

Understanding Trumpet Fundamentals



Greg Wing
Professor of Music/trumpet
Morehead State University



What is all the fuss about playing
the trumpet anyway?

PHYSICS

Basic Physics of Brass Instruments

What happens when I blow across the top of this mute?

Is this a sound? How is this sound produced?

Let's see how this theory applies to the trumpet



How is a trumpet sound produced?

A trumpet produces musical tones when the vibrations of the player's lips interact with the standing wave in the instrument. These waves are generated when acoustic energy is sent back by the instrument's bell. We know that the lips vibrate sympathetically to this molecular activity. We do not have to buzz the lips in order to achieve a sound. Buzzing the lips often causes tension in the embouchure.

Trumpet Physics

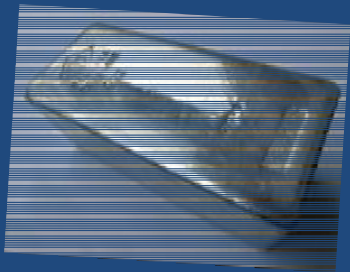
How do you teach your students to visualize the quality of their sound?

I teach my students to visualize the quality of their sound in their minds this way.

I'll have them play a small excerpt from a lyrical study. Then I'll ask them to visualize their sound like the most beautiful piece of **GOLD** they've ever seen and have them play again. What do you think happened?

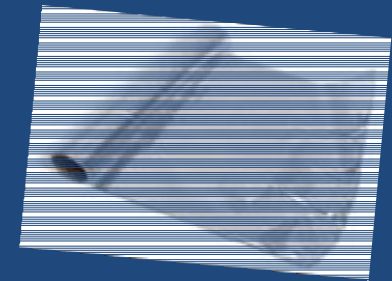


Next I'll ask the student to visualize their sound like a piece of SILVER and have them play again.



What do you think happened?

And finally, I'll have the student play and ask them to visualize their sound as ALUMINUM FOIL.



What do you think happened?

What other ways can you help a student visualize how improve the quality of their sound?

How to eliminate common tone production issues

Most students do not BLOW THRU the horn. They blow INTO the horn. Their sounds are stuffy and nasally. Play GREAT trumpet music for them to listen to daily.

1. Increase the students compression.
(blow thru hand)

2. Have fun and blow out candles from a distance. (this aids in the strength and acceleration of the breath which WILL improve the students sound)
3. Have the student blow a piece of paper against the wall. (a good visualization to get the student use to blowing faster air)
4. Blow bubbles in a bucket of water!
(students LOVE this exercise. They realize just how much air has to go thru the trumpet in order to keep the bubbles steady)

