An Exploration of Trumpet Articulation

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The goal of this article is to investigate ways to think about and practice trumpet articulation so that it can become as easy and comfortable as talking. I feel this is a very important pedagogical concept because improper articulation can lead to a variety of problems in tone production, range, endurance, and style. Topics covered will include singing, air patterns, single tonguing and multiple tonguing, and practice techniques for developing speed.

The Voice

It makes sense to start by investigating how we use our body to speak, because talking is much more natural than playing the trumpet, and we can learn a lot about ease and co-ordination away from the instrument.

The scientific study of human language, linguistics, has a sub-field called articulatory phonetics that deals with how parts of our body interact to form vocal sounds. I recommend you find a secluded spot because I’d like you to do some vocal experimenting without appearing crazy to everyone around you. Of course, if they already know you’re a brass musician, then the craziness is well understood, so feel free to proceed right where you are.

Let’s start with some very simple non-trumpet sounds. Can you figure out what the physical difference is between saying “pat” and saying “bat”? Try them at both a normal volume and at a whisper. Don’t be shy… I’ll wait.

Did you get it? If you’re still stuck, put your hand close to your lips to feel the air coming out of your mouth when you say both softly. What you should notice is that the beginning of “pat” produces a lot more air onto your hand. This is because “p” and “b” are essentially the same physical action except that “p” uses an explosion of air while “b” uses your voice. Put a hand on/near your larynx (voicebox) and try to say “b” (like “buh”) without vibrating your vocal chords. It’s impossible because the unvoiced sound is, in fact, “p” or “puh.”

The different vocal sounds we can make depend on factors such as the position of the lips and tongue, and use of the voice. Try saying the following examples focusing on the bold sections of similar words to determine how you make those changes:

Pat and Bat
Cherry and Jerry
Fine and Vine
THing and THis
See and Zee
tiM and tiN and tiNG

The five pairs should involve the same body use except that the bold section of the first word is unvoiced while the second word is voiced (use your hand on your throat for confirmation). The three nasal sounds show a variety of lip/tongue positions, which gives insight into combinations of further available sounds. The problem with most of these options, including the above examples, is that very few are practical for trumpet playing.

The following pairs are what you likely expected to see all along because they work well on the instrument:

Tu and Du
Ku and Gu

The reason for first going through all the previous examples is to create an awareness of what you are doing with your mouth when you talk, so you can truly feel what happens on these ingrained “trumpet” syllables. I would now like you to spend some time experimenting with the differences and similarities between tu/du and ku/gu. Can you feel the extra air on your hand when you say tu and ku?

In linguistics terms, the tongue strike is in the same position for both members of each pair. A forward tongue strike creates “t” and “d” while a tongue strike further back creates “k” and “g.” Some people find that they use slightly different positions, especially with “d” often being a bit behind “t,” but try to see if you can make the location consistent between members of each pair of syllables. I prefer the spot where my teeth meet my gums for “t” and “d” because my tongue is more relaxed and my voice is more resonant.

It is also a good idea to experiment with the vowel you use: dee, du, doh, da, gee, gu, goh, ga, etc. In my experience, “u” (like saying “dew”) is the best option for most high-brass playing because it is relaxed while keeping the focus forward. “Dee” involves pulling the lips back to a position that would weaken your embouchure; “dah-dah-dah” usually causes jaw motion that would affect stability; and “doh” is more appropriate for the low range and low-brass instruments in general.

