongue than tone.
    - In specific situations, stopping the tongue is permissible if it fits the character of the music (ex. Stravinsky Octet)
    - As wind players/teachers, we must remember that staccato is defined as the space between pitches, so any tension that we introduce to the embouchure, reed, etc. will compromise the beginning of a particular pitch.

- Marcato/Pesante/Weighted tonguing
    - "T" syllable utilizing more tissue of the tongue
    - Start the tone a bit further back from the tip

- Increasing Single Tongue Speed
    - Elements of a fast single tongue: fast air, straight tongue, using the tip of the tongue
    - "D" syllable – think of it as fast tenuto/legato tonguing
    - Increase velocity on one note – then introduce the fingers
    - Alfred Rose method (principal clarinet – Vienna Symphony)
    - Take open F / metronome at 40
    - Quarter / Eighths / Triplets / Sixteenths / Quintuplets / Sextuplets
    - Gradually increase the speed by 1 or 2 bpm.

- Special tonguing circumstances
    - The notes below the bass clef (F to low Bb) often will speak easier if the player takes in less reed, playing closer to the tip. This is particularly true if a loud dynamic and/or "aggressiveness" is called for.
    - Notes in the highest register of the bassoon (third ledger line G and up) often respond best with a softer syllable such as a "D" tongue. Using an aggressive syllable and/or style in this register can cause the aperture of the reed to close.

THE REED!

- Yes, we are going to talk about reeds!
- No, it isn't going to be scary!
- Yes, you can do this!
- If your bassoonist is having problems with the response of their reed, or if the reed has significant intonation problems (most likely they will have both), check and adjust (if needed) the following:
    - Measure the distance from the top of the top wire to the tip of the blade. If it is not 30mm, gently move the wire back until that measurement is achieved (do this with a fully soaked reed). You can go as long as 31mm without disastrous effects, depending on how long/strong the overall reed is. Most reeds that are available for purchase are between 54-56mm long, so this adjustment will work on most reeds that fall between these measurements.
    - Look through the reed from the wrapped end to see if there is anything blocking the air (even a small shard of cane can make a big difference). If there is, take a small rat tail file and gently clear it out.
    - Bassoon reeds should fit on the bocal anywhere from 7 to 10mm. Going on further than 10mm isn't a problem, but less than 5mm can be. If that is the case, take a reamer (see **Recommended Tools**) and gently remove material from the inside of the tube a few twists at a time. Check this measurement frequently and use your rat tail file to remove any debris.
    - Pliers are a wonderful way of adjusting reeds since any wire adjustment can be put back if it doesn't work! In general, adjustments can be made through the following (stolen from Ben Kamins, professor of bassoon at Rice University):
        - Top Wire

Round	Flatten
Opens	Closes
Darkens	Brightens
Adds Resistance	Lessens Resistance
Strengthens	Weakens
Sharpens Pitch	Flattens Pitch

        - Middle Wire

Round	Flatten
Closes	Opens
Darkens	Brightens
Adds Resistance	Lessens Resistance
Strengthens	Weakens

- Sharpens Pitch Flattens Pitch

Voicing / Intonation / Tone / Harmonic Series

- Assuming that the embouchure, reed, bocal, and bassoon are all in working order, playing in tune on the bassoon is accomplished by the following:
    - Each register of the bassoon has very predictable intonation tendencies that can be addressed by changing the vowel shape inside of the mouth which in turn changes the size of the oral cavity. This procedure is known as voicing.
    - Voicing will slightly change the aperture of the reed, which will either dampen some parts of the reed (playing in the high register for example), or maximize the vibrational capacity of the entire reed (playing in the lowest register). Therefore, a properly made and adjusted reed is critical to playing in tune.
    - There will be individual pitches in each register of the bassoon that will have slightly different tendencies that are even one half step apart. In any case, changing the size of the oral cavity is the primary vehicle for adjusting intonation.

- Moving the bocal does nothing for the intonation of the instrument. However, if the instrument is significantly sharp, or flat overall, a change in bocal is warranted to correct this issue.