The Importance of Listening

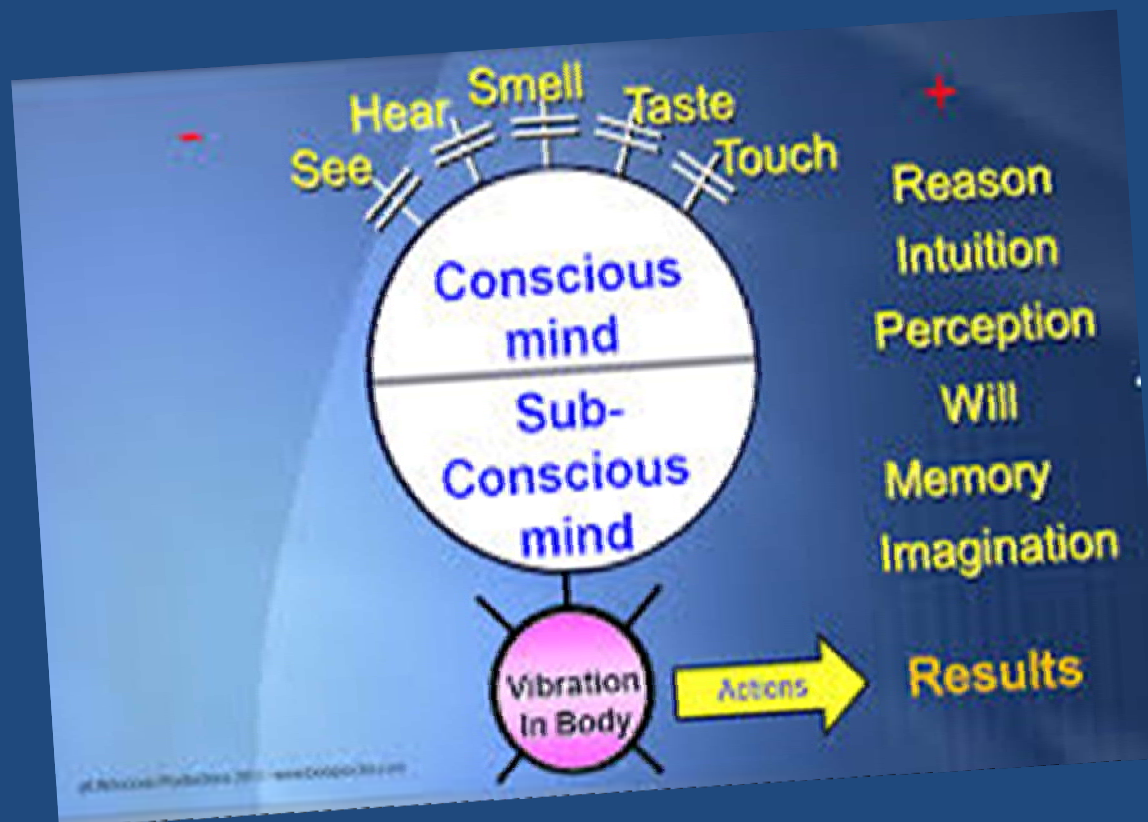
Exposing a student to great trumpet playing provides an excellent model for the student to emulate. I am a firm believer in exposing my students to what I call “beautiful” trumpet playing on a daily basis.

Can you name 10 trumpet artists that you would want your students to listen to?

My TOP 10 (in no particular order)

1. [Maurice Andre](#)
2. [Phil Smith](#)
3. [Alison Balsom](#)
4. [Tine Thing Helseth](#)
5. [Doc Severinsen](#)
6. [Maynard Ferguson](#)
7. [Adolf Herseth](#)
8. [Robert Sullivan](#)
9. [Wayne Bergeron](#)
10. [Arturo Sandoval](#)

Psychology – Two Minds: The Conscious Mind and Sub-conscious Mind



We call the Conscious Mind our Sensory Mind; meaning that part of the mind which is aware of our five senses; what we see, hear, feel, taste and smell.

We also call the Sub-conscious mind our Creative Mind. As educators and performers, we must be very careful what we feed into the creative minds of our students.

Anything we put into this mind will be believed, whether it is true, false, beautiful, ugly, good or bad. It is important that we only put the things into this Creative Mind that will help us to become better human beings, educators and performers.

Kinesthetic vs Isometric Responses

Point your fingers around the room like this.



What are u doing? You were pointing your fingers around the room, right? But at the same time, were you aware that your wrists were moving, arms bending, shoulders swaying, head bopping up and down? Probably not! All of these muscular responses were responses from kinesthetic muscular activity.

In other words, just by you pointing your fingers around the room; your sensory mind (conscious) mind has put one card into your computer (mind) and all of these muscular things happened because of thinking of only one thing; pointing your fingers around the room.

If we had to do all of this arm moving, head bopping, etc. by thinking of each physical movement, then we would set up what is called isometric muscle activity.

Our minds can create an isometric activity or it can create a kinesthetic response from a thought.

What type of thoughts are you planting in the minds of your students? Isometric (analytical) or kinesthetic (action from a thought).

Too often what a teacher says to the student may or may not produce the results they are looking for. Here are a few DO's and DON'T's.

DON'T SAY: “Tighten up your stomach as you play.”

DO SAY: “As you blow through the horn, it is natural to feel the muscles in the abdominal wall tighten somewhat. This happens as a result of blowing. It is natural and you have no reason to think of these muscles at all. Concentrate on blowing through the horn.”

DON'T SAY: “Smile firmly to set your embouchure.”

DO SAY: “Say “mm”. You’ll notice the corners of your mouth firm up a little just like you are ready to spit a piece of paper from your lips. Now put the mouthpiece up over the top lip and let it drop. This should feel comfortable. Blow through the mouthpiece like you are blowing up a balloon.”