The final step in our exploration of articulatory phonetics is to start saying or singing articulation patterns with a high level of focus on clarity and consistency. It is important to be able to repeat syllables with exactly the same sound so as to allow for an ideal transfer of that ease to wind patterns, and then ultimately to playing the instrument. With that in mind, I invite you to try the following progression:

1. Repeat du at \( \frac{4}{4} = 60 \) with clarity and consistency. Try it again with tu, gu, and ku, but be extra careful that the vowel sounds exactly the same! Even a slightly different vowel means you have a different shape inside your mouth.
2. Repeat step one while using your hand to feel a non-stop vibration of your voice.
3. Which syllables are easiest to keep the vibration and which are disruptive?
4. Repeat du with 16th-notes then try with tu, gu, and ku (watch your vowels!).
5. Are you still using your hand to feel the constant buzz? Make sure it’s there!
6. Which syllables work better at the higher speed? Are some bumpier?
7. Practice *tu* with an insistence on a smooth vocal production… keep repeating it and making it smoother and smoother. Is your vowel still absolutely the same as *du*? Actually, once you manage to stop the bouncing, isn’t everything the same as *du*? If you maintain that motion and sound while switching your thinking back and forth between *tu* and *du*, you might notice that you’re physically saying *du* even when you’re thinking *tu*.

8. Finally, try singing a common melody (like “Mary Had a Little Lamb”) all on *tu* then all on *du*. Which one sounds cleaner? Make sure that the vowel is open and resonant and not distorted. Some people experience more ease and less tension by thinking of sustained speaking rather than singing, but that is a matter of personal preference.

I personally feel that *du* is much smoother, easier, and cleaner than *tu*. In fact, I think that saying *tu* into the trumpet can lead some students into bad habits of poor co-ordination, choppy sounds, and tension. We will explore this issue further after covering more concepts regarding articulation using air patterns and on the instrument.

One final note here is that some of the top players use a technique called anchor-tonguing, where the tip of the tongue stays down near the bottom teeth/gum area even for *du/tu*. I find myself gravitating more and more in this direction. The benefits for some can include more resonance and easier articulation, especially in the high range. The challenge is that it requires use of non-traditional English diction; try speaking but keep the tip of your tongue down and you’ll get the idea. Feel free to experiment with it on any of the exercises in this article. If you want to find further information on this topic, the technique is sometimes also called “modified k tongue” despite the *tu* / *du* location of the tongue strike.

**The Air**

Efficient use of air is one of the most important aspects of playing any brass instrument. A great resource for working on airflow is a DVD and companion book called *The Breathing Gym* (Mesa, AZ: Focus on Music, 2009) that features exercises and humorous antics by two world-class tubists, Patrick Sheridan and Sam Pilafian. I strongly recommend the regular practice of breathing exercises, such as the air patterns on this DVD, for general development of your playing.

Air patterns are an especially great tool for working on articulation away from the instrument. They can be executed either with or without forming an embouchure, or blowing through a straw, and they provide a great transition between vocal production and brass playing. It is important to focus on good form when practicing the air patterns in order to obtain a strong benefit on the instrument. Paying attention to the sound of your air patterns, and any breakdown in form, can allow correction of potential bad instrumental habits without even playing a note.

Good form in breathing is very simple but can also be quite difficult to master. As discussed in *The Breathing Gym*, the components include: good posture, proper shape of the oral cavity, constant and steady airflow, and smooth transitions between inhale and exhale. Dealing with posture is beyond the scope of this article but I strongly advise all my students to work on body awareness and body use through methods such as yoga or the Alexander Technique.

The proper oral cavity shape for high-brass air patterns, in my opinion, is simply formed by saying a long *diumuimii* and then switching from voice to air flow. The air should sound like wind, with no hissing air pressure, and remain constant. This means that you have to blow the air smoothly rather than letting out a sigh that explodes and then decays throughout the exhalation. I cannot emphasize enough how important it is to be able to move air in this fashion, so please make it a practice priority if your air is shaky, forced, or uneven. The final element of form is smooth transitions, which can be achieved by keeping the airflow volume and speed consistent even in the proximity of essentially instantaneous changes in direction from in-to-out or from out-to-in.

Now you’re ready for some articulated air patterns! Try repeating the previous vocal progression, using air instead, but with one small change: instead of feeling for voice vibrations, blow onto the palm of your hand, which is up to monitor for smooth air. It may help to imagine flicking your finger through constant running water coming out of a faucet. Make sure to be extra picky about avoiding any distortions of the sound (or vowel shape) of the air. Some people find this difficult but it is worth the effort to even make each articulation sound identical while the underlying air stays consistent.

