A MATTER OF COORDINATION: A PEDAGOGICAL STUDY OF RESPIRATION, SLIDE PLACEMENT AND ARTICULATION FOR THE STUDENT TROMBONIST

AND A SYNTHESIS OF THESE PROCESSES FOR IMPROVED CLASSROOM INSTRUCTION

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ABSTRACT

The execution of a single note on trombone is the result of a coordinated effort of three processes: respiration, slide placement, and articulation. These coordinated processes present the most significant hurdle for the developing trombonist. It is unrealistic for any classroom music teacher to be expected to understand the specific processes of the trombone, as the instruction found in music education instrumental methods courses is limited due to the time restraints of the semester. This document will serve as supplemental material to aid any instrumental teacher seeking insight into the unique challenges of trombone pedagogy in the classroom.

This document is structured in two parts. Part One introduces examples of widely accepted pedagogical perspectives on respiration, slide placement, and articulation. Part Two draws upon the author’s experience with public school band programs to provide examples for organizing the band room for successful classroom management, corrections for commonly used yet counterintuitive teaching instructions which hinder brass playing development, and author commentary on the most effective pedagogical perspectives and instructions for the information outlined in Part One.
DEDICATION

I wish to dedicate this document, as well as the culmination of my academic endeavors, to my mother and father, Carroll and Margaret Faske. The greatest constant in my life has been your love, which brought me into this world, sustained me through life’s challenges, ultimately leading me to my passion for music and teaching.
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On rare occasions, our lives intersect with people who leave their own indelible mark. A phone call from Jonathan Whitaker in August 2010 is the genesis for much of the activity on my curriculum vitae, and largely responsible for convincing me to uproot my life in Texas for the promise of something better. Words cannot accurately express how much his guidance, counsel and friendship has meant to me, and how grateful I am for that phone call and everything that followed.
To my family, who has put up with my musical obsession for over twenty years now, thank you for being patient as the sounds and noises became tones and phrases. To my sister Bonnie, I will always be thankful for your drive and determination to be your personal best each day. It is truly inspiring! To my parents, please know that I will give everything I have to my students each day of my career, so that your generosity may have the longest reach.

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Soli Deo Gloria
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INTRODUCTION

For music teachers lacking extensive classroom experience, the combination of limited pedagogical knowledge coupled with a perceived need to develop well-prepared student musicians can leave these teachers feeling desperate for more effective teaching strategies. Espousing commonly held pedagogical beliefs as the foundation for instruction loses its effectiveness if the teacher’s pedagogical perspective is limited. Moreover, this scenario can result in decreased instrumental ability in students, despite the teacher’s best efforts. In the face of diminishing returns in the classroom, desperate teachers may resort to increased levels of the intensity in their instruction to compensate for the lack of student progress, and as a result, the educational process crumbles under the weight of desperation.

This document is intended to provide inexperienced music teachers with knowledge and insight to supplement the material learned in their undergraduate instrumental methods courses. This author acknowledges that the broad-based nature of such courses do not lend themselves to in-depth discussions of one instrument over any other. At its best, this document is a point of entry into an expanded world of brass pedagogy that will aid the teacher desiring improved learning outcomes in the music classroom. If the source material cited within this document is sought out and studied, the reader will have a wider knowledge base from which to work.

This author is greatly influenced by the teachings of Arnold Jacobs, world-renowned brass teacher and former Principal Tubist of the Chicago Symphony, who said: “All good
teaching is a simplifying process, a weeding out of what is unnecessary or distracting.”

The process of learning a brass instrument should be straightforward and simple for the student, but it requires of the teacher a knowledge base to guide their students in a well paced, thoughtful manner, presenting only what they need to know and nothing more. The insight presented in this document will provide teachers with a guidebook for a portion of trombone pedagogy, complete with avenues for future study, which will aid in their ability to identify quality pedagogical materials as they encounter them in the future. These materials are a reflection of insight gathered from one teacher’s experience as a private brass instructor over the course of several years.

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1 Frederiksen, Brian. *Arnold Jacobs: Song and Wind.* P. 93
PART ONE

TROMBONE TONE PRODUCTION: A COORDINATED EFFORT

Before they can impart knowledge to the student trombonist in an effective manner, the teacher must understand the mechanics of the instrument as well as the strengths and weaknesses of the various proven pedagogical approaches. Taken separately, the processes of respiration, articulation, and slide movement might seem simple to understand, but a deficiency in any one of the three seriously compromises the successful production of a note on the trombone. Teachers must take care to approach each process in a straightforward, efficient way, so that the synchronized effort is reflective of the approach to each individual process. The aim and intent of Part One is to present each process and any essential related elements with a minimum of author commentary.
CHAPTER ONE
RESPIRATION

Despite the wide range of designs and methods of tone production within the wind instrument family, the use of exhaled breath as a source of vibration to create sound is a universally shared trait. For each wind instrument, the unique source of vibration provides a portion of the characteristic sound. The tone of the singing voice is a by-product of air passing over the vocal cords to produce sound. The tone of a woodwind instrument is the result of vibration created by air passing through the reed or across the tone hole. The tone of a string instrument is the result of friction created between the hair of the bow and the vibrating string. The tone of a brass instrument is the result of vibration created by air passing through pursed lips and amplified through the instrument, where it acquires the sound characteristics and tone color inherent in each instrument. This author has chosen the term respiration rather than the more common term breathing as respiration encompasses both processes of inhalation and exhalation. The risk of using the term breathing is that it focuses on only the inhalation, while relegating the exhalation to an afterthought, yet exhalation is the portion of the respiration process that is essential to tone production on a brass instrument. Respiration must be considered a cyclical pattern, rather than one isolated event. Assuming this cyclical pattern, the quality of the inhalation is the direct result of the quality of the exhalation immediately preceding it. Trombone pedagogy must focus on respiration, as mastery of proper breathing technique is essential to achieve mastery in performance, and the influence of proper respiration reaches far

into other playing techniques. Breathing technique is not complicated if approached naturally; in fact, musicians complicate the matter out of their desire for better outcomes, rather than simply trusting and allowing the body to follow its own anatomy. At rest, humans use a relatively small percentage of their lung capacity. Only an increased need for oxygen in the muscles stimulates more physically active breathing, but trombonists must breathe as if they have an increased need without the need being present.

