

ABSTRACT

Title of Dissertation: A PEDAGOGICAL STUDY OF MODERN
SLIDE TECHNIQUE AND COMMON
DEFICIENCIES OR HINDERANCES IN THE
NOVICE TROMBONIST

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This dissertation aims to: 1) define the standard for modern slide technique, and 2) develop a new curriculum tested on novice trombonists with the goal of aiding private and classroom instruction of the instrument. Resources surveyed on the topic include dissertations, scholarly articles, websites, pedagogical devices and aids, instrument specific methods, and beginner band methods. The gaps ascertained in the literature and resource review inform the creation of the new curriculum method. The purpose of the curriculum is to teach proper playing position, slide technique, and determine how those skillsets impact tone quality and intonation.

The study comprises five lesson plans tested on six trombonists who had fewer than three years of classroom band experience. Students performed an identical assessment at the beginning and conclusion of the study to determine understanding

and growth in the areas of proper playing position, slide technique, tone quality, and intonation. Analysis of the assessments determined that students could effectively learn and implement proper playing position and slide technique, and it had an impact on tone quality improvement. Improvement in intonation, however, was inconclusive with half of the students showing improvement and the remaining showing regression. The results indicate that novice trombonists benefit from instrument-specific instruction, and the pedagogy is not too advanced for the novice student to understand and implement. Further research is needed to identify other ways instrument-specific instruction could impact a student's overall intonation mastery.

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by

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Table of Contents

Acknowledgements	ii
Table of Contents	iii
List of Figures	v
CHAPTER 1: INTRODUCTION	1
CHAPTER 2: LITERATURE AND RESOURCE REVIEW	6
2.1 Introduction	6
2.2 Research	8
2.2.1 Dissertations	8
2.2.2 Articles	14
2.2.3 Websites	16
2.2.4 Pedagogical Devices	17
2.3 Trombone Methods	20
2.4 Band Methods	26
2.5 Conclusion	29
CHAPTER 3: METHODOLOGY	31
3.1 Human Subject Research	31
3.2 Research Problem	35
3.2.1 Gaps in Literature	35
3.2.2 Expected Outcomes	37
3.3 Data Collection	39
3.4 Curriculum Draft	43
3.4.1 Lesson Plans	44
CHAPTER 4: NARRATIVE	52
4.1 Setting	52
4.2 Participants	54
4.3 Lesson Observation Notes	57
CHAPTER 5: RESULTS AND DISCUSSION	81
5.1 Results	81
5.2 Discussion	83
5.3 Conclusion	87
CHAPTER 6: CONCLUSION	92

6.1 Purpose	92
6.2 Reflection and Recommendations	94
6.2.1 Literature and Resource Review	94
6.2.2 Curriculum	94
6.3 Contributions to the Field	97
APPENDICES	100
APPENDIX A	100
A.1 Pedagogical Devices	100
A.2 Trombone Methods: Beginner	102
A.3 Trombone Methods: Intermediate & Advanced	104
A.4 Band Methods	110
APPENDIX B	119
B.1 Initial Assessment	119
B.2 Curriculum Initial Draft	121
B.3 Curriculum Final Draft	130
APPENDIX C	136
C.1 Participant IDs and Descriptions	136
C.2 Initial Assessment: Qualitative Data	137
C.3 Final Assessment: Qualitative Data	138
C.4 Initial and Final Assessment Comparison	139
C.5 Participant Scores	140
APPENDIX D	146
D.1 IRB Approval Letter	146
D.2 Parental Consent Form	148
D.3 Minor Assent Form	153
D.4 Photo/Video/Audio Release Form	156
D.5 Recruitment Flyer	157
Bibliography	159

List of Figures

4.1	Participant IDs and Experience	53
5.1	Initial and Final Assessment	80

CHAPTER 1: INTRODUCTION

The trombone is a cumbersome instrument for a young, novice band student to hold and manipulate. The weight of it must be held exclusively in the left hand and arm so that the right arm is free to extend the hand-slide to change pitch.

Additionally, the motion of the hand-slide extension causes the instrument to lengthen, throwing off the balance of the instrument and making it even more challenging to hold steadily. Other instruments in the band use valves and keys to change pitch, which have a finite distance required to depress with the fingers. Whereas the trombone slide moves anywhere from approximately 3.5 inches to 24 inches to arrive at the next desired note and requires a combination of the fingers, wrist, elbow, and shoulder joints to do so. Moreover, other than first position, there are no markings to indicate precisely where the slide position should lay for any given note. Combined with the cumbersome grip, these issues lead to novice trombonists and sections that have poor note accuracy, intonation, rhythm, tone, and sight-reading skills.

Because the trombone is the only instrument to change pitch with a hand-slide, issues often arise in beginner band trombone sections, such as properly holding the instrument, poor tone quality, intonation issues, and moving the slide in a rhythmic fashion. In the early stages, the trombone has the capability of being the most out-of-tune instrument in the band, but it has the capability of being the purest and most in tune wind instrument in the long run. Pitch can be adjusted on the hand-slide, leaving the embouchure and air to support a rich, resonant sound rather than

needing manipulation to raise or lower the pitch when correcting intonation errors. This research argues that trombonists can begin implementing proper playing position and slide motion within the first few weeks of picking up the instrument for the first time if the beginning band sections receive individualized instruction to address these challenges. Additionally, a young student does not need to be able to proficiently read music to be able to learn and begin the process of mastering the seven slide positions.

This argument is explored, first, through a pedagogical survey of literature and resources available to trombonists of any ability, private teachers of the instrument, and music educators who teach the instrument in a classroom environment. The research will define the standard for the components of proper playing position and slide technique for the trombone utilizing the information from dissertations, scholarly articles, online resources, pedagogical devices and aids, and instrument-specific advanced method books. Next, the examination of beginner methods and first-year band methods provides insight as to what resources are currently available for the novice trombonists and their private and classroom instructors. Finally, the gaps in instrument-specific instruction available for the trombone at the novice level informs the creation of a curriculum, which is tested on a small group of novice trombonists in a one-on-one instructional environment.

The Literature and Resource Review in Chapter Two will show that there are few trombone methods in publication that target novice trombonists. Most instrument-specific methods labeled “beginner” or “elementary” expect the young musician be able to play at least an octave in range and possess note and rhythm reading skills expected of a band student in the second or third year of one’s studies.

Few research projects and dissertations have discussed this apparent gap between the novice and the early methods available on the market; and those that do cover this topic do not delve into specific exercises that could address common hinderances or deficiencies in the novice trombonist. Band methods occasionally have trombone-specific exercises, but they often are not related to developing proper slide technique. The researcher-developed curriculum aims to address this gap by proposing exercises that encourage development and refinement of proper playing position, proper slide position placement, and movement of the slide.

The researcher-developed curriculum is tested using a human research field study taught to six novice trombone players. For the purposes of this study, the term “novice” is used to describe elementary and middle school band students between the ages of 10 and 13 years old who have fewer than three years of classroom band experience. In typical circumstances, students with more than one or two years of band experience might be considered “intermediate”. However, the COVID-19 pandemic dramatically impacted music education between March 2020 and May 2021 because most classroom instruction was virtual during that time frame in Maryland public school systems. The researcher found that many students in this broader age range lacked typical musical and technical development for their years of experience. So, the age requirements were expanded in this study to include possible older students who still played the instrument at the novice level.