(When the student blows, the buccinator muscles will do what they are suppose to do without the student thinking of any muscle activity. Only the amount of “firmness” necessary will be activated to initiate the blowing.

ALWAYS ALWAYS REMEMBER: The act of blowing “blows” the position in place.

DON'T SAY: “As you play high, think of your tongue forming aah, ee, ich.”

DO SAY: “As you ascend, think of blowing faster air across the room while crying like a baby.”



Can you think of other things that is being said and not sure if it is “correct”? Let’s discuss them now.

The Embouchure and it's primary function

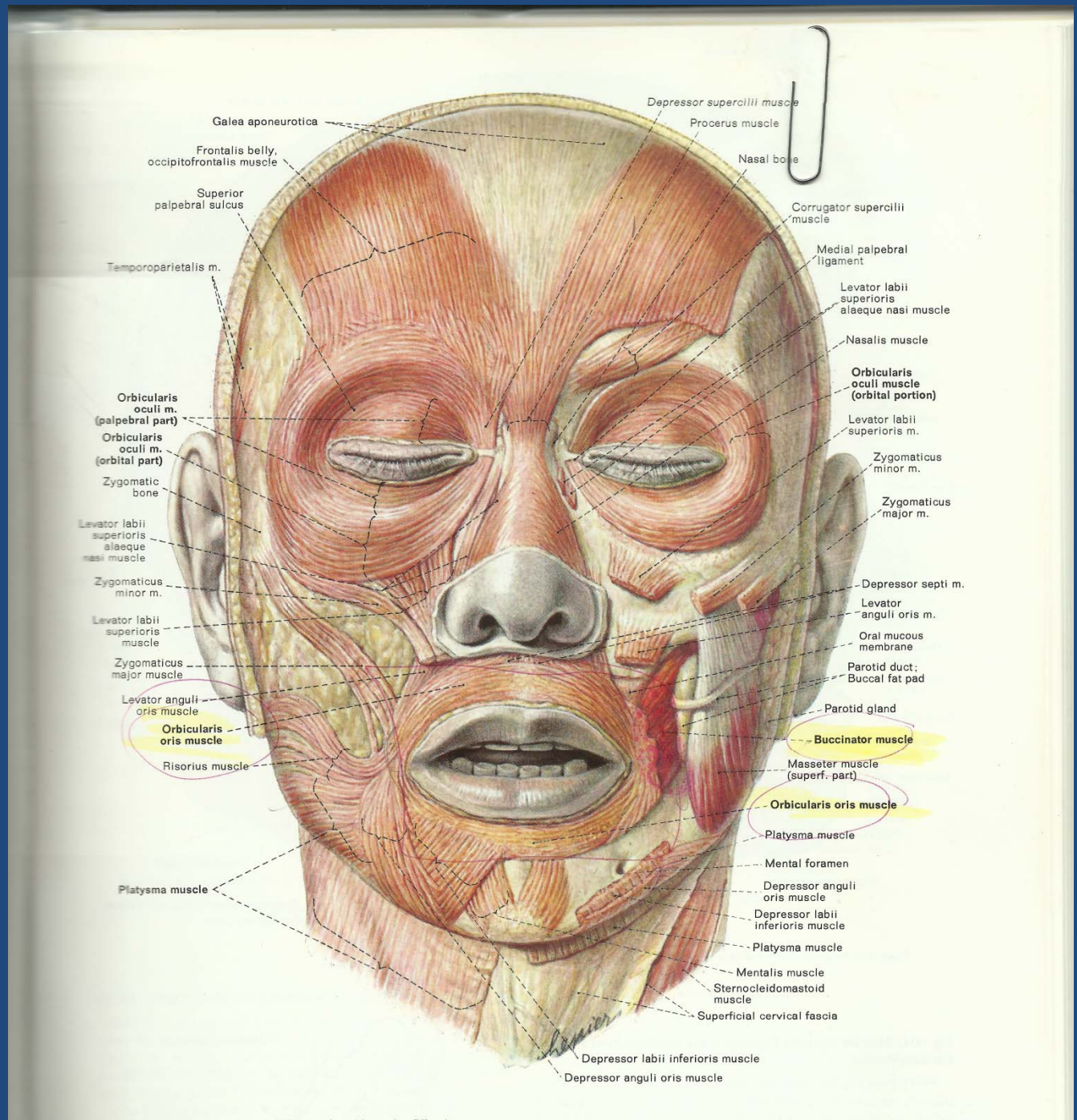
I am convinced that the most workable embouchure is one that has the area behind the mouthpiece in a state of resilience and quite relaxed. At the mouth area outside the corners of the mouth there is a firmness, but not a real tightness, and this feels like warm tension. The trumpet muscles, or the buccinator muscles, are the muscles we utilize when we are getting ready to spit.