- Heckel/Puchner/Moosman/Leitzinger 2 bocal and a Fox 3 bocal: A=440

- Heckel /Puchner /Moosmann/Leitzinger 1 bocal and a Fox 2 bocal: A=442

- If your school bassoon does not have a bocal, or if the bocal is too flat or sharp for the bassoon, first try a bocal that is pitched at 442. Many bassoons that are made for young students are pitched a bit on the low side since most beginning student tend to play sharp, so a bocal pitched a bit higher can be good fit once the student has a properly formed embouchure.

- Intonation Tendencies on the Bassoon

    - Pedal Bb to bottom line G on the bass clef: Sharp (“Ah” vowel) – very open reed aperture
        - Taking in less reed can help with intonation as well as extremes in volume and rapid articulation. Since the very sides of the reed are exposed, the sound will be more “reedy” but much easier to manipulate
    - Bottom space Ab to fifth line A on the bass clef: reasonably stable with a few exceptions: (“Eh” vowel”)
        - Second space C# - can be flat if the reed is too long

        - Third space E – can be flat if the reed is too long or the tip too thin
        - Fourth Line F (open) – tends to be bright and sharp
        - F#, G and Ab – all ½ hole notes that tend to be sharp

    - A on top of bass clef to second ledger line F: flat ("Ee vowel)
        - This register of the bassoon is the most resonant – the vast majority of the major orchestral excerpts for bassoon are found here. This is what we bassoonists call the "cash" register.
        - The bassoon becomes more resistant beginning with A on top of the bass clef. Therefore, when playing a passage that utilizes multiple registers of the bassoon, you will need to produce a subtle crescendo for an even sonority (F major scale example)
        - The C# just above the bass clef is sharp when using the proper fingering. The player will need to switch to an "Eh" or "Ah" vowel to voice this pitch a bit lower.
        - E and F above the bass clef are very resistant, and in some cases a harmonic can occur if there is not enough support for these notes. In those cases, slightly closing the aperture of the reed will most often fix this problem.

    - Second ledger line F# to third space C#(treble clef): Sharp ("Oh" vowel)
        - The upper register of the bassoon is notorious for having student close the aperture of the reed to facilitate playing these notes. While closing the aperture does make these upper notes speak easier, tone and intonation are vastly compromised. Finding a balance between abdominal support and embouchure support is key here.

      High D and above: Flat (can close the aperture of the reed a bit)
        - Think about your lips becoming "thicker" / gradually close the reed opening

What are the Foundations of a Characteristic Bassoon Sound?

- A properly formed embouchure that has the flexibility to adapt to all registers of the bassoon

- The use of different articulation styles to meet the demands of the music

- The use of voicing to address general intonation tendencies across the multiple registers of the bassoon, as well as individual pitches specific to a given instrument

- The judicious application of vibrato as a vehicle of musical expression

- A knowledge of the abdominal muscles responsible for generating airstream velocity

- A bassoon reed that is properly adjusted for intonation and response

What are the Variables Associated with Tone Production on the Bassoon?

- Instrument
- Fox / Heckel / Puchner / Moosmann / Schreiber, etc.
- Materials Used in Construction (Wood Species)
- Finish (Different types of stain, varnish, acrylic)
- Bore design (long, short, thick wall, thin wall)
- Bocal (bore design, length, wall thickness, materials used in construction)
- Reed Shape
- Reed Scrape (wedge, parallel scrape, modified parallel scrape, etc.)
- Thickness of a Performer's Lips
- Size of Oral Cavity of a Given Performer
- Personal Concept of Sound (different teachers, ensemble sounds, etc.)

Harmonic Series

- Having a knowledge of the harmonic series can provide much insight into how the bassoon works, and why it can sometimes be a maddening instrument! [Example]

- First harmonic series: Pedal B-flat to fourth line F

- Second harmonic series: Fourth line F-sharp to first ledger line D

- Third harmonic series: Second ledger line E-flat and up

- Observations:

    - All of the notes that are found in the third harmonic series are "vented" fingerings from the first harmonic series. This accounts for the dramatically increased resistance of these notes, as well as their different pitch tendencies.
    - Even though the second harmonic series is the "narrowest" of the three, it presents several technical challenges due to the use of half holes and octave keys (see **Octave Keys**).
    - The fingerings in the third harmonic series are often the most difficult to learn as they are not laid out in a logical/sequential

pattern as most of the instrument. It is **critical** when a student is learning these notes that they have an accurate fingering chart.