A study of respiration would be remiss without addressing the influence of Jacobs, world-renowned brass teacher and Principal Tubist of the Chicago Symphony from 1944-1988. Jacobs’s first began his study of anatomy and physiology as a hobby or diversion from music making, but his work was the first of its kind in brass pedagogy. Brian Frederiksen describes Jacobs this way:

“Many consider Jacobs to be the world’s foremost expert on the study of respiration as applied to wind instruments. Before Jacobs, most of the principles in relation to wind instruments were essentially non-existent. In the nineteenth century there were studies conducted, but the subjects for the most part were large males, primarily vocalists, whose air requirements are different from those who play wind instruments. Many problems encountered by smaller males and women resulted from the misapplication of the techniques of larger males to all others. The school of thought with brass players for years was the “tight-gut method.” Generations of brass players were taught this style of respiration for playing believing, among other things, that the diaphragm is located below the navel. Jacobs is the pioneer of modern-day knowledge of respiration in relation to wind instruments. His research was conducted through thousands of hours of independent research studying the normal and abnormalities of respiration.”

Perhaps Jacobs is best known for the simple phrase *Song and Wind*, a phrase which many brass teachers have used in an attempt to distill the scope of Jacobs’ teaching in few words. After nearly a half-century of learning and teaching others about how physiology relates to brass playing, Jacobs summarized his work this way.

“My approach to music is expressed as *Song and Wind*. This is very important to communicate a musical message to the audience. This approach is one of simplicity as the structure and function of the human being is very complex, but we function in a simple manner. When we bring it to the art form it becomes very simple. *Song*, to me, involves about 85 per cent of the intellectual concentration of playing an instrument, based on what you want the audience to hear. You cannot get anywhere without *wind*. If you think of a car, the wheels will not burn without an energy source—the engine. Brass players must have a source of energy as there must be a vibrating column of air for the instrument to amplify and resonate. The musical engine is the vibration of the lips. However, the lips cannot vibrate without *wind*. When we combine *Song and Wind*, the musical message, *song*, is the principal element comprising 85 per cent of the consciousness. The remaining 15 per cent is the application of the breath, *wind*, to fuel the vibration of the lips.”

In essence, the Arnold Jacobs approach requires the player to focus on the product rather than the process of creating the product. Rather than segmenting the various tissues of the body and trying to control them on an individual level, Jacobs insisted that the musical thought should maintain primary focus in the mind. If an entrance required a great deal of air to play at a loud dynamic level, the player should focus on the desired sound and allow the body to take in the necessary air to transform the sound in the mind into the sound from the instrument. Only when a breakdown in playing kept the student from producing the sound in his or her mind did Jacobs begin unpacking the various elements of respiration for the student’s benefit. These explanations were intended for use in the practice room and not in performances so that the student never developed the habit of thinking about the process rather than the musical product.

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While the approach advocated by Jacobs is certainly applicable to students, it is important for teachers to understand the process of breathing from a more technical perspective so that they can diagnose problems in their students’ respiratory processes. Many phrases about breathing have been adopted into brass teaching terminology; many actually impede players from taking the most efficient breath possible. In *The Breathing Book*, trombonist and author David Vining outlines these troublesome phrases in a judicious way. The diaphragm, an involuntary structure at the base of the lungs, has been the subject of much debate. Instructions such as “breathe from the diaphragm” or “maintain diaphragmatic control through the breath” might give the student awareness of breathing that they previous lacked, but in reality, trying to isolate and control a structure that exists only to help other structures within the body is wasted effort and should be avoided. Vining states:

“The diaphragm is a large dome-shaped structure which separates the thoracic cavity above from the abdominal cavity below. Your lungs rest on top of your diaphragm and, of course, the air goes in your lungs when you breathe. Air does not go below your diaphragm; in fact, if you believe air goes below your diaphragm, you are creating tension when you breathe. When you inhale, air behaves like air in your body, not like water. Air goes to all parts of the lungs immediately and equally. Air does not go to the bottom of the lungs first, as though filling up a glass of water. Trying to move air as if it were water to breathe creates tension and disrupts the natural movement of breathing.”

Many teachers use the ‘filling a glass with water’ analogy, which is intended to condition students to avoid the shallow breathing that they use when at rest. Focusing on filling the bottom of the lungs first is in conflict with how the body takes in the air. Vining explains:

“Some teachers say “breathe low” when teaching how to breathe. While there are certainly important breathing motions which occur low in the torso, the danger of thinking this way is that you might neglect the other important motions of breathing which occur higher in the body. Furthermore, as we have learned, the motions of breathing are all interconnected and they depend on one another. When you breathe, don’t just breathe low – breathe low, medium, and high!”  

Often, players will attempt to manufacture space or openness in preparation for the coming inhalation. If instead, they keep the body relaxed and allow the air to fill all spaces equally, they will take in a larger volume of air. When the sense of relaxation in the body is combined with focusing on the musical product, the tenets of the Jacobs’s and Vining’s approaches presented here become the foundation of a pedagogically sound approach to respiration.

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7 Vining. The Breathing Book, 17.
CHAPTER TWO

SLIDE PLACEMENT

Intonation

Brass players utilize a combination of two methods to move from note to note on brass instruments. Negotiations between partials of the harmonic series are made through manipulations of the embouchure, which changes the frequency and trajectory of the outgoing vibrating air column into the mouthpiece. In order to change notes on a Military bugle or hunting horn, the player must use this method. Isolating specific frequencies is an essential skill of brass playing, and one that should not be overlooked when considering intonation. Buzzing the approximate pitches will give the student a better chance of hitting the correct note on the instrument, but being able to hear the pitch first and then duplicate it at the lips will make any adjustments on the instrument less drastic. However, changing from note to note on a single partial must be made mechanically. While valved brasses change pitch through the actuating of valves connected to various lengths of tubing, the trombonist changes pitch by manipulating the hand slide between seven primary positions. With a thorough understanding of the pitch tendencies of the harmonic series, the trombonist can adjust for each pitch with greater accuracy than all other members of the brass instrument family. Because of the infinitely adjustable pitch changing mechanism, the trombone has the potential to be played the most in tune amongst wind instruments. The one caveat of the hand slide is that if care is not taken to place the slide precisely, the trombone also runs the risk of being the most out-of-tune wind instrument.
Since the mid fifteenth century, the trombone has been recognizable among brass instruments due to its most recognizable trait: the hand slide.\(^8\) With the exception of a few minor modernizations, the trombone slide has not changed form or function since this time. The roots of brass playing are as much a part of the history of the trombone as they are the trumpet and horn, which are usually thought of as the precursor to brass instruments of today.

Modern brass instruments change pitch by a combination of two methods: lip manipulation of the vibrating air column as it enters the mouthpiece, and manipulation of valves or slides. The most easily understood example of lip manipulation of the vibrating air column is found American military ceremonial music, which is composed of notes within the harmonic series of the bugle’s key. The set of notes available on a fixed length of tubing is known as the resonant mode.\(^9\) Figure 3 illustrates the well-known bugle call, *Taps*, which utilizes the notes found in the resonant mode of C.\(^{10}\)

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Successful performance of *Taps* and other bugle calls is contingent upon the bugler’s ability to manipulate the vibrating air column with the embouchure. While *Taps* holds a special place in the world of ceremonial music, it is clear that possibilities for further creation within one resonating mode is limiting.