The methodology, research problem, expected outcomes, forms of data collection and analysis, and the initial draft of the curriculum and lesson plans are outlined in Chapter Three: Methodology. All lessons were audio and video recorded

so that the researcher could take retroactive observation notes, and the experience of teaching the curriculum is described in Chapter Four: Narrative. In the beginning of the study, participants take a brief Initial Assessment, and at the conclusion of the study, retake the assessment to determine growth in the areas of proper playing position and slide technique, as well as changes in tone quality and intonation tendencies. Results and discussion for this data are presented in Chapter Five: Results and Discussion. Finally, the dissertation concludes with answers to the hypothesized questions, a summary and reflection on the research, knowledge contributed to the field, and recommendations for future work and research on the topic.

The research for the Literature and Resource Review aims to answer the following questions: *1) What is the modern standard for trombone slide technique, including playing position, left-hand and right-hand positions, and action of the slide? 2) How do trombone method books teach these concepts? 3) How do music educators and classroom band method curriculums teach these concepts? 4) What resources are available to the novice trombonist to aid in the development of proper playing position and slide technique?*

It is hypothesized that there will be some variation in the standard for slide technique and that philosophies have shifted over time, so the most up-to-date resources are considered. Next, these instrument-specific methods likely do not cater to the novice trombonist, and the exercises will be too advanced for students with limited music reading and playable range abilities. Finally, the research leads to band method books and resources to find information to aid the trombonist, but again, little

material will be discovered that relates to the development of proper playing position and slide technique.

Gaps made apparent in Chapter Two: Literature and Resource Review inform the curriculum, which asks the following questions: *1) Can novice trombonists master proper playing position, including left-hand grip and support of the instrument and right-hand grip of the slide? 2) Can novice trombonists move the slide with accuracy and efficiency? 3) Does proper playing position and movement of the slide improve overall tone quality? 4) Does proper playing position and movement of the slide improve intonation tendencies?*

The researcher's hypothesis believes that novice trombonists can learn and begin the process of mastering proper playing, including left-hand grip and support of the instrument, and right-hand grip of the slide while moving the slide with accuracy and efficiency. Students who are small-statured may struggle with aspects of holding and manipulating the instrument, but this is a skill that can be implemented to the student's best ability with the assumption that over time, will become easier and more attainable for those who are still growing. It is also believed that improvement in playing position and slide technique will improve both tone quality and intonation tendencies. While these skills take years for refinement and true mastery, novices of the instrument will show improvement in both areas through the implementation of the exercises taught in the researcher-developed curriculum.

CHAPTER 2: LITERATURE AND RESOURCE REVIEW

2.1 Introduction

The purpose of the Literature and Resource Review is to survey modern resources that are available to the music educator, private teacher, and novice trombonist, while assessing their content for pedagogy related to right-hand slide technique for the novice trombonist. The research includes materials that can be used in the classroom setting, in sectionals or group lessons, private lessons, and in the novice's personal practice. Additionally, the survey investigates what research has currently been done on novice trombone pedagogy in order to discover apparent gaps in knowledge or resources for right-hand slide technique.

As stated in Chapter One: Introduction, the research questions posed in this dissertation include: *1) What is the modern standard for trombone slide technique, including playing position, left-hand and right-hand positions, and action of the slide? 2) How do trombone method books teach these concepts? 3) How do music educators and classroom band method curriculums teach these concepts? 4) What resources are available to the novice trombonist?* Sources investigated to answer these questions include dissertations from approximately the year 2000 to present, band method books from the late 20th century to present, trombone methods, articles, and other sources from the 20th and 21st centuries. The primary reasoning behind the time periods listed above is because these sources are most easily obtainable to the present-day music educator and trombonist. Additionally, music education and trombone pedagogy has evolved over the 20th and 21st centuries, and exploration into

older materials leads to duplicate information or inaccurate, outdated information. Some of the trombone methods date from the beginning of the 20th century for the purpose of highlighting discrepancies and debate amongst belief in certain aspects of right-hand slide technique, such as movement of the wrist, which will be explored later in this chapter.

After a thorough investigation into the literature and resources, it is apparent that there are instructional gaps in instrument-specific pedagogy for the novice trombonist. While there are numerous method books in publication today, the research could not uncover methods written with the novice in mind. The trombone is a unique instrument, and it requires specialized attention as it is the only instrument in the band that: 1) uses a hand-slide to change pitch, rather than valves or keys; 2) changes shape when moving to pitches outside of the natural harmonic series, causing it to be cumbersome and awkward to hold and maneuver for the novice; 3) has no notches, frets, or other absolute indicators of where the positions should lie on the slide; and 4) has the potential to be the purest and most in-tune instrument when played at the highest level but the most out-of-tune in the beginning stages. All these hurdles affect the strength of the beginning band trombone sections by impacting note accuracy, intonation, tone quality, rhythm, and sightreading skills. Without a supplemental instructional aid to address these issues, the music educator and private teacher are left to create their own handouts of exercises to help the budding musician develop and refine technique. Ultimately, this literature and resource review identifies the pedagogical standard for trombone technique, resources that are available for

teachers and students of the instrument, and uses the apparent gap in instruction for novices to inform the curriculum draft presented later in Chapters Three and Four.

2.2 Research

2.2.1 Dissertations

Initial exploration into this field of study included examining doctoral dissertations to discover what research has already been completed on this topic. When one searches for “trombone” in the WorldCat database with the dissertations and thesis filtered from the year 2000 to present, it yields 520 results. Upon adding an additional filter with some sort of variation on “beginner pedagogy” or “slide technique,” fewer than twenty papers result. Of those twenty, eight provided insight into the pedagogy and practice of right-hand slide technique—half of which discussed general techniques of specific trombone pedagogues and the other half exploring the actual methodology in the field. All dissertations were examined for discussion related to slide technique at all playing levels to look for common themes and differences in schools of thought. Commentary related to the manipulation or action of the slide was the most abundant amongst the dissertations, including slide speed, right arm tension, synchronization of articulation and slide movement, fluidity of the right arm versus stopping in each position, and the use of the wrist versus the elbow as the primary moving joint.

The trombone is the only instrument in the band that utilizes a hand-slide to change pitch, and sometimes the player moves inches to get from one position to the other, while other times requires nearly two feet for the longest positions. In the

Dunwoody Mirvil dissertation, “Dr. Nathaniel O. Brickens: His Pedagogy, Career, and Influence on Trombone Performers and Educators,” Brickens states that, “the slide movement should consume the same amount of time as a movement from the second position to the first position...the trombonist must negotiate the distance between 1st and each of the other six positions in the time that a valve player engages the appropriate valve or valves (several feet versus an inch).”¹ This difference in length between pitches means that the slide arm is constantly moving a varying distances to reach the next note, so speed and efficiency are paramount. Brickens continues to say, “the physical maneuver of the right arm and hand must be done in a highly relaxed manner...efficient slide manipulation is one of the most difficult elements of trombone playing to master.”² Irvin L. Wagner, Professor of Trombone at the University of Oklahoma, echoes these sentiments and says that the simplest way to encourage efficient and accurate slide movement is to tell the student to relax one’s arm, rather than delving into the semantics of anatomy of the right arm and shoulder to do so.³

Though the slide arm should remain relaxed while playing the trombone, speed and accuracy is crucial for intonation, sound, and cleanliness of articulation and rhythm. To synchronize these movements, Brickens asks his students to sing the pitches while holding the instrument in playing position and moving the slide to the correct positions on time. He also utilizes various legato long-tone and scale exercises

¹ Dunwoody Mirvil, “Dr. Nathaniel O. Brickens: His Pedagogy, Career, and Influence on Trombone Performers and Educators” (DMA diss., Florida State University, 2018), 68.