The muscles should form a passageway for the air to be accelerated through the lips and through the horn. If we can retain the resilience and relaxation of the embouchure, we make it possible for our air to get through the lips and the horn without too many restrictions. The more we can cut down on the resistance of the air stream, the better the tone will be, and also the easier the horn will play.

William Adam (1917 –2013)

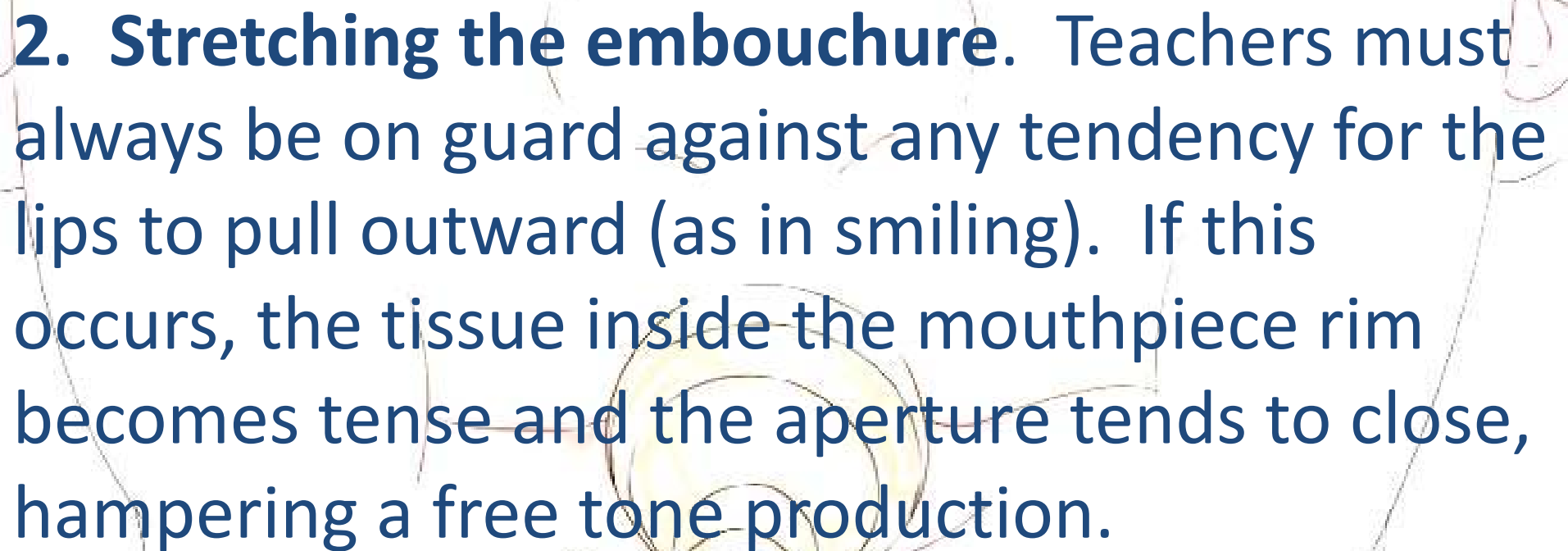




- Galea aponeurotica
- Frontalis belly, occipitofrontalis muscle
- Superior palpebral sulcus
- Temporoparietalis m.
- Orbicularis oculi m. (palpebral part)
- Orbicularis oculi m. (orbital part)
- Zygomatic bone
- Levator labii superioris alaeque nasi muscle
- Zygomatic minor m.
- Levator labii superioris muscle
- Zygomatic major muscle
- Levator anguli oris muscle
- Orbicularis oris muscle
- Risorius muscle
- Platysma muscle
- Depressor labii inferioris muscle
- Depressor anguli oris muscle
- Depressor supercilii muscle
- Procerus muscle
- Nasal bone
- Corrugator supercilii muscle
- Medial palpebral ligament
- Levator labii superioris alaeque nasi muscle
- Nasalis muscle
- Orbicularis oculi muscle (orbital portion)
- Levator labii superioris m.
- Zygomatic minor m.
- Zygomatic major m.
- Depressor septi m.
- Levator anguli oris m.
- Oral mucous membrane
- Parotid duct; Buccal fat pad
- Parotid gland
- Buccinator muscle
- Masseter muscle (superf. part)
- Orbicularis oris muscle
- Platysma muscle
- Mental foramen
- Depressor anguli oris muscle