Note changes within each partial must be made mechanically. Modern brass instruments change pitch mechanically in one of two ways. Valved brass instruments are outfitted with three or more valves connected to lengths of fixed tubing. Actuating the various valve combinations change the overall length of the instrument, and therefore the resonating mode. The one exception to the valved brass is the trombone, which changes pitch by manipulating the hand slide between seven primary positions spaced approximately two and three-quarter inches apart. While the trombone slide may seem cumbersome in comparison to the valved brass, the trombonist has the advantage of adjusting for each pitch with greater ease than any other instrument of the brass instrument family. The free movement of the slide allows the trombonist to stop the slide at any point between positions. The slide positions on trombone correspond to the chromatic valve combinations of the other brass instruments. For example, first position corresponds with “open” or no valves depressed, second position corresponds with the second valve depressed, down to seventh position corresponding with all three valves depressed on three valve brass instruments, or the second and fourth valves depressed on a four valve brass instrument.
Harmonic Series

While the ear is the ultimate judge for pitch reference, a thorough understanding of the harmonic series is essential for pitch accuracy on the trombone, and will serve the trombonist well if committed to memory. If the teacher does not take the time to explain the tendencies of the instrument, the student will attempt to memorize a seemingly unrelated series of adjustments, rather than learning how each adjustment fits into the construction of the instrument. Assuming that the B flat is tuned to A=400 Hz, Figure 4 below provides the pitch tendencies through the eighth partial.

Figure 4
These small adjustments, usually 1/8 of an inch or less, require a well maintained and freely moving hand slide, as well as a relaxed right hand slide grip.

Once the trombonist learns to adjust individual notes to correct the instruments pitch tendencies, they must then learn how single notes function as members of chords and chord progressions. The ability of the trombone to make quick adjustments with the hand slide led composers such as Mozart, Beethoven and Brahms to call upon the trombone section to produce chords with beat-less intonation. When players within a section adjust chord members in relation to the root to make the sonority ring as purely as possible, they are practicing just intonation. This approach to intonation requires each player to understand how their note functions within each chord, and how it should be adjusted to remove the beats of poor intonation. The ear, not the tuner, must determine the appropriate adjustments for all intervals within the sonority. For example, consider Figure 5 below.

![Figure 5](image)

According to the trombone harmonic series, the F is a sharp note, which must be lowered slightly with the hand slide to register in tune on an electronic tuner. However, as the third of a minor chord, this same note must be raised slightly from in tune on an electronic tuner to produce an in-tune minor triad sonority. While specific cent adjustments are often assigned to chord members, the ear is the ultimate judge in determining whether a chord is in tune. If the
unadjusted F on the trombone is thirteen cents sharp, then the trombonist would simply close the slide completely in first position. In this way, they must learn that their individual pitch placement is secondary in importance to where the pitch must be placed to play the chord in tune, even if that placement is drastically different than where their slide would normally be placed for a note.

Once the tuning method for individual chords is established, chord progressions must be given the same treatment. In Figure 6 below, the three triads contain notes that change function with each passing chord.

![Figure 6]

- D minor
- F Major
- A minor

Functioning as the third of the D minor chord, the F must be raised slightly. The same F then becomes the root of an F Major chord, which should register in tune with an electronic tuner. The player must adjust for the placement of the F in both chords without hesitation. The fifth of the F Major triad, C, becomes the third of the A minor chord. Again, as the function of the note changes in sonorities, the pitch must be adjusted accordingly if just intonation is to be maintained.

These scenarios, among others, necessitate the need for sectional rehearsals, which are essential to the success of the trombone section sound. As a directional brass instrument, the
trombone section sound can positively influence the sound and pitch of the entire ensemble by providing a reliable pitch reference from the back row. Conductors should identify the function of every note for each chord, and provide the trombone section with the information needed to make the necessary adjustments. Teachers should introduce the concept of just intonation to younger trombone sections as soon as they understand that there are many more adjustments than the seven primary positions. As shown in Figure 7 below, to demonstrate the beats heard in poor intonation, ask two trombonists to play a unison pitch. After the unison is established, one player should move away from the unison pitch slowly until the beats can be heard easily. To complete the demonstration, the student should correct the adjustment until unison is once again achieved.

Though this exercise does not simulate the tuning of chords per se, the sensation of producing two notes with varying levels of “beats” in the resulting sound is an effective method to teach the concept. When these beats are encountered in a musical context, the prescribed sectional rehearsals create an opportunity for the teacher to direct student listening toward the root of the chord, if present in the section writing, as a point of pitch reference.

Holding the Slide
The interface between the trombone hand slide and the body is an essential element of trombone technique over which there is much debate. The most important consideration in the movement of the slide is the angle of the wrist, which affects the interface where the hand meets the slide, as well as the muscle groups of the arm engaged in moving the slide. Striking a balance between comfort and function can be difficult, and allowances for slight variations must be allowed to accommodate physical differences in each player. American trombonists typically ascribe to one of three hand slide grips, based primarily on their pedagogical lineage. While each approach has advantages and limitations, all three have been proven effective, which illustrates that the consistency of approach in moving the slide is more important than the particular method chosen. As early as 1951, Ernest Lyon drew a clear delineation between two approaches, stating his preference for one over the other. In this author’s experience, proponents of each method, including Lyon and Milton Stevens, each seems to believe that their opinion on choice of grip is the correct one, dismissing any others as incorrect.

The first slide grip is attributed to Emory Remington, long time Professor of Trombone at the Eastman School of Music. Remington went to great lengths to promote relaxation in all aspects of trombone performance, even admonishing students to avoid facial contortions such as eyebrow movement while playing. It is a logical deduction that his relaxation ideal would influence his choice of slide arm technique.

“I prefer holding the slide crossbar between the thumb and the first and second fingers with the palm facing the player’s chest. This encourages using the wrist as a hinge and provides the most relaxed slide action I’ve seen. The hand must be relaxed, but controlled, and you should not allow the wrist to become too loose. The slide should be used in quick strokes – smoothly and never in a jerky or spastic manner. Through careful practice the student can perfect a wonderful coordination between the tongue action and

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the slide technique which provides a truly relaxed approach to both staccato and legato playing.”