² Ibid.

³ Wayne Ray Clark, “Teaching Concepts and Techniques Utilized by Three American Trombone Professors” (DMA diss., University of Oklahoma, 1996), 92-93.

at varying speeds to coordinate the “tongue, slide, embouchure, and ear,” insisting that, “perfect synchronization is a must!”⁴ Similarly, Wagner asks students to “tongue a lot of notes to develop quickness of the slide” and to move the slide rhythmically with the note changes.⁵ When troubleshooting trombone sections that have smearing sounds or slow slides, Bruce Edward Faske, Artist Instructor of Trombone at Arkansas State University, warns that it may be due to a lack of attention that causes the lazy, imprecise movement of the slide.⁶ This emphasis on synchronization not only impacts clarity, rhythm, and tone, but also encourages more accurate intonation. However, should one stop the slide on every note for the best accuracy and timing?

Opinions differ slightly when discussing rhythmic action of the slide: some advocate for a complete fluidity of the slide that is constantly in motion with a loose wrist, while others suggest that you must always stop on every given note no matter tempo or style. Still, others fall in between and use a combination of fluidity and stopping the slide depending on tempo and duration of the pitches. The late Vern Kagarice, former Professor of Trombone at the University of North Texas, speculates that the pure “slide stoppers” derived from an orchestral setting where any glissandi or portamento in the sound was absolutely forbidden, and he advises one to watch jazz trombonists for a proper model of slide technique.⁷ Similarly, Edwin D. “Buddy”

⁴ Mirvil, “Dr. Nathaniel O. Brickers,” 68.

⁵ Clark, “Teaching Concepts and Techniques,” 262-263.

⁶ Bruce Edward Faske, “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” (DMA diss., University of Alabama, 2013), 42-43.

⁷ Clark, “Teaching Concepts and Techniques,” 68.

⁷ Bruce Edward Faske, “A Matter of Coordination,” 17-20.

Baker, renowned jazz trombonist who toured with Stan Kenton, Woody Herman, and Henry Mancini, states:

“It depends on how fast you are going. I think there is a speed where the slide turns “liquid” as I say and doesn’t stop for each note. I know some guys who say to stop, but I don’t believe it. You’d drive yourself nuts as a jazz player if you stopped for every note. I don’t believe it in classical music as well. I don’t do that. I don’t stop for every note. It depends on the speed. There is a speed where the time between the notes is at a certain point where the slide cannot stop, and you are depending strictly on coordination of tonguing at the right time. That’s why you do a lot of slow scales. I have known players who stopped the slide, and you can’t believe what they go through. All of that tension created by stopping the slide ends up in your throat, your tongue, your face, and your breathing apparatus. It’s the hard way to do it. But you know, the trombone world is full of a lot of very good players who do it the hard way, and who teach other people to do it the hard way.”⁸

Adam Johnson, Assistant Professor of Music at University of Louisiana Monroe, also advocates for the slide to glide smoothly without stopping in rapid passages such as the “Storm Scene” excerpt from Rossini’s *William Tell Overture*. He says, “there simply is not enough time to place the slide into every position, stopping the motion for each note and restarting for the next.”⁹ Like with any technique, there will always be individuals on the extreme ends of the spectrum, but most pedagogues fall in the middle and state that slide-stopping depends on speed, note length, and rhythm.

Another point of contention is the stability and use of the wrist when manipulating the slide. Like slide-stopping, some advocate for a loose flexible wrist similar to what one would use for slide vibrato, while others recommend a predominately straight or neutral wrist that aligns with the forearm, only moving it to make fine tuning adjustments. Bruce Edward Faske highlights these varying approaches in his discussion of the pedagogy of Emory Remington, Andre Lafosse,

⁸ Clark, “Teaching Concepts and Techniques,” 32.

⁹ Adam Johnson, “Fundamental Approach to Trombone Technique: A Comprehensive Strategy for Addressing Common Technical Deficiencies in Trombone Performance” (DMA diss., Ball State University, 2010), 43.

Denis Wick, and Edward Kleinhammer: Remington advocated for a loose wrist that acted as a hinge while still under control, using the elbow only for large position changes; Lafosse and Wick utilized a more ridged wrist that stays in line with the forearm and allows the hinge of the elbow to control the position changes in a gentle manner that avoids unnecessary tension; Kleinhammer rotated his wrist “to a comfortable angle halfway [between] 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.” Faske likens this motion to reaching out to shake someone’s hand and then bringing it back to the body to maintain a natural motion and angle of the wrist.¹⁰ Notably, “Buddy” Baker, whose abundant experience as a jazz trombonist required mastery of playing fast passages, states that he does not use the wrist other than for “spring” in the slide and allows the elbow to control the first four positions and the shoulder and twisting of the body to reach the remaining three positions. He states that he prefers this method because it removes the variable of having an extra hinge joint (the wrist) and allows for a consistent feel in his arm for each position’s placement.¹¹

Regarding left-hand and right-hand grip, all sources advocate for the weight distribution of the instrument to always remain in the left hand and arm, freeing up the right hand to only move the slide. Young students may have issues holding the instrument due to fatigue or small hands that cannot fully wrap around the bell and

¹⁰ Bruce Edward Faske, “A Matter of Coordination,” 19.

¹¹ Clark, “Teaching Concepts and Techniques,” 31-32.

slide braces and may need frequent break to avoid developing poor postural and playing position habits. When the left hand and arm does its job, the right hand should grip the hand-slide brace with the first two fingers and a thumb, freely moving the slide back and forth while always maintaining contact with the brace at the bottom where it meets the lower outer slide. Lastly, trombone slides are easily damaged, and require regular care and maintenance, otherwise no amount of proper slide technique practice will achieve a smooth, quick slide.

Of the dissertations analyzed, only three addressed pedagogies with the novice trombonist's instruction in mind. Bruce Edward Faske, "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 (2013)," outlined fundamental concepts for proper playing position, hand position, and action of the slide while also addressing common hinderances in classroom instruction and in the young trombonist in general. Adam Johnson, "The Fundamental Approach to Trombone Technique: A Comprehensive Strategy for Addressing Common Technical Deficiencies in Trombone Performance (2010)" also thoroughly outlines standards for slide technique and makes suggestions for addressing poor execution or habits. Joel Shonkwiler, "A New Model for Beginning Trombone Lessons (2010)," acknowledges the gap in idiomatic instruction for novice trombone students and proposes a beginner method book catered to trombonists with a curriculum that appears to extract songs and exercises typically found in band methods that is supplemented with lesson plan instructions. While all three dissertations provide useful insight for working with young trombonists, none provide

notated trombone-specific exercises that aid in the instruction, development, and refinement of right-hand slide technique. Additionally, no beginner methods are referenced, and no field studies are conducted to test out theories, exercises, and pedagogical instruction with their intended student audiences. This gap in dissertation research leads to the examination of scholarly articles in the next section.