- Vibrato
    - When a student can produce a straight tone that is in tune and possesses an even tone across the registers, they are ready to apply vibrato to their sound.
    - In general, bassoonists produce vibrato through the action of their intercostal (abdominal) muscles, or their vocal folds in their throat.
    - Both are acceptable – intercostal vibrato is easier to teach however since these large muscles are easier to control.
    - To teach abdominal vibrato:
        - Have the player place their hand on their stomach, and say the syllable "Ho" – that allows them to find the muscles they will use.
        - Play a second space C in the bass clef, and have them flex and relax these muscles. It should sound very raw at this point!
        - Be sure that they are bending the pitch downward from the principal note.
        - Begin with quarter note abdominal pulses at quarter note equals 50, or slower. Once they can do that, see if they can do 4/4 measures of eighth notes, triplets, and then sixteenths.
        - If they are successful, put the metronome on 51, then 52.....

Half Hole Technique and Octave Keys

In the second harmonic series, bassoonists must one of two methods to produce these pitches.

- F-sharp, G, and G-sharp require that the player's LH index finger produce a half hole by rolling the finger in a downwards motion.
- You will be better results if the player rolls the finger, instead of sliding their finger up and down.
- All of these notes require the use of the whisper key. This key will significantly stabilize these pitches.
- Each note has some "micro adjustments" that can make these pitches easier to play.
    - F-sharp – open up a larger half hole
    - G – add your LH low Eb key to lower the pitch on this note (consider it a part of the fingering)
    - A-flat – use a smaller half hole (almost a quarter hole)

The remaining five pitches in the second harmonic series, A, Bb, B, C, and D, require the use of keys operated by the LH thumb on the tenor joint.

- These keys can be found on the tenor joint of the bassoon and all are operated by the LH thumb:
    - D key(this key may not be on some student bassoons)
    - C key
    - A key
    - C# key
    - Whisper key

- These keys can have several names, but they actually function as octave keys for these specific pitches.

- When teaching the use of these keys, it is very important to stress that they are part of the fingering. If these notes are taught without these keys, it is very difficult (but not impossible) to integrate them into a bassoonist's technique.

- Disciplined use of these keys will solve a host of technical problems created by some of the acoustic idiosyncrasies of the instrument. It is worth the investment of time and effort!

Octave Key Technique

- These octave keys are needed in the following situations:
    - When A, Bb, B, and C are articulated
    - When slurring up to A, Bb, B, C, and D
    - When slurring down to A, Bb, B, and C

- The only exception to this rule is when slurring from a half hole note to the pitches listed above. In that case, the octave key is not required as the half hole acts an octave key bringing the bassoon up to the next harmonic series.

- Some bassoons, especially found in secondary schools, will not have a high D key (fourth key above the whisper key in the LH). In that instance, it will be necessary to legato tongue any slurred intervals up to D.

- Each of these keys are used for a specific pitch (see below the keys operated by the LH thumb on the tenor joint).
    - D
    - Bb/B/C
    - A
    - C# key
    - Whisper key

- For ascending and descending slurred intervals using the whisper key.
    - Begin the process by lifting the LH thumb off of the whisper key. Provided that the bassoon and the reed are in good working order, and if the oral cavity size does not change, the beginning pitch you are on will not jump up or down an octave.
    - In a relaxed motion, depress the specific key associated with that pitch until it hits the "bumper" and completely opens up the tone hole. This motion should be done to create the requested rhythm on the page.
    - Once the upper note speaks, the key can be released for the duration of the pitch, or released if that is the player's preference.
    - Most often, particularly in ascending slurs, a change in voicing is needed to facilitate the slur.
        - A, Bb, B, C and D are flat in pitch and require a vowel shape of "ee" inside the oral cavity when slurring to the top note.
        - In addition, this register of the bassoon is a bit more resistant, so the abdominal muscles will need to support the ascending interval as well.

- For all other ascending and descending slurs, a relaxed motion of the LH thumb depressing the octave keys will result in a smooth interval with no interruptions.
- For articulated pitches involving the octave keys (A/Bb/B/C), the motion of the tongue touching the reed and the opening of the key must be simultaneous.
    - For repeated articulations on a specific note, holding the octave key down is the best solution.