With Remington’s approach, the hand and wrist only are used for smaller position changes, which make up the majority of slide movements. The elbow and shoulder of the right arm are engaged only for large position shifts. This results in an economy of motion that promotes relaxation in the slide arm and upper body. Remington stated that with enough practice, the student could coordinate the slide movement with the articulation to produce very accurate playing.

A second approach was advocated by Andre Lafosse, former Professor of Trombone at the Paris Conservatory, and Denis Wick, retired Principal Trombonist of the London Symphony Orchestra. Lafosse argued that the approach adopted by Remington, which utilized the wrist as the primary hinge of movement, left too wide a margin of error for sloppiness in slide movements. Largely self-taught, Denis Wick had the freedom to experiment with slide grips until he could achieve the desired results. To this end, his approach is quite different from Remington. In his book, *Trombone Technique*, he states:

“'The hand and wrist should always be in the same plane, with the elbow doing most of the work. Excessive wrist movement should be avoided. This does not mean that the slide action should be at all jerky, but rather that the wrist should not ‘flap about,’ which can create serious problems. Movement of the slide should be made very gently, never too fast, too jerkily or with more force than is necessary. The aim should be fast acceleration but sensitive braking.'”

In essence, while Remington advocates a wrist that is turned in to face the body while gripping the slide, this second approach instructs the player to turn the right hand and wrist until near parallel with the ground. In this way, the hand, wrist and forearm move as one fixed unit, transferring the primary hinge point to the elbow. When placed in this orientation, an advantage to this approach is the consistency of movement for both short and long position shifts.

It is important to note that despite the obvious differences in approach, both stress the importance of the motion itself as gentle, and in no way forced or jerked. While relaxation is not as overt a part of his teaching as with Remington, Wick does stress a lack of tension on numerous occasions in his book, *Trombone Technique*. Tension created in the slide arm will travel into the shoulder and throughout the body, eventually affecting the whole musician if not curtailed.

Edward Kleinhammer, former Bass Trombonist of the Chicago Symphony Orchestra, presents a third approach. His description allows more interpretive freedom in finding the hand position which could lead to confusion if not monitored by a teacher. Kleinhammer’s description and the accompanying illustration from his book, *The Art of Trombone Playing*, describe a hand and wrist that appear to be a compromise of the previous two methods.¹⁴

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“The right hand takes the slide between the second and third fingers, while the thumb is placed above the support, so that he slide is operated with the thumb and first and second fingers only. The wrist and elbow should move with ease, as in playing the violin.”\textsuperscript{15}

By turning the wrist to a comfortable angle halfway the body and the ground, the hand maintains a comfortable position for most players, without sacrificing the fine tuning of the Remington method, but also maintaining Wick’s firmer wrist approach to ensure accurate slide placement. A simple way to find this comfortable position is to reach out as if to shake someone’s hand, and then retract the hand and arm back to the chest or abdomen. The tips of the index and middle fingers should be arranged more or less vertically, with the thumb resting gently against them. In this way, the most natural wrist angle will be achieved without maintaining an awkward or uncomfortable wrist angle.

Moving the Slide

Once a slide grip is chosen, the player must move the slide in a relaxed, tension-free manner. In the same way that tension and stress affect the tone quality, the rigid, jerky movements of a tense slide arm are reflected in the sound. To the seasoned professional trombonist with a discerning ear, a novice’s unwieldy slide arm can be heard quite easily, particularly in longer position shifts. As previously stated, the large position shifts require the use of the elbow and shoulder, particularly if the slide is extended to seventh position. The ball-and-socket joint of the shoulder extends further at a slight angle rather than straight out from the

\textsuperscript{15} Edward Kleinhammer, \textit{The Art of Trombone Playing}, 14.
body at a rigid ninety-degree angle. Therefore, the trombonist finding difficulty in reaching the farthest position should situate their self to allow for this natural extension to take place.\textsuperscript{16}

Alternate Positions

Stevens and John Swallow both advocate the use of alternate positions to avoid a “sawing motion” with the slide as it moves in and out to reach notes in their primary positions. For each note on the trombone above the third partial, notes can be recreated in extended, or alternate positions.\textsuperscript{17} In Figure 8 below, the available alternate positions are highlighted.

\textsuperscript{16} Milton Stevens states that even adult trombonists have difficulty reaching seventh position. His solution, which adds inches of extra reach, is to turn the head and slide arm slightly to the right when the slide is extended. Care must be taken to not swing back and forth between short and long positions changes.

\textsuperscript{17} Stevens and Swallow each address the use of alternate positions in their respective articles in \textit{The Instrumentalist} from 1994. Both stress the use of musical reasoning to dictate position choice, especially when a diatonic half-step resolution is present.
The simplest approach to using alternate positions is to allow the key of the musical passage to dictate the position choice. The ascending half-step movements from scale degree $\hat{3}$ to $\hat{4}$ and $\hat{7}$ to $\hat{8}$ and their descending counterparts should be resolved with a close position change, if possible. The twelve major scales are a great place to begin employing alternate positions. As shown in Figure 9, the seventh scale degree of the E flat major scale, D, is normally played in first position.
The “sawing motion” is clearly seen despite the relative close distance between first and third positions. A suitable solution is to find an alternate position for one or more notes in the scale. As seen in Figure 10 below, the alternate position for D, a slightly lowered fourth position, would minimize the repetitive back-and-forth action between first and third positions. The slide technique serves the musical gesture of a half-step resolution from $\hat{7}$ to $\hat{8}$. Appendix A provides suggested position choices for all twelve major scales.

One disadvantage to using alternate positions is the difference of tone quality in the primary and alternate position choices. This change in sound exists because each possible position choice for a note is found on a different partial, which sounds slightly different. This is of particular importance in the louder dynamics, where the sound in lower positions above the staff in the fifth and sixth partials, becomes more strident and difficult to blend with other players. Through diligent practice with reference pitches sustained over a loud speaker, as well
as an electronic tuner, combined with a thorough knowledge of the harmonic series, pitch can be accurately matched to make these alternate positions usable. However, the ability to match pitch is not a strong enough criterion to choose the alternate position. Even if the student is matching pitch and timbre between all position choices, it is best to use primary positions for any note value longer than the eighth note. Any note value shorter than an eighth should be played in the position that promotes a movement of the slide that maintains accuracy and relaxation.

Section Considerations

When playing with a trombone section, the primary goal is to match across the section from player to player. This concept begins with simple considerations such as sitting with similar posture, placing music stands to the right of the instrument and placing mutes to the right of the chair. Slide position choices are not an opportunity for individuality; each member of the section should be considered a link in the consistency chain. Care should be taken to use primary positions whenever possible, as they offer less risk for pitch error and evenness of timbre. If alternate positions are chosen, care must be taken to ensure that each member can execute the alternate position with the same manner of ease as the rest of the section, and that pitch, timbre and style are not compromised.