2.2.2 Articles

Upon searching the journal archives of the International Trombone Association (ITA), two articles stand out for being most relevant to the topic of this dissertation. The first, an article from 1984 written by Vern Kagarice entitled “Slide Technique—Some Basic Concepts”, which echoes many of the sentiments stated in the dissertation section of this chapter, including: 1) the trombone must be held exclusively in the left hand, otherwise the embouchure will take unnecessary abuse as the mouthpiece bumps against the lips when the right hand moves from one slide position to another; 2) slides must be kept in excellent mechanical condition, otherwise the outer tubes cannot track over the inner tubes smoothly, 3) unnecessary tension in the right hand, wrist, and arm causes issues with tone quality, articulation clarity, and embouchure endurance, 4) the slide should move rhythmically while the arm coordinates the large movement between slide positions leaving the wrist to perform any necessary subtle tuning movements. To practice the coordination of the arm movement with the rhythm, Kagarice suggests removing the tongue completely, “smearing the passage in question until total slide accuracy and efficiency is

achieved.”¹² Some of the authors of the dissertations mentioned in the previous section used this article as a resource in their own dissertations, and examining this source directly yielded no additional knowledge for the standard of proper slide technique. However, the second ITA article discusses the pedagogical topic from a different mindset.

The second article of interest is from 2011, is entitled “Trombone Slide Motion: An Alternate Position” by David William Brubeck, bass trombonist, composer, and Professor of Music at the Miami Dade College Kendall Campus. The article discusses similar concepts as Kagarice’s article and the aforementioned dissertations, such as holding the instrument entirely with the left arm and removing the tongue as an exercise for efficiency. However, Brubeck brings a new approach to the table regarding right arm position. Rather than raising the right hand to the instrument and establishing contact with the brace in the closed, first position, he advises to move the slide to fourth position to find the natural placement of the elbow at the midpoint of the slide. This shift to thinking of fourth position as a home base requires the player to reach in for first but also makes reaching the longer positions more easily and accessible. Additionally, rather than advising his students to move the slide as fast as possible between positions like most other resources and pedagogues state, he “frequently [instructs] them to move the slide “as slowly as possible.”¹³ He warns that a fast movement of the slide in shorter position shifts is likened to flooring a car to move it a short distance into a parking space and that the

¹² Vern Kagarice, “Slide Technique—Some Basic Concepts,” *International Trombone Association Journal* XII, no. 2 (April 1984): 21-23.

¹³ David William Brubeck, “Trombone Slide Motion: An Alternate Position,” *International Trombone Association Journal* 29, no. 2 (April 2011): 12-13.

tension created in the right arm impedes maximum resonance of the horn. The motion of the slide and resonance of sound depend on an uninterrupted flow of rich air, and the body's natural response to tension prohibits the breath from doing its job.

Ultimately, he argues the player should find a balance that is just fast enough to reach the next position without smearing. While the "too fast" approach risks tension and a disruption of purity of sound, the "too slow" approach yields merely a possible smear or glissando, a unique aspect of the trombone that should be "embraced and willfully exercised!"¹⁴

2.2.3 Websites

Both articles provide valuable information regarding the standard for proper slide technique and show the player that there are different ways to approach and develop good slide technique. However, the intended audience was not novices, and the exercises provided were written with the advanced student and professional in mind. Two websites that cater towards novice trombonists and their instructors, are *Brass Techniques and Pedagogy*, authored by Brian N. Weidner, and *Teaching Brass* by David Vining on the Mountain Peak Methods website. Weidner provides the reader with thorough directions for instrument care, assembly, posture, playing position, slide technique, and common pitfalls to be aware of when setting up a novice trombonist. While this is a valuable resource for non-trombonist music

¹⁴ Ibid, 13.

educators and private teachers, it provides no direction for specific exercises to improve and develop slide technique.¹⁵

David Vining's website, *Teaching Brass*, supplements his textbook, *Teaching Brass: A Guide for Students and Teachers*. In addition to covering introductory information about the beginning stages of the trombone discussed in the dissertations and articles, the resource provides photographs of playing position, audio recordings comparing incorrect playing issues to an ideal model, video recordings guiding the player or teacher through various techniques, and supplemental materials like homework handouts, fingering charts, and suggested daily routines. When working with beginners, Vining suggests that the easiest way to change notes is to move horizontally, starting with good, solid sound in first position and descending one position at a time on the partial while maintaining the same formation for lips and use of air. To work on slide technique, specifically maintaining the integrity of the grip, he recommends that the student hold a coin between the thumb and brace of the hand-slide to ensure continuous contact and positioning of the thumb. He provides notated exercises to aid in the development of various techniques but does not specifically address exercises for the novice.¹⁶

2.2.4 Pedagogical Devices

¹⁵ Brian Weidner, "The Trombone," Palni Press, accessed April 15, 2022, <https://pressbooks.palni.org/brasstechniquesandpedagogy/chapter/the-trombone/>.

¹⁶ David Vining, "Teaching Brass," Mountain Peak Methods, accessed April 15, 2022, <https://mountainpeakmethods.com>.

A common theme across all research sources is the discussion of holding the instrument properly with the left hand to manipulate the hand-slide efficiently with the right. The trombone is an awkward, cumbersome instrument for the novice, and the small stature and hands of first-year band students dramatically increases the issue of stability of the horn while extending the right arm for all seven slide positions in a fluid, accurate manner. To address these issues, inventors have created pedagogical devices that help with either the left hand or arm support of the instrument or right arm reach of the slide positions. Descriptions of each device are in Appendix A. Of the nine devices, four are intended to aid the support of f-attachment tenor trombones and double-valve bass trombones because those instruments do not utilize the bell brace for left thumb support, leaving the digit free to depress the f-valve. Those devices include the Bulletbrace, Trombone Ax Handle, Haggmann RM09 Trombone Hand Rest Support, and Rath Trombone Hand Rest Support. However, the WiseGrip, Yamaha YAC1535P, Neotech Trombone Grip, Get-A-Grip, and Extendabone all can be used with any size instrument, with or without a valve.