It is right now, on this material, that you will likely make the biggest gains, so I encourage you to reset your bar of excellence all the way up near perfection. Tap into your reserves of patience, and practice the various steps until you can nail them with great form, clarity, and consistency. If good form is elusive, a helpful tool can be practicing these exercises by blowing through a straw. Just make sure it doesn’t go too far into your mouth so that it inhibits your tongue motion. The straw helps form an embouchure and gives a tiny bit of air resistance, so it feels closer to trumpet playing.

The next step is to alternate between voice and air patterns on any melody or rhythm to practice consistency. Do you notice any difference between *tu* and *du* (or *ku* and *gu*) with air patterns? Most people find them very similar, which is to be expected.
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In fact, see if you can make them sound and feel identical with the only difference being the thought in your mind of switching syllables.

Finally, the only thing left to do with air is to prepare your body for the added resistance, or back-pressure, that results from playing the instrument. A simple trick I use to work on staying relaxed despite this resistance is to practice a smooth exhalation with your hand right up against your lips so that it covers your mouth. Can you stay relaxed for a full exhalation despite the very slow air leakage?

You should be able to take your hand off at any time and feel the air smoothly flow out with your beautiful uuuuu air pattern sound. The back-pressure affects the volume of air that leaves your body but don’t let it affect the quality of that air: focus on maintaining relaxed posture and good form. The resistance and minimal air flow caused by your hand on your lips feels similar to playing in the high register. Yes, it can be that easy! If you wish to mimic the feeling of low register playing, you can wrap your lips around the outside of the mouthpiece (to avoid a buzz) and blow through the instrument.

**The Trumpet**

If you’ve done all of the exercises so far without prematurely skipping ahead to the trumpet, congratulations. I understand how these processes can feel tedious, but the reward will be more than worth all the work if you truly focus on quality!

Our goal now is to make articulation sound and feel as easy on the trumpet as it does with your voice and air patterns. Let’s start with just one note; pick any pitch between middle G and third-space C, and practice alternating between singing du and playing the note on the instrument until the response feels easy and consistent. Let the note be only as long as you need to hear full resonance, which should be one second or less.

Once you have that working, try sustaining the sound into a longer tone of 4-5 seconds in order to provide your tonal model for working on repeated articulations. Now work on three long notes alternating singing (duuududuuddu) and playing. Focus on the sound and vowel staying the same despite the flick of your tongue.

It might help to revisit the idea of feeling your voice vibrate throughout this exercise, and then apply that to the trumpet by imagining your voice vibrating right through the articulations. The tendency for most people is to squeeze, stop, clamp, or otherwise manipulate the air on each tongue strike, so be diligent and make sure you have this figured out. When you play, is your tongue in the same spot as it is when you sing? Remember, it should sound and feel as easy as singing.

If you try repeating these exercises on tu, gu, and ku, you might notice that the instrument response feels easier and more vocal with du/gu than it does with tu/ku. Do you remember, from working with your voice, the air explosion that defines tu and ku before the vocal chords start vibrating? My theory is that our brain thinks of our trumpet sound as our voice, which means it tries to make an air explosion happen before the actual sound.

There is no necessary difference for air patterns, because the voice isn’t active for either syllable. However, I find that using tu/ku on the instrument can make articulation much more challenging for developing players because this “early” air often creates problems such as tension, distortion, response issues, and a pecky sound.

My own personal theory, from self-evaluation, is that players who conquer this issue are physically executing a du articulation even though they are thinking tu, almost like re-wiring the brain over time through practice. If I play with beautiful articulations, regardless of how crisp or legato they are, I can always replace the tu in my head with du, and maintain the exact same resulting sound. That is because my body is already doing the motions required for du and has managed to leave out the extra air explosion that characterizes the vocal tu syllable. My suggestion, especially for beginner players, is to skip that re-wiring process and just begin with the way that is easier and sounds better: a du with good form. A similar argument can be made for choosing gu over ku.