Equipment Maintenance

The importance of a fully functioning, well-maintained hand slide cannot be overstressed. A well-functioning slide is one that has four perfectly round, parallel slide tubes. The distance
between the inner and outer slide tubes is as narrow as the thickness of three human hairs, and requires careful attention to maintain smooth action. The protuberant nature of the trombone design makes the hand slide prone to dents in the slide tubing. If not properly maintained, the drag created by the various abnormalities such as dents and pollutants from saliva, old lubricant or airborne particulates will cause the player to use more effort than necessary to move the slide from position to position. In extreme cases of degraded slide action, the movement of the instrument on the face from the extra effort required can cause instability in the embouchure. The required extra effort makes the necessary pitch adjustments for the various partials in the harmonic series more difficult, as well. The choices of slide maintenance are secondary in importance to the implementation and consistent application of the chosen method. Even instruments owned and operated by the most careful and conscientious professional trombonists require annual slide maintenance by a qualified brass instrument technician.
CHAPTER THREE
ARTICULATION

Two factors share equal consideration in articulation: the function of the tongue and the function of the air. The tongue defines the beginning of each note, and should be divorced from production of the body of the note following the articulation. Simply put, articulation in playing is akin to enunciation in speech. The clearer the enunciation of consonant sounds, the more easily words are understood. The clearer the articulation of consonant sounds in playing, the more easily pitches are discerned. If vibration, fueled by air, is responsible for creating tone, then the tongue is responsible for shaping the intensity of each articulation through use of consonant sounds.

Articulation Syllables

A rudimentary understanding of tongue motion in speech offers insight into use of the tongue in trombone articulation. Consonant sounds define the beginning of each note played, and are produced by momentarily closing off the vocal tract. Defining the proper consonant sound is crucial to the clarity of articulation of all wind instruments. The consonant sounds most often associated with trombone articulation begin with the letters T and D.  Frank Diaz, consulting texts by recognized brass pedagogues such as Philip Farkas and Roger Bobo, determined that the T and D consonant sounds are commonly advocated amongst his sources.

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The point of tongue contact, or Place of Articulation, is the primary factor in defining the consonant interruption of the air stream as it passes from the lungs to the lips. While many Places of Articulation exist, the two primary articulations used in brass playing, belong to the Alveolar category, which is characterized by a tongue rising in the mouth toward the Alveolar ridge just behind the upper gum line. As the player descends into the low register of the instrument, below the second partial B flat in first position, the Place of Articulation moves lower than the Alveolar ridge onto the back of the top teeth or even between the teeth in the extreme low register. With the exception of this one adjustment for the lower register, all other segmented tissues related to speech or sound production, including the abdomen, larynx, glottis and lips should be divorced from the task of articulation. Alveolar motion in speech should be the model for articulation in trombone playing.

Spectrum of Articulation Firmness

The spectrum of articulation firmness ranges from no tongue motion used to the firmest, harshest possible stroke of the tongue. The two predominant consonant sounds utilized in trombone articulation, which serve as markers along this spectrum, are TAH and DAH. Determining the firmness of articulation is as simple as speaking the consonant sound aloud. A TAH articulation is firmer or more pointed than a DAH articulation, and the varying degrees of intensity of TAH and DAH articulations can be employed to create the broad range of

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19 The Handbook of the International Phonetic Association, categorizes several Places of Articulation within the mid-sagittal section of the vocal tract (mouth) including the alveolar. See Appendix A for illustration of the various Places of Articulation.
articulation across the spectrum. The addition of the vowel sound AH to the consonant interruption promotes a quick retraction of the tongue after the articulation is complete, removing the tongue as an impediment to the production of tone. The variations in articulation exist more in specific areas, such as legato.

Legato Tonguing Versus Natural Slurs

_The Oxford Dictionary of Music_ defines legato as “bound together so that there is no perceptible pause between notes, i.e. in a smooth manner, the opposite of staccato.” For the purposes of the trombonist, both definitions are vital to successful execution of legato on the instrument. The end result should be smooth connections with little or no portamento or glissando between notes, unless the style of music indicates that they be added. While all trombonists stress the importance of smooth connections between notes and sustaining each note for the full value, there are two approaches utilized in reaching this goal.

Natural Slurs

Trombonists who utilize natural slurs in their legato playing take advantage of the harmonic series to provide a portion of their articulation in legato phrases. As illustrated in A of Figure 1 below, notes within one partial must be articulated to avoid a glissando between note changes. When moving between partials, the trombonist experiences a very slight, temporary

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interruption of tone, which creates a very gentle “bump” or articulation without any use of the tongue. This phenomenon, shown in B of Figure 1 below, is much like moving between partials on a lip slur. In the simplest of terms, when the direction of the slide moves opposite the direction of interval, the natural slur is created.

Figure 1

For those who take advantage of this phenomenon, smooth legato lines are created without the need for the tongue to interrupt, and therefore shape, the airstream. However, a caveat for this approach is that when the tongue is used, it must match the sound of the natural slur as much as possible to create evenness of articulation across the legato line. Coordinating the articulation sounds takes considerable practice to achieve.

Legato Tonguing

A second approach to trombone legato involves tonguing all notes, whether the possibility of a natural slur does or does not exist. When all notes within a phrase utilize a DAH articulation, uniformity exists throughout the legato line, but this approach results in an articulation that is firmer than some might consider appropriate. Any articulation, however
slight it might be, may detract from the desired smoothness of the legato line. See Figure 2 below.

Over time, trombonists will learn that commitment to one approach does not disqualify them from using the other as the situation dictates. For the young player, it is advisable to adhere to the approach advocated by their teacher or private instructor until technical obstacles that present themselves while practicing necessitate experimentation with another approach.
PART TWO
CLASSROOM APPLICATION

A common exercise for descriptive writing students illustrates the importance of thorough classroom instruction. The exercise begins with each student receiving a different illustration, which they must describe in detail. When completed, the paragraph is given to a classmate, who then draws the subject of the paragraph based only on the original author’s written description. On the first attempt, many authors receive an illustration from their classmates that are missing key elements of the original illustration. In short, the author leaves much for granted in their description. The pressure of classroom music teaching can lead to a rapid-fire approach toward instruction that, while efficient, also leaves much for granted. The teacher must strive to deliver well thought out, thorough and consistent instruction each class day. If the teacher is a trombonist, much of the information presented below might seem elementary. However, for the non-trombone playing teacher, each and every process in relation to playing the instrument must be carefully considered, and the most effective methods to implement the processes outlined in Part One must be implemented.
CHAPTER FOUR
SETTING THE STAGE

The single most important element of teaching beginner trombone students is the adoption of and commitment to a systematic approach to teaching. The structure and expectations created by the consistency of the chosen system is more important than the actual system chosen. Long before the student roster is printed and names are assigned to instrument lockers, decisions should be made to set the tone for the school year. In the author’s opinion, the first year of instrumental instruction often sets the tone for the remainder of a student’s musical experience. A first-year teacher with little or no classroom experience who adopts classroom practices that encourage a calm, organized and systematic environment will be at an advantage over an unorganized experienced teacher.