- Depressor labii inferioris muscle
- Platysma muscle
- Mentalis muscle
- Sternocleidomastoid muscle
- Superficial cervical fascia

COMMON PROBLEMS AMONG TRUMPET PLAYERS

1. Restriction of the exhalation process. By far, the most frequently encountered tone production problem is restriction of the exhalation process. This can stem from several causes. Players who bring their body into a state of tension attempting to create support often suffer from this difficulty. Despite the muscular effort, the ***flow*** of air is meager. A related hindrance is attempting to expel the air by consciously controlling specific muscles. Both of these problems can be eliminated if the use of the air is seen as ***movement*** by creating ***wind***.

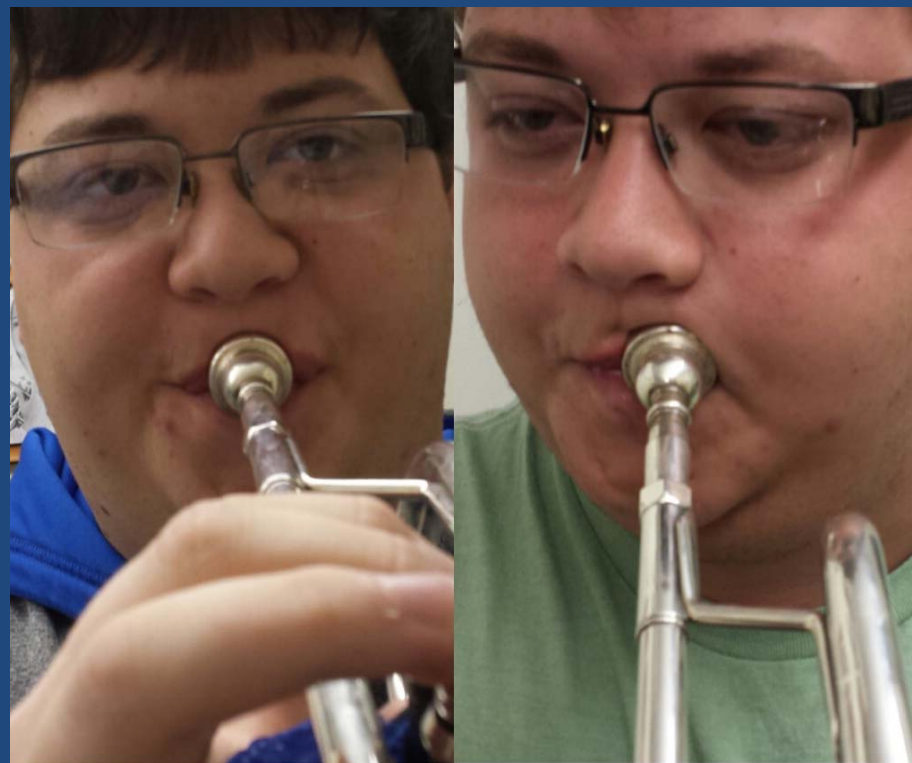


2. Stretching the embouchure. Teachers must always be on guard against any tendency for the lips to pull outward (as in smiling). If this occurs, the tissue inside the mouthpiece rim becomes tense and the aperture tends to close, hampering a free tone production.

3. Incorrect mouthpiece placement.

Embouchure difficulties can occur if the mouthpiece is too low. If the edge of the rim contacts the “red” of the upper lip, it will interfere with its vibration and affect the aperture

Lateral placement is less crucial and only if the mouthpiece is distinctly off-center should any change be made.



The Tongue



Can anyone tell me what you have when you press your tongue against your teeth?

Everyone do this please. Press your tongue against your teeth. What do you have?