Third Space Eb / Tenor C# / Tenor F#

- For the vast majority of pitches that bassoonists play in secondary school, these five notes often are the most "knarly". A description of each of these notes follows.

- Third space Eb can be played in a variety of ways. My favorite fingering is LH 1, 3, and my LH pinky putting down the low Eb key.

- Many fingering charts ask bassoonists to also put down the RH thumb on the back Bb key and RH 1 or 2 down as well. While this can be a good fingering for soft passages, it can create fingering issues for rapid passages across this note. Furthermore, this fingering can be used as a crutch for a reed that is not properly scraped. Bassoon reeds that are too strong in the front ¼ of the blade can be very sharp on this note.

- That being said, some bassoons cannot play this note in tune without some help in the RH, so your mileage may vary with each bassoon you come across. My advice: try LH 1 and 3, and if that is too sharp/unstable, add RH thumb and RH first finger (RH 2 in this combination can be very sharp on many instruments)

- Tenor C# can present a few challenges. It can be a very bright note which can soar sharp in pitch depending on the instrument.

- I have found that the best thing to do when introducing this note is to have the student try two of the three fingerings for this pitch.

- The first fingering is LH 1, 2, 3, and LH thumb on the C# key and low D key. This fingering is muted on some instruments but projects very well on others.

- The second fingering is LH 1, 2, 3, LH thumb on the C# key, and RH 2, 3, and pinky on the low F key. This fingering projects very well but can be sharp and bright.

- Have your student compare how these pitches tonally match the surrounding pitches of B and C, as well as D and Eb. Usually one will come out as the clear winner.

- In my over 30-year career as a bassoonist, I have seen more variations to tenor F# than I care to admit!! Some of this can be due to poor fingering charts, as well as other factors.

- Normally, it is my philosophy to pick one fingering for a note and stick with it as that simplifies technique. However, the acoustical nightmare that is the bassoon often wreaks havoc with this philosophy – in fact, I use at least four different fingerings for this note depending on the context!

- The fingering that I teach first and use the most is the "French" fingering, as it is related to the French bassoon. It has the best sound, pitch, and can give a young player a lot of confidence to how easy it responds. It is LH 2 and LH pinky on the low Eb key, and RH 1, 2, and pinky on the low F key. Believe it or not, it is an overblown low F!!!!

Left Hand Pinky Resonance Key

- When playing second ledger line E and higher on the bassoon, always have the LH pinky hold down the low Eb key. It provides a great deal of resonance to these pitches.

Instrument, Reed, and Bocal Care

- Swab out the instrument after each use. Having a tenor joint and boot joint silk swabs make this process very easy.

- Get a bocal brush and scrub out the bocals one a month with hot soapy water.

- Protect the tip of the bocal – do NOT carry around the bocal with the tip inserted into the tenor joint! Put it in the bell instead!

- The safest place for the bassoon when not in use is in the case. Try to avoid laying the instrument down across a chair or case if at all possible. If the instrument is not going to be played for several hours after a practice session, swab it out and put it away.

- Once a month, vacuum out your bassoon case to prevent dust and other particles from getting trapped underneath the pads. This can cause leaks, particularly in the low register. I have a keyboard vacuum that works great for this!

- If you have a wooden bassoon, put orange peels in the case during the winter months. It will keep the wood hydrated, preventing cracks and other issues, and you'll have the best smelling bassoon on the block!

- Proper storage and rotation of bassoon reeds will keep your bassoonist extraordinarily happy! Do not store a bassoon reed in the vile it came it! It will turn vile!!! Either purchase a bassoon reed case (see Equipment Recommendations) or make your own!

- Take an Altoids box, clean it out, poke holes in the top, line it with a paper towel. Done!

- Keep your reeds clean after each playing session: 1) dip the reed in water, 2) wipe the blade on your pantleg, 3) dip the reed back in the water, 4) put it away!

Recommended Equipment

Round ("Rat tail") file
Pliers
Bocal Brush
Tenor Joint Swab
Boot Joint Swab
6' metal ruler
Cup style seat strap

Fingering Chat – Fox Products
Reed case