The first step in creating the desired environment is to create and maintain a well-organized classroom. The state of the classroom speaks more to the standards of the band program than anything the teacher can say to counter it. A cluttered or messy room promotes an environment where discipline and focused behavior are at best optional, and at worst, non-existent. Tubas and other large, bulky instruments should be stacked neatly on a far wall or in an instrument storage room. Only the correct number of music stands and chairs should be set up for the following class, with extras stacked neatly and out of the way. All sheet music should be collected from the floor, and food and drink should never be permitted in the space. While these
suggestions may appear overly simple, it is important to set the standard for these practices from the very first day of school so that they may be maintained throughout the year, despite how hectic the schedule may become.

The greatest result of this neat and organized approach is that it promotes a calm environment. Considering the age and mannerisms of junior high aged students, the passing period may be host to any number of antics that are in direct conflict with the band teacher’s lesson plan. If students enter the band room calmly and quietly, placing their belongings in a specified location, they are mentally preparing themselves to focus in the upcoming rehearsal. By insisting on a calm, quiet band room, the teacher is able to circumvent student conversations as they enter the classroom, which minimizes chatter during the class period.

Beginner Student Composition

Whenever possible, beginner classes should be taught in a like-instrument, homogenous setting. The manageable class size allows a band director working alone to maintain control of the environment. However, if the school schedule only allows for one beginner band period per school day, steps must be taken to make this large class equally manageable. If the band director is part of a larger band staff, accommodations should be made to ensure that another member of the band staff are available to assist in managing the classroom. Francis Buckley calls this “a group of instructors working purposefully, regularly, and cooperatively to help a group of
Whenever possible, supplemental assistance from the associated high school band program should be requested to split the full band down into smaller, more manageable student groups. While not a perfect solution, the team-teaching approach has proven effective, due to increased instructional time and increased student achievement. If the school allows for the possibility of scheduling like-instrument beginner classes throughout the day, this is the most advantageous approach to teaching each instrument to beginners. In particular, the idiosyncrasies of the trombone lend the instrument to this approach.

If the band program does not have the option of like-instrument classes or multiple teachers in the classroom, care must be taken to seat students in a way that allows the teacher a direct line of sight with each student. Rather than implementing the traditional band setup of arced rows facing a conductor’s podium, teachers should place students at regular intervals within rows and columns, much like a grid. This spacing will allow adequate room to negotiate the setup to observe each student, and ample space for the student to manipulate the trombone hand slide without fear of damage through collision with other instruments, chairs, or music stands. With this approach, students are less likely to hide within the setup, which leads to fewer students falling behind the developing class. If a traditional full band setup must be used, care must be taken to give equal attention to the instruments on the back row, which often includes the trombone section. If two music teachers are available during the instruction period, one teacher should lead the class from the front of the room, while a second teacher observes and assists from the back of the room. In this scenario, it is imperative that one teacher moves

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22 Craig Brenan and Randy Witte, “Team Teaching in the Secondary Instrumental Music Classroom,” *Music Educators Journal* 89, no. 3 (Jan 2003), 35.
around the classroom, engaging each student through close-proximity monitoring while the second teacher instructs from the front of the room.
CHAPTER FIVE
CLASSROOM APPLICATION FOR RESPIRATION

In this author’s experience, the one phrase used most often in the teaching of wind instruments is, “[use] more air.” Stated with authority, the intent of the phrase is for the student to take in a larger volume of air than they are used to inhaling, with all of the tenets of good breathing. However, in this author’s experience, teachers fail to regularly remind their students of these tenets, or in some cases, never state them at all. As stated by Samuel Pilafian and Patrick Sheridan in *The Breathing Gym*:

> “Breathing correctly when singing or playing a wind instrument uses a great deal more of our lung capacity than we normally use in everyday life. This extreme use of our airflow is a skill that must be practiced.”

23 Pilafian and Sheridan’s excellent text provides both the individual and group learning environment with a systematic approach to developing and maintaining active and efficient breathing practices for the benefit of all levels of wind instrument performance.
For the purposes of this document, the tenets of proper breathing, in order, include:

1. Remove all air from the lungs.
2. Inhale in a relaxed manner, keeping the body free of tension.
3. The inhale should touch the exhale without any hesitation.
4. Exhale in the manner of the inhalation, keeping the body free of tension.

It is of particular importance that the respiration process begins with “empty” lungs. While the lungs are never completely empty, beginning the process at this point in respiration creates the need for a breath, which forces the body to take an efficient breath with a minimum of thought impeding the process. The body’s need for the breath overrides any conscious thinking on the matter. As the air is drawn in, the body should be allowed to expand in all directions. At the top of the inhalation, glottal or throat tension should not “cap” the full lungs. In fact, the amount of time that the air stays motionless at this stage should be negligible: when playing, holding the air back before the exhalation should be avoided at all costs. The immediate turnaround of air to the exhalation is of primary importance. The exhalation should be in the

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David Vining explains the inhalation process this way. “When you inhale, your external intercostal muscles contract moving the ribs up and out and your diaphragm contracts, pushing down on the contents of the abdominal cavity below. The contents of the abdominal cavity flow out and down, deepening the arc of the pelvic floor and causing abdominal expansion. At the same time, the spine gathers, bringing the ribs slightly closer together in the back. As this happens, the ribs swing up and out, creating space in the thoracic cavity which contains the lungs. The space causes inequality in air pressure between the thoracic cavity and the atmosphere outside the body, and air rushes in to fill the lungs and equalize pressure.”
same manner as the inhalation. As part of the cyclical quality of respiration, the quality of the exhalation sets the stage for the next inhalation, ad nauseam.

Appropriate Breath

A contributing factor to the negative connotation of “more air” is the appropriateness of the inhalation to the music being played immediately following it. For example, a pianissimo entrance does not require the same breath as a fortissimo entrance. Taking a fortissimo breath for a soft entrance forces the performer to hold back the volume of air in the lungs, which must be held back with tension somewhere in the air column between the lungs and lips. In short, the player should breathe for the printed dynamic and style of music being performed. This is a skill that can only be developed over time, so teachers should assist younger players with determining the actual size and character of the appropriate breath.