The WiseGrip is the easiest left hand support device to utilize as it simply clips on and off the upper slide brace for easy attachment and removal. The purpose of the device is to round out the connection and provide a greater surface area between where the first slide brace meets the lower outer slide tube (where the second, third, and fourth fingers of the left hand carry much of the weight of the instrument). This comfortable solution is ideal for hands of all sizes. The Get-A-Grip also easily attaches and removes from the lower cork barrel and provides any sized hand additional support of the instrument, though it does take some experimentation

to bend the device to the appropriate angle. Like the Get-A-Grip, the Yamaha YAC1535P transfers the weight of the instrument from the fingers to the hand and forearm, but it requires looping one end around the shank of the mouthpiece and velcroing the other end around the back of the hand and palm. This device is likely not ideal for the first few weeks of playing the instrument as it can be confusing and cumbersome to coordinate attaching it to the instrument. In the long term, it could provide comfort and support after the student adjusts to the initial basics of holding and maneuvering the trombone. The Neotech Trombone Grip attaches to the trombone through a bushing that wraps around the lower cork barrel of the hand-slide, which requires a screwdriver to assemble. Once the ideal angle of the handgrip is set, the hand brace clips on and off for removal and attachment. Even for larger hands, this act takes some practice to get used to the proper angle needed to snap the device on, so it may be challenging for small hands and likely would need guidance and practice until the young player is able to do it on one's own. However, once mastered, this grip provides support and comfort using neoprene material to hug the hand against the brace while balancing the instrument with the larger forearm muscles. The final device is the Extendabone, which is the only readily available aid on the market that addresses issues with right arm reach. It is an extension handle made of plastic, which clips onto the second hand-slide brace and allows a user with shorter arms to reach sixth and seventh positions more easily. Getting used to holding the handle rather than the brace might be challenging initially, but with some practice, novices can reach all positions of the instrument with the potential of playing them in tune. One crucial caveat of this device is that the student must be able hold the weight

of the instrument entirely in the left hand, arm, and shoulder. If any weight transfers over to the right hand, the Extendabone may disconnect from the brace. To address this issue, the teacher might consider outfitting a left-hand supportive device and teach proper weight distribution of the instrument before adding the extension to the hand-slide.

The dissertations, articles, websites, and pedagogical devices provide the opportunity to see what research and inventions have been developed to aid right-hand slide technique for trombonists of all ages and abilities. Much of the discussion provides generic advice for established students of the trombone, but little has delved into exercises that might aid the novice trombonist and encourage the development of proper playing position and slide technique sooner in one's journey of learning the instrument. This apparent gap in the research and study of novice trombone pedagogy directs the remaining literature and resource review research—trombone-specific methods as well as classroom band methods—in this chapter in addition to informing the development of the curriculum outlined in Chapters Three and Four.

2.3 Trombone Methods

Trombone method books were analyzed for their descriptive pedagogical content regarding left-hand placement, right-hand grip, wrist, and action of the slide as well as for exercises that specifically address slide technique. Standard methods that were created for the advanced to professional trombonist were considered first to establish the standard of slide technique within the professional trombone community. Then, beginner methods were investigated so that the research could

discover resources adapted and available for the novice trombonist. Methods that did not contain instructional commentary from the author were not included in the gathering of resources for this project because the focus of this dissertation is to aid classroom and private instruction. Those methods require a specialist of the instrument to explain why certain exercises benefit the refinement of proper slide technique, and the non-trombonist music educator may not be able to deduce those reasons without purpose and direction from the author of the method book. An example of a standard method book that contains little-to-no verbal direction beyond some suggestions for articulations is the *Kopprasch 60 Selected Studies for Trombone*.¹⁷ Instead, the research focuses on instructional methods such as various trombone editions of the Arban method, Reginald H. Fink: *Introducing Legato for Trombone* and *Studies in Legato for Trombone*, *The Remington Warm-Up Studies* edited by Donald Hunsberger, Denis Wick: *Trombone Technique*, Ben van Dijk: *Ben's Basics for Trombone*, Brad Edward: *Lip Slurs: Progressive Exercises for Building Tone & Technique*, David Vining: *Trombone Intonation Mastery*, and Edward Kleinhammer and Douglas Yeo *Mastering the Trombone*, 4th Edition.

Out of the ten advanced methods, approximately half address the importance of left-hand support of the instrument, and those that did were all in agreement that it is imperative that this arm carry the entire weight of the instrument, freeing up the right hand to move the slide. Ben van Dijk and Reginald H. Fink both state that if the left hand does not keep the instrument supported and steady, then the mouthpiece will

¹⁷ C. Kopprasch, *Kopprasch: 60 Selected Studies for Trombone* (New York: 1905).

bump against the embouchure when the right arm changes slide positions.¹⁸ These bumps not only impact the evenness of sound but could also hurt the player's lips. Fink suggests checking one's left-hand support by only holding the instrument in the left hand and then bringing up the right hand to move the slide.¹⁹ Furthermore, Denis Wick warns that supporting the instrument entirely in one hand, "may seem very difficult, if not impossible," for beginners and that "supporting the weight of the trombone with the right hand will cause premature wear on the outer slide and distort the inner slide, as well as possibly giving rise to bad intonation." Additionally, he says that the left index finger's placement on the mouthpiece receiver or shank improves stability considerably, but he does not address what to do with beginners' hands who might be too small to reach that far with the index finger.²⁰

The authors of the selected methods agree about the right-hand grip, which is created by using the thumb and first two fingers to firmly grip the slide. Fink argues that more than two fingers will slow the action of the slide while Wick states that the slide should be primarily held by the thumb and index finger and only using an additional finger for support.²¹ Alessi states in *Arban Complete Method for Trombone & Euphonium* that the fingers should remain in contact with the slide²², while the earlier Charles L. Randall and Simone Mantia edition (*Arban Famous Method for Slide and Valve Trombone and Baritone*) states, "the slide should be freely thrown

¹⁸ Ben van Dijk, *Ben's Basics for Trombone*, (Netherlands: 2004), 15.

Reginald H. Fink, *Introducing Legato for the Trombone*, (North Greece, NY: 1993), 2.

¹⁹ *Ibid*, 7.

²⁰ Dennis Wick, *Trombone Technique*, (London: 2011), 15.

²¹ *Ibid*.

Fink, *Introducing Legato*, 7.

²² Joseph Alessi and Brian Bowman, *Arban Complete Method for Trombone & Euphonium*, (Troy, MI: 2002), 11.

between the thumb and fingers of the right hand,” and “the player must learn to throw the [slide] to the finger-tips for seventh position.”²³ With most modern pedagogues advising one to maintain contact with the brace at all times, the idea of throwing the slide appears to be an old, outdated approach to the technique. Instead, the constant contact with the fingers gives the player more control and accuracy over the slide.

The wrist, in general, should be kept neutral but flexible to make minor adjustments for intonation. Alessi, Wick, and Vining state that too loose of a wrist will impact intonation or cause smears in the sound,²⁴ while van Dijk states that he uses a more flexible wrist like one would utilize for slide vibrato so that it is easier to move quickly and stop precisely.²⁵ There is a consensus regarding action of the slide, which should ideally move as quickly and as late as possible to get to the next position right on time. Alessi and Wick state that the thumb initiates the movement of the slide outward while the two fingers pull the slide back towards first position in a cushioned, braking manner,²⁶ while Vining suggests thinking of gliding the slide, rather than the pushing or pulling motion.²⁷

Most authors state that the slide should remain in a position for as long as possible before moving to the next note, but only Wick discusses whether the slide should continuously move or stop for every pitch:

“One important aspect of trombone technique that is often overlooked is the fact that however short the notes in running passages may be, they do still have a definite duration. The old-fashioned concept of a continuously moving slide is no doubt graceful to look at, but certainly guarantees that some notes are played out of tune. The slide must stay in the correct position for the duration of the note, however

²³ Charles Randall and Simone Mantia, *Arban's Famous Method for Slide and Valve Trombone and Baritone (Bass Clef)* (New York: Carl Fischer, 1936), 11.

²⁴ Alessi, *Arban Complete Method*, 11.

²⁵ Dijk, *Ben's Basics*, 15.