Once you can repeat notes with great consistency and ease, it is time to start applying the concept to scales or simple melodies. Again, make sure to alternate singing and playing especially for the first few weeks of building this habit. Do not sing once and play 2 or more times: sing for every repetition on the instrument. This is important because it provides a clear model, gives the body a higher percentage of correct repetitions, avoids fatigue, and creates higher levels of confidence.

**Multiple Tonguing**

Don’t forget to practice your gu syllable! Anything you can play with tu, you should be able to play with gu. Start slow and simple, and build up over time using your tu sound as a model for the gu. It is only after mastering the gu syllable that clear and easy multiple tonguing is possible. It is normal for this process to take a few weeks of slow, deliberate practice on gu. I promise that you will not regret that time spent because it will allow much more rapid progress on multiple tonguing from the perspectives of both speed and quality.

A great book for working on multiple tonguing is Twenty-Seven Groups of Exercises by Earl D. Irons (San Antonio, Tex.: Southern Music Company, 1990). The back of this book has a section that trains you to treat tu and ku equally by playing each example twice and reversing the articulations. As noted above, I recommend you use du and gu, and an example is to sing/play duguduguduuum, then sing/play guduguduguuuuu. It also works for triple tonguing: duguduguduguduuum, then guuguduguduguuuuu. A great benefit of this process is that it puts the weaker syllable (gu) on the strong beat so your brain demands a higher standard through a direct contact with the quality of your du sound. If you always keep gu on a weak beat, your brain will easily accept a lower quality of articulation because it doesn’t place a high level of importance on those beats. You can use this practice technique on any exercise you have, any pattern you make up, or any melody that requires multiple tonguing.
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Speed Kills!
I bet that’s not how you expected the section on speed development to start. The truth is that going too fast too soon will lead to bad habits and slower progress. The good news is that it’s easy to tell if you’re going too fast; just ask yourself if it still feels truly as easy as singing. The only catch is that you have to be honest with your answer. With that caution in mind, I would like to provide two tips on stretching your speed while maintaining good form.

The Speed Pyramid
I like to spend significant time improving/ingraining articulation quality at comfortable speeds, and then work in short, focused bursts on stretching my limits. I view it like a pyramid where the slower speeds get more repetitions and the faster speeds get fewer. As with all practice ideas, this is meant to be adapted to suit your own needs, but here is one sample progression for single or multiple tonguing:

1. The exercise is to sing then play:

2. The half-notes provide your tonal model to match through the articulated section.

3. Stop rule: the exercise is over if you ever have three sets in a row where none are great. Good doesn’t count, but you might choose to give yourself a mulligan if it was really close.

4. Start slowly, around $\frac{\text{tempo}}{\text{beat}} = 60$, and work until you can get five sets in a row sounding great. You might not advance past this step for a few sessions.

5. Go faster, perhaps $\frac{\text{tempo}}{\text{beat}} = 70$, and practice until you get four great sets in a row.

6. Incrementally add speed and drop sets until you’re doing just one great set at higher speeds.

7. Keep increasing the speed, if possible, until you meet the stop-rule conditions.

8. Write down your progress so next time you can start 1 beat per minute faster.

9. Do not expect a personal best every day – it’s not possible. Focus on quality!

The YouTube Buffer
It is important to note that this is a supplement to regular practice like the pyramid, and is not a replacement for gradual skill development. However, consider that maybe fast multiple tonguing only requires a slightly faster “network” connection than your brain currently has for this skill. This would mean you could also develop speed by pausing every so often to allow your brain to create a buffer, like a YouTube video. After the buffer, your fast playing will be fast in real time. This should feel very vocal, so only move off of each pause once you can fully conceive of the fast notes to follow. I’ll give a progression for groups of four even notes and let you apply the concept to other groupings:

1. Play it very slowly and evenly.

2. Practice the section out of rhythm with long-short-long-short. It will sound like $\text{dugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudugudug
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