Aperture Size

Though it cannot be controlled directly through muscle flexion or contraction, the size of the aperture, or the portion of top and bottom lip where outgoing air becomes vibration, can become too large to maintain optimal tone quality after prolonged passages of loud playing.

David Vining explains the exhalation process this way. “Upon exhalation, the internal intercostal muscles contract moving the ribs back down and in and your diaphragm relaxes, seeking its former neutral highly domed position. At the same time, the ribs swing back down and in and the spine lengthens. The pelvic floor springs back up, helping to push the contents of the abdominal cavity up in a distinctive, tide-like motion. During exhalation, there is elastic recoil in the abdominal cylinder, pelvic floor, lung tissue, costal cartilage and diaphragm as these structures seek their neutral position of rest.
Conversely, an aperture that is too small will not allow the lips to vibrate at optimal resonance. An aperture can become too small if the lips of the embouchure push together too firmly across the aperture due to extended soft passages or swollen lips. Three factors that affect aperture size should be considered:

1. Firm embouchure corners.
2. Supple embouchure center.
3. Firm, flat chin.

If firm embouchure corners are maintained on either side of the mouth, the vibrating surface at the center of the embouchure on the top lip is allowed to vibrate freely. Firm embouchure corners promote the supple embouchure center, and to some extent, assist the chin with staying flat and firm. Avoid bunching or any upward motion of the chin, as this transfers a portion of the responsibility for firmness from the corners of the mouth. Farkas describes the chin as “a remarkably versatile part of the embouchure” and “most important to good brass playing.” With one exception, Farkas believed that the placement of the bunched chin was the most common playing fault.26 If these three conditions are met and maintained, the passing air can create the most resonant vibration possible for a characteristic sound. If a particularly taxing musical selection causes the trombone section sound to become strident or fatigued, care must be taken to allow the players adequate rest. The strident quality of sound is directly related to the aperture being blown to a larger size than needed for optimum resonance. Increased speed and volume of air compensate for this change, resulting in a sound that is now strident and blown above or

26 Farkas, *The Art of Brass Playing*, 16.
below pitch center. The teacher must make the student aware when their sound has distorted and lost pitch center. Over time, the student will be able to identify this at the onset of the sound change.27

27 On page 19 of The Breathing Book, David Vining states:

“An important tool ignored by many struggling trombone players for monitoring subtle differences in air speed and quantity is kinesthesia, the sensory mode that enables us to perceive our movements. Kinesthesia tells us about the size, shape and position of a body part, the quality of its motion and interaction with other body parts.”

“Use your kinesthetic awareness to carefully observe how you are using your air. Subtle changes in air quality are accompanied by subtle changes in the quality of the breathing motion and produce slightly different sounds. A heightened kinesthetic awareness will allow you to collect more information about the speed and quantity of your air and this information will help you refine your sound. Form healthy connections between the quality of your movements and the refinement of your sound.”
CHAPTER SIX
CLASSROOM APPLICATION FOR SLIDE PLACEMENT

Teachers of brass instruments should take comfort in knowing that there is ample common ground among all brass instruments in terms of the concepts of breathing and many aspects of articulation. These subjects are fairly straightforward in approach, and can be standardized in order to streamline instruction. The single most important way in which the trombone is different from the other members of the brass instrument family is the hand slide, which the trombonist manipulates to change notes and adjust pitch in combination with the manipulation of the direction of the air and buzz in the mouthpiece. *To have a consistent system or approach to slide technique from the first day of instruction onward is more important than the rules or tenets of the system.* The approaches to hand slide manipulation presented in Chapter Three of this document are presented, at least in part, to provide the teacher with sufficient background material to make the best use of the following information. The author has spent significant time studying and performing with each slide technique approach presented, and there is great merit to be found in each. Before a preference is stated, it is essential to understand what the teacher desires of their trombonists, and how to communicate those desires to students using the proper instructions.
Posture

With the exception of a few larger instruments such as tuba and bassoon, few instruments are as cumbersome to hold and manipulate as the trombone. These characteristics can also inhibit proper posture. Considering the average age of students in beginning band school grades, these students are often small in stature, which makes holding the instrument difficult. The trombone slide is cumbersome and easily damaged, the slide movement is foreign, and the balance of the instrument changes with each slide movement. The purpose of the left hand, which is often too small to maintain a steady grip for long periods of time, is to carry the entire weight of the instrument. When the left hand fulfills its purpose, the right hand is free to move the slide easily. Over time, due to the cumbersome nature of the instrument and the increased demands of playing the instrument, both handgrips may weaken, causing instrument carriage to suffer. Behaviors such as slumping in the chair, resting elbows on knees while playing, a cocked head to the left or right, and wildly skewed instrument angles should be addressed and managed with a “zero tolerance” policy. It is imperative that even if the teacher does not play the instrument well, that they practice holding and manipulating the instrument in front of a mirror to ensure that their model is reflective of their desired student outcome. Though the benefits of correct posture are well documented, the many challenges of classroom teaching can relegate posture to a lower priority than more overtly musical considerations, such as correct notes and rhythms.
Slide Placement

If the trombone section of a wind band can be heard because of slide noise or glissing sounds between notes, there are several possible causes at play. The most straightforward possibility is that the trombonists are moving their slides in a slow, lazy manner between each note out of boredom or disinterest. If the section of music is made up of whole notes and half notes and follow a similar slide movement pattern over an extended number of measures, it is possible, even likely, that the trombonists have simply lost focus or interest in executing those notes to the best of their ability. The first step in correcting this problem is ensuring that the concept of team play been introduced, established and maintained throughout the ensemble from the very beginning. Do the low brass and low reed players understand that their whole notes are equally important to the success of the ensemble as the melodic lines in the flute, clarinet, saxophone and trumpet? If they are aware of their importance, then a simple reminder at regular intervals may correct the problem of laziness without the need to discuss the instrument. If this reminder works only for short periods of time, than the difficulty of repertoire being performed should be evaluated. Are the low brass parts too simple? Do they afford these players ample opportunity for musical stimulation, or do they afford these players ample opportunity to focus on anything but the music on their stand? If ensemble music with more challenging trombone parts is not a realistic solution, then supplementing the large ensemble music with appropriate chamber music repertoire may aid the teacher with keeping their trombonists on task in rehearsal.
If these issues are addressed repeatedly with no long-term improvement, adjustments to the instrumental approach must be considered. The only pedagogical focus addressed as often as "more air" is to "move the slide faster" between notes. This all-encompassing, simple slide related instruction is as much a shortcut as 'tongue harder and play shorter’ is to articulation. These kinds of statements should be avoided at all costs, especially with beginners, who are often the most impressionable of students. The very well meaning, eager to please student will often interpret “move the slide faster” as move the slide sooner or earlier, which contradicts the intended instruction. While the slide may indeed need to move faster, we must be specific about when the slide moves quickly to the next note.