²⁶ Alessi, *Arban Complete Method*, 11.

²⁷ David Vining, *Trombone Intonation Mastery*, (Flagstaff, AZ: Mountain Peak Music, 2010), 7.

short it may be. This idea will often give rise to the somewhat odd effect in fast passages that the slide appears to click into place, to ‘slot’ into each position. It should certainly appear to do this, but in a very controlled way, so as not to jerk the instrument at each movement. If the acceleration and braking are practised thoroughly then the slide action need never be a barrier to the acquisition of a really fine technique.”²⁸

Additionally, Vining is the only author to discuss right-arm technique from an anatomical perspective, freeing up the body to move as naturally and as efficiently as possible:

“When you use your entire arm to trace a straight line, you will use all five jointed areas: fingers, wrist, elbow, upper arm going, and SC joint. The five jointed areas will naturally be used in different combinations as you travel the length of the slide—you will probably use the SC going more in the lower slide positions, for example. There is no need to think about how much wrist to use or whether or not to engage the SC joint because the movement is organic in cooperation with how your body is constructed.”²⁹

Ultimately, there must be a balance between speed, efficiency, and smoothness of the slide, without creating unnecessary tension in the arm, which will cause bumps in the sound and slow the slide. Lastly, the slide must be in impeccable condition and well-lubricated, otherwise all efforts to refine technique will be lost if the slide cannot move quickly and consistently across all slide positions.

Beginner methods were selected based on what is currently in publication on the Hickey’s Music Center online catalogue; these include: Michael Davis and Shari Feder: *Brass Buzz*, Denis Gendron: *Learn from a Pro: 23 Easy Lessons*, Charles F. Gouse: *Learn to Play the Trombone!* (Book 1), Aaron Helvig: *Launch Pad for Trombone: Blastoff! Tone and Technique*, Drummond Hudson: *Let’s Play Trombone*, v. 1, John Kinyon: *Breeze Easy Method 1 Trombone*, and Newell H. Long: *Rubank Elementary Method Trombone* (Appendix A). Of these seven texts, three were written

²⁸ Wick, *Trombone Technique*, 35.

²⁹ Vining, *Trombone Intonation Mastery*, 7-8.

with the novice in mind, including methods by Gendron, Gouse, and Kinyon, and all follow a similar structure to a standard band method with some additional theory and rhythm work included. Other than left and right-hand set-up, the Gendron and Kinyon do not discuss slide technique or provide specific exercises to address the skill set.³⁰ The Gouse mentions the action of the slide once and states, “Keep the air moving and move the slide quickly and smoothly...Think of ‘throwing’ the slide to its next position.”³¹

The remaining texts were not written with the intent of aiding the novice trombonist. The Long and the Hudson both start with easy fundamentals and then quickly progress to more advanced skills within just a few pages; students with at least one year of band experience would not be able to play these methods due to the range and rhythmic expectations in the exercises.³² The Davis and Feder method outlines a daily routine—a series of exercises to thoroughly warm up and refine fundamentals, such as long tones, lip slurs, articulations and scale exercises—for the accelerated novice trombonist who has approximately one year of band experience due to the 1.5-octave range and rhythmic notation required to play the exercises.³³ The Helvig follows a similar format of the Davis daily routine but is even more advanced with a prerequisite of a two-octave range.³⁴ Additionally, these methods do not specifically discuss playing position or slide technique. The Davis and Feder has play-along CD tracks, which encourage the player to adjust the slide to match

³⁰ Denis Gendron, *Learn from a Pro Beginning Method Book & CD: 23 Easy Lessons*, (Danvers, MA: Santorella Publications, Ltd., 2003), 3.

³¹ Charles F. Gouse, *Learn to Play the Trombone*, (New York: Alfred Music Co., 1969), 20.

³² Newell H. Long, *Rubank Elementary Method*, (Chicago: Rubank, Inc., 1989).

³³ Michael Davis and Sheri Feder, *Brass Buzz*, (New York: Hip-Bone Music, Inc., 2005).

³⁴ Aaron Helvig, *Launch Pad for Trombone*, (Flagstaff, AZ: Mountain Peak Music, 2010).

intonation, but those advanced aural skills would also be above the level of most novice musicians.³⁵ With these seven texts offering few specific instructions and exercises for slide technique, modern band methods must be explored as they are the last readily available resource for the novice trombonist.

2.4 Band Methods

Ten band methods published between 1997 and 2020 were selected from the JWPepper catalogue, including (in chronological order): *Accent on Achievement* (1997), *Premier Performance, Book 1* (1999), *The Yamaha Advantage: Musicianship from Day One, Book 1* (2001), *Band Expressions* (2003), *Essential Elements for Band with EEi* (2004), *Standard of Excellence* (2010), *Measures of Success* (2010), *Sound Innovations for Concert Band, Book 1* (2010), *Tradition of Excellence: technique & musicianship for group or private instruction* (2012), *Tradition of Excellence, 2nd Ed.* (2016), and *Habits of a Successful Beginner Band Musician* (2020). Like other sources, each was assessed for content regarding playing position and slide technique (see Appendix A).

All methods discuss the set-up of left-hand grip, but the first four listed do not include any information on weight distribution of the instrument. Interestingly, the *Tradition of Excellence, 2nd Ed.* student trombone book states that the instrument should rest on the left shoulder, which is the first iteration of this information in any source presented thus far.³⁶ For most students, the trombone will angle down slightly

³⁵ Davis, *Brass Buzz*.

³⁶ Bruce Pearson, *Tradition of Excellence*, (San Diego: Kjos Music Press, 2010), 2.

from the head, and most students' necks are too long for the instrument to touch the shoulder while also maintaining proper contact with the embouchure. Instead, the neck-pipe typically uses the neck as a contact point for stability of the instrument. It is possible that a student with an f-attachment tenor or a double-valved bass trombone might rest below the neck, but it would touch the nearby trapezius muscle, which is responsible for raising the shoulder joint, but not the shoulder itself.

The ten methods agree with the set-up for the right-hand grip (thumb and first two fingers) with the exception of *The Yamaha Advantage: Musicianship from Day One, Book 1*, which erroneously states that the left hand holds the hand-slide.³⁷ There is a discrepancy among the texts regarding what one should do with the remaining third and fourth fingers of the right hand. Some state to curl them out of the way into the palm of the hand, others say that they support the slide from underneath the outer tube, and the remaining do not provide specific instructions. *Tradition of Excellence: technique & musicianship for group or private instruction* additionally warns that the student should never reach for the bell to help place the slide in third position as it will impede proper technique and intonation in the student's long-term development.³⁸ Five of the methods address the wrist with four of them stating that it should be relaxed and flexible and one stating that it should be loose.

All methods address the action of the slide in some capacity, and eight of the ten discuss the slide speed, which should move as quickly as possible. *Accent on Achievement* encourages the music educator to not be concerned with out-of-tune

³⁷ Sandy Feldstein, *The Yamaha Advantage: Musicianship from Day One. Conductor Score*, (New York: Carl Fischer, 2001), 2.