A mouth full of tongue! It is very important our minds are not thinking about the tongue.

The tongue is a muscle just like everything else we have been talking about thus far. If the students mind is stuck in the tongue, they are setting up isometric muscle actions again and the students tongue will become slower and slower. I always suggest to my students that they say the word “too” or “doo” when pronouncing the sound and forget about it. It’s that simple. Just pronounce the sound the same way as if we are talking to each other.

Trumpet Breathing – the trumpet IS a wind instrument

As you breathe in, the lungs expand. In order for them to expand, other things need to move. One of those is the diaphragm, which is a muscle between the chest cavity and stomach cavity. As you breathe in and the lungs expand, the diaphragm pushes down and the abdominal area out, to create room for air in your lungs. This expansion occurs on your sides and lower back as well.

In addition to expanding downward, the lungs also expand outward. The rib cage actually expands outward as the intercostal muscles (the muscles between the ribs) stretch. It is also possible to expand upward through the chest, but this is the last place to expand when breathing. Your abdomen should expand outward as you breathe in and contract inward as you breathe out. If anything else is happening (like your shoulders rising or your abdomen going in when you breathe in), then you are not breathing naturally and correctly.

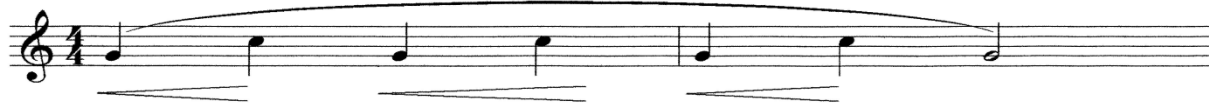
Correcting the Lip Slur

Greg Wing

* A 3 Step Process *

How the student slurs from one partial to the other is crucial to their development. Students usually try to lip "up" to the next partial causing their lips to tighten to the point that they stop the air thus stopping the vibration. This common area of concern creates more problems with the students sound, range and endurance. I have devised a 3 step process to assist with overcoming lip slurring challenges.

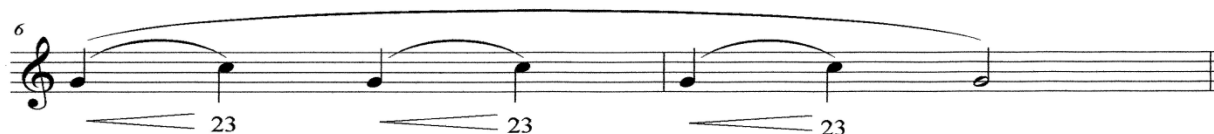
#1 Have the student lip slur from G - C. (See example below) Listen for any change in the sound or a hesitation between the G and C. The students mind must stay in the sound and "NOT" how to lip slur!!!! Have the student accelerate the air if blowing OUT FURTHER. The upper note should feel like it "just happens". The student will feel something different in the embouchure. The higher the note, the more resistance. The student must learn to blow through this resistance without ISOMETRIC MUSCLE activity.



#2 Have the student play a scale to the C concentrating on accelerating the air with a crescendo while playing. Playing this scale eliminates any stopping of the air and develops the buccinator muscles to do what they are suppose to do. The students mind stays in the sound; NOT how to go from note note to the other.



#3 GHOSTING the upper note with diverting attention to the fingers; then putting it all together.



When the student is playing the C using the alternate fingering, their minds are diverted away from "how" to lip slur and they play the note with ease. The lips do exactly the same thing whether the student pushes the 2&3 down or lip slurs up to the note.

SECRET!!!! Now have the student play G to C again. However, this time have the student 'ghost' finger the 2&3 on the leadpipe. In other words, they are playing the lip slur (OPEN) but pushing down "2&3" fingers on the lead pipe. It works every time with every student I have had. Repetition and acceleration of the air is so important. When the quality of the sound is unchanged going from the G - C. Repeat 3 step process on: C- E and E to G.

A trumpet student MUST practice the basic fundamentals each day. One way to accomplish this is to encourage a “Daily Routine”

[Greg Wing 20 minute Routine for the trumpet student](#)

Questions?

Thank you for giving me the opportunity to speak with you today. Please do not hesitate to email or call with questions or concerns.

g.wing@moreheadstate.edu

606 783-2401