When composers notate detached articulations or space between notes, there is often more time between notes, and therefore, more time to move the slide from position to position. Slide speed in detached music is relatively slow in order of importance in this situation. In Figure 14A below, the eighth rest between each note provides ample time to move from note to note. Even at a brisk tempo, the margin of error for slide noise from first to fourth position is great.

Figure 14

A. B.
In Figure 14B above, the margin of error for slide movement is diminished considerably. In order to sustain the first note adequately to follow all information given, the trombonist must keep the slide in first position *until the last possible second*, and *then move as quickly as possible* to fourth position before the next beat arrives and no sooner. What this means for the young trombonist playing whole notes in band class is that those half notes and whole notes, which need to be sustained fully, are equally difficult to synchronize as any melodic material they might play. Constant rhythmic subdivision at the eighth note is of the utmost importance to determine when the slide should actually move.

In addition to technical considerations for the individual player, coordinating a trombone section’s slide movements should be taken into consideration. While the challenge of an individual player’s coordination can be addressed alone in the practice room, section coordination requires that they play in groups as often as possible. Much in the same way that a string section matches their bowings for uniformity of sound and aesthetics, matching the elements of slide technique amongst players within the section will provide similar benefits. If monitored by the teacher, considerations such as alternate positions, slide timing in technical passages, articulations and note lengths can all be addressed in group practice. In addition to their ensemble music, technical exercises from the Arban *Complete Method* and other texts can be utilized to assist with variety and spontaneity.
CHAPTER SEVEN
CLASSROOM APPLICATION FOR ARTICULATION

Attempting to synchronize a trombone section in an ensemble setting, conductors often instruct trombonists to tongue harder or firmer, and to play shorter. This instruction, while given with the best of intentions, may inadvertently cause pitfalls for both the individual player and the entire trombone section. First and foremost, precision as it relates to the trombone is rarely about the firmness of the tongue or the length of note. Rather, it is about the precision of the slide, subdivision of the rhythmic pulse, and proper breathing technique. Articulating too firmly will give the illusion of precision, because the over-emphasized articulation sound creates a wider acceptable range of time among players in the section. It is a shortcut at best, and if not consistently monitored, can cause harsh articulations to become the default articulation.

The ideal trombone articulation is firm enough to define the beginning of the note adequately, but not so firm that it detracts from the resonance and beauty of tone immediately following it. This is achieved by the strike of the tongue in the mouth as it interrupts a steady, constant airstream. The most effective method for achieving a wide range of articulations is to focus on the consonant choice for each articulation. The hardest articulation utilizes a very firm T consonant, and the softest articulation utilizes a very gentle D consonant. The various levels of articulation firmness within these parameters are best discovered through experimentation and deliberate, repetitive practice. The standard for articulation firmness should be the resonance achieved on each note they play, regardless of note duration, range, or volume considerations.
When resonance is the ultimate goal in both individual and section articulation, playing efficiency increases, minimizing the harsh articulation sounds often associated with the instrument.

Articulation Study Materials

The numerous method and etude practice books currently published for trombone are borrowed from other brass instrument publications. Arban’s Complete Method and Clarke’s Technical Studies, both for trumpet and cornet, along with Kopprasch’s Sixty Studies for Horn have all been transcribed into bass clef for trombone use, and it would be in the music teacher’s best interest to incorporate these tried-and-true texts into their materials. As trombonists develop and begin expanding their range in both directions, care must also be taken to maintain the established articulation standard of the middle register in these newly acquired registers. Through audio recording of practice sessions, players can more accurately identify when changes in articulation take place, and with a recorder featuring half-speed playback, the articulation of each note can be scrutinized in even greater detail.

Consistency of articulation is a skill that is easily acquired, developed and maintained if the proper study materials and concepts are implemented on a consistent basis. Arban’s Complete Method for Trombone and Euphonium provides ample articulation exercises, including articulation etude 11, found in Figure 11 below.
Joseph Alessi’s instructions for the range of articulation etudes states: “Once again, it is important to clone every note, and attack each note firmly.”

Through interval transposition, the same exercise can be played in other ranges to aid the student in transferring the newly acquired matched articulation into the upper and lower registers with the same ease of production and uniformity. Figure 12 below is written a perfect fourth below Figure 11. When transposed down a perfect fourth, trombonists can work on the coordinated skills of matched articulation in the low register in addition to wide slide position shifts. For articulation exercises in the low register, experiment with moving the Place of Articulation down from the Alveolar ridge to behind the top teeth or even in the space between the separated top and bottom teeth to find the clearest articulation.

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Material should be transposed in both directions to ensure balanced progress in the upper and lower registers. Figure 13 below transposes the original Arban etude by an ascending perfect fifth. Despite the increased range demands of the upper register, the trombonist must control these upper notes in the same way they control the middle and low registers. Adequate rest should be taken between attempts, so that bad habits such as the bunched chin do not creep into the playing.
CONCLUSION

Musical instrument families are categorized according to shared traits, such as materials of fabrication, methods of sound production, key mechanisms, tone holes, valves and strings. While the trombone shares certain characteristics with the other members of the brass family, it is set apart from all other instruments due to its unique pitch changing mechanism, the hand slide. While pedagogical techniques can be and are often borrowed from more established pedagogy of older instruments, their effectiveness is contingent upon the student’s ability to make the connection between their instrument and reference to another. It is imperative that trombone pedagogues challenge themselves to evolve beyond the time-honored tradition of borrowing and correlating until the study of teaching trombone can stand on equal ground with the teaching of other instruments.

This document has provided a study of three elements of trombone technique that young trombonists must be master if they wish to continue their studies further. A logical step forward from this document would be to discuss strategies at the intermediate level, to assist the young trombonist bridge the gap between early and advanced studies. Other steps include studies such as expanding the playing registers both high and low, multiple tonguing, lip flexibility, and an introduction to extended techniques. While the intent of this document is to give the music teacher a wider knowledge base to assist them in the classroom, it is only a beginning.
BIBLIOGRAPHY


APPENDIX A: Places of Articulation for Consonant Sounds

29 Taken from the Handbook of the International Phonetic Association, Page 7.
APPENDIX B: Major Scales with Suggested Positions
Major Scales with Suggested Positions

C Major

G Major

D Major

A Major

E Major

B Major

Gb Major

Db Major

Ab Major

Eb Major

Bb Major

F Major