³⁸ Bruce Pearson, *Tradition of Excellence: technique & musicianship for group or private instruction. Conductor Score*, (San Diego: Neil A. Kjos Music Company, 2012), 318.

sixth position C's because the students are still growing, and their arms are not always long enough to properly reach it.³⁹ However, *Measures of Success* and *Sound Innovations for Concert Band, Book 1* troubleshoots this issue by suggesting that the music educator ask the students to rotate or roll their shoulders forward to extend the slide further.⁴⁰ Beyond discussion of the use of alternate positions (which this dissertation does not discuss), and teaching *glissandi*, the methods address little else regarding slide technique. *Sound Innovations* does have a useful online tool called "SI Online," and it provides guidelines for proper slide position placement through a video demonstration by Cincinnati Symphony Orchestra trombonist, Joseph Rodriguez:

"Slide Position Guidelines: third position [is] right next to the bell (don't reach for it, aim for it); second position [is] right in between one and three; fourth position, [the] end of [the] outer slide is next or just past the bell; sixth position is really far out but before you can see the stockings (if you can see the stocking, it is too far), probably where your arm is fully extended; fifth position is between fourth and sixth position; seventh position is where the slide is past the stocking—be careful to hold the slide so the slide doesn't fall off; Go down or to the side to reach seventh position."⁴¹

Lastly, *Tradition of Excellence*, is the only text to introduce lip slur exercises through notation of the first position iteration of the exercise and subsequently asking the trombonist to continue the exercise down the remaining slide positions through seventh.⁴² This approach allows the student to focus on the sound and pattern of the exercise rather than worry about reading unfamiliar pitches, an idea that is later explored in the researcher-developed curriculum in Chapter Three: Methodology.

³⁹ Mark Williams et al., *Accent on Achievement, Conductor's Score, Book 1*, (USA: Alfred Publishing Co., 1998), 52.

⁴⁰ Deborah Sheldon et al., *Measures of Success: A Comprehensive Musicianship Band Method*, (Fort Lauderdale, FL: The FJH Music Company, Inc., 2010), 275.

⁴¹ Robert Sheldon et al., *Sound Innovations for Concert Band: A Revolutionary Method for Beginning Musicians*, (Los Angeles: Alfred Music Publishing, 2010).

⁴² Pearson, *Tradition of Excellence*, 16.

2.5 Conclusion

Resources found in this Literature and Resource Review defined the expectation for proper slide technique and addressed common issues with playing position and right arm action of the slide. However, only the advanced methods provide exercises for the trombonist to develop and refine good slide technique. The beginner methods and band methods establish basics for setting up posture and playing position, but the musical exercises are generic in order to cater to general musicianship skills taught in classroom band environments rather than focusing on an instrument-specific skillset.

One of the most challenging aspects of picking up the trombone for the first time is holding the instrument steadily while moving the slide efficiently and accurately. It is imperative that the left hand and arm hold the entire weight of the instrument so that the right hand is free to smoothly glide the slide out and back in without disturbing the mouthpiece connection with the embouchure or the airflow from the body. Then, the young musician must learn how to locate these seven invisible positions with consistency and accuracy. With all these challenges that are uniquely exclusive to the trombone, it appears that there is an instructional gap at the novice level. Music educators who are not trombone specialists could benefit from supplemental material to work with their trombonists in one-on-one or small group environments. The private teacher could benefit from a method book that supplements the students' band curriculum method to help refine the accuracy of slide position placement as well as the manipulation of the slide. It poses the hypothesis

questions: 1) *Can novice students master proper playing position, including left-hand grip and support of the instrument and right-hand grip of the slide?* 2) *Can novice students move the slide with accuracy and efficiency?* 3) *Does proper playing position and movement of the slide improve overall tone quality?* 4) *Does proper playing position and movement of the slide improve intonation tendencies?*

CHAPTER 3: METHODOLOGY

3.1 Human Subject Research

To test and answer the hypothesis questions, the researcher developed a curriculum and field study to discover what kinds of exercises aid in the development of proper playing position and movement of the slide with the hope of improving tone quality and intonation. The researcher used the study to answer the following four hypothesis questions: *1) Can novice students master proper playing position, including left-hand grip and support of the instrument and right-hand grip of the slide? 2) Can novice students move the slide with accuracy and efficiency? 3) Does proper playing position and movement of the slide improve overall tone quality? 4) Does proper playing position and movement of the slide improve intonation tendencies?*

The field study lasted five weeks and took place at the University of Maryland School of Music every Saturday between February 26th and March 26th, 2022. It involved human subject research to test a curriculum created by the researcher to address common hinderances and deficiencies in the developing trombonist (see Appendix D for approval documents from the Institutional Review Board). Due to the impact of the COVID-19 pandemic on education, area school districts were not permitting outside research, so it was not possible to advertise the opportunity directly through the schools and their respective band programs. Instead, the researcher recruited students by communicating the opportunity to area private

teachers and requested that they pass along the information to any potentially interested students or parents. The recruitment materials are in Appendix D.

Over the course of the study, participants received five private lessons, each 30-minutes in duration, and the curriculum included an Initial Assessment, four lesson plans, a review, and a Final Assessment. Four of the five lessons were taught in the trombone studio office with only the teacher and student participant present to preserve a one-on-one instructional environment. The exception to this structure was on March 12th (Lesson #3), which was taught virtually over Zoom due to a winter storm that created hazardous travel conditions throughout the day and impacted the students' abilities to drive to the campus safely.

All lessons were audio and video recorded using a Zoom Q2n-4K Handy Video Recorder so that observation notes could be taken retroactively, freeing up the researcher to focus on teaching the curriculum. The virtual lesson was recorded through the Zoom platform's in-meeting recording feature. Students' names were redacted from all recordings and documents used throughout the study, and all identifying information was coded to mitigate the risk of a confidentiality breach (see coding system in Appendix C).

Due to the COVID-19 pandemic, several protocols were implemented to minimize the risk of exposure to all parties involved: only the researcher and student were permitted in the room, musician masks and bell covers were utilized, all contact surfaces were disinfected between participants, the room was equipped with a HEPA filter air purifier, and the room had a period of rest between participants. To maintain social distancing, the teacher and student sat across the room from one another with

the direction of the bells facing each other to allow for optimal audiation of one another's sound through the limitation of the bell covers. The researcher sat in a swiveling chair so that one could easily rotate to the left to show the student a side-angle view of playing, such as if demonstration of slide movement or placement was needed. If the researcher needed an immediate view of the slide from a side angle, then one would stand and move to the side of the room to obtain the appropriate angle. The recording device was positioned to the participant's right, facing at a 90-degree angle to best capture the playing position and right arm slide technique, which allowed the researcher to retroactively capture observation notes and data from this direct vantage point.

Time was the main factor when considering the number of participants to admit to the study. Due to the one-on-one nature of the instruction, each student received 150 minutes of individual instruction over the course of the study (five lessons multiplied by 30-minutes per lesson), and the review of the lesson footage took between 150-210 minutes per student for a total of 300-360 minutes (5-6 hours) instruction and observation hours per participant. For these reasons, the enrollment was capped at a small number of participants. Due to the progressive structure of the curriculum where one lesson builds upon the previous, students were required to attend all five lessons, or they would be disqualified from the study. Initially, the researcher intended to accept five students, but with the potential risk of a participant contracting COVID-19 still high because of a new variant, omicron, causing a surge in cases in the area at the time, six total students were accepted to provide a buffer in the instance that one or more individuals had to withdraw. After multiplying the

instructional and observation hours by the six participants, the total time required for the study was approximately 30-36 instructional and observational hours. Keeping the study limited to six students allowed a large enough sample size to assess the effectiveness of the curriculum and instruction with a variety of novice trombonists while keeping the study small enough to condense the findings into a written Doctor of Musical Arts dissertation.

The purpose of the research is to address common hinderances and deficiencies in the novice trombonist, so eligibility requirements were limited to students who were: between the ages of 10-13 years old, had fewer than three years of traditional classroom band experience, and were able to play, at minimum, the pitches B-flat₂, C₃, D₃, E-flat₃ and F₃. Students in Maryland typically join formal band classes in 5th or 6th grade, so the age range of recruited students was capped at 13 years old to meet the requirement of having fewer than three years of traditional band experience. Trombonists with more than three years of experience would be too advanced for this study's focus of addressing the gap in beginner trombone methods and resources. The minimum pitch requirement listed above is necessary so that the student had enough of a foundational skill on the instrument to read music, form an embouchure, and be able to focus exclusively on the improvement of the right-hand slide technique.

Information regarding sex, gender, race, ethnic origin, religion, or any social or economic qualifications were not asked in the recruitment process and were not a factor when accepting participants. The rationale behind this is that the focus was on the individual participant's years of experience of playing the trombone. The

eligibility criteria were ensured by confirming with both the private teacher and parents that the potential participant met the above age, experience, and minimum playing ability requirements. Students were recruited by advertising the study to area private teachers who then forwarded the flyer and information sheet to additional contacts to spread the word about the opportunity (see Appendix D for recruitment materials).

No monetary compensation or other incentives were listed in the recruitment flyer, but it did draw attention to the fact that students would receive 150 minutes of instruction at no cost to them. Additionally, improvement in right-hand slide technique, note accuracy, intonation, tone quality, rhythm, and sight-reading skills were all listed as possible benefits. Ultimately, six participants signed up for the study and completed all five lessons, and they included one fifth grader, one sixth grader, and four seventh graders. Experience ranged from three weeks to 2.5 years; however, it should be noted that many of the participants' music education was disrupted from March 2020 until May 2021 due to the COVID-19 pandemic. Five of the participants were enrolled in band classes during that time, and most were likely negatively impacted by having only virtual instruction for over a year of their designated experience.

3.2 Research Problem

3.2.1 Gaps in Literature

The knowledge and inherent gaps discovered in Chapter Two: Literature and Resource Review informed the creation of the curriculum. The trombone methods, dissertations, and articles discussed the importance of developing a proper playing position, including posture, left and right-hand grips of the instrument, and efficiency of the motion of the slide. Many band methods discuss the basic components of setting up proper hand position, but most do not discuss the crucial aspect of keeping the weight of the instrument in the left hand or provide exercises to implement this habit. Lesson #1 of the curriculum covers posture, playing position, slide motion, and provides exercises to test the student's ability to maintain the correct weight distribution.

Most trombone methods, even those labeled as “elementary” or “beginner” are too advanced for the novice trombonist, which leaves the student and the private teacher with only the band method to use as the curriculum. These methods progress at a set pace to accommodate all the different instrument sections that comprise a beginner band. Students learn one note at a time, and slide technique development is dependent on that gradual introduction to notes. Lesson #2 addresses this gap by introducing all seven slide positions in the beginning using long-tone glissando exercises. The benefit of the trombone is that the student does not need to be able to read music or have an extensive range to be able to play these types of exercises, and they can be taught rote with the teacher demonstrating and the student mimicking sound and motion of the slide.

Many advanced trombone methods discuss the importance of the rhythmic slide, such as the Joseph Alessi and Brian Bowman edition of *Arban Complete*

Method for Trombone and Euphonium.⁴³ Beginner methods and band methods do not discuss this concept at all, so Lesson #3 builds on the exercises from Lesson #2 by implementing articulation and rhythmic patterns to emphasize the rhythmic motion and timing of the slide. Lesson #4 builds on this idea by incorporating the patterns into fragments of the chromatic scale. It also helps to encourage the novice to separate the motion of the right arm and slide from the stability of the instrument and air support, another crucial concept discussed in advanced methods and not beginner or band methods.

3.2.2 Expected Outcomes

Novice students can and should be held to the standards of proper playing position and slide motion so that they establish a solid foundation for long-term development on the instrument. Improper playing position and unrefined slide technique impedes tone quality, intonation, note reading skills, and maintaining proper contact with the mouthpiece and embouchure. Addressing these fundamental skills in the early stages of learning the instrument will allow the student to have the skillset to focus on more advanced concepts such as musical expression and refinement of the basic techniques. The definition of proper playing position includes:

- 1) Left Hand: The left thumb holds the bell brace, the first finger stabilizes against the mouthpiece shank or receiver (ideally, if the student's hand is

⁴³ Alessi, *Arban Complete Method*, 29.

large enough), and the remaining three fingers wrap around the first hand-slide brace. The left hand, arm, and shoulder work together to support the entire weight of the instrument, freeing the right hand to glide the slide. Indications that the left arm is not fully supporting the weight instrument include swaying of the bell, degradation of posture (collapsed elbow or torso tilting), and jerking of the slide due to transference of a portion of the weight to the right hand.

- 2) Right Hand: The thumb and index finger primarily grip the hand-slide's second brace near where the brace meets the lower outer tube of the slide, and the second finger is used for additional support. The third and fourth fingers should remain relaxed and uninvolved except for the support of the slide during the full extension of the shoulder, arm, and hand when reaching for sixth and seventh positions. The wrist should remain neutral and in line with the forearm. For the purposes of working with novices, who are not likely to have the aural skillset to adjust the slide on a micro level for intonation accuracy, the wrist should not initiate any slide movement. Instead, the thumb and first two fingers glide the slide while the degree of the elbow angle controls the position placement. For longer reaches, such as fifth position and beyond, the student's shoulder should naturally roll forward to facilitate maximum extension.
- 3) Slide Motion: The slide is pushed out with the thumb driving it and brought back in with the first two fingers gliding it back in while the thumb maintains contact. The slide should move smoothly and efficiently,

while rhythmically arriving to the next pitch on time. For the purpose of this novice curriculum, the slide should stop in every position on time and remain there until necessary to arrive on time to the next position. No exercise is fast enough to require the slide to be in constant motion, and the slower, deliberate exercises will help foster muscle memory of proper slide position placement. The only exception to this guideline for the speed of the slide are the *glissandi* exercises in Lesson #2 where the student is encouraged to move the slide in a slower, controlled manner to maintain tone quality and allow time to gradually find the proper placement of the slide for the given position.

It is expected that through the introduction and implementation of all components of proper playing position, the students' tone quality and intonation will improve. The refinement of slide placement and the independence of the right arm motion from both the left-arm stability of the instrument and the uninterrupted column of air from the body will stabilize the sound and yield better slide position accuracy.

3.3 Data Collection

Data is collected during all three phases of the study, including the administration of an initial assessment of ability prior to the instruction, progress notes throughout the study during all four lesson plans and final review, and at the conclusion of the study by retesting the material from the Initial Assessment. The Initial Assessment, in Appendix B, includes ten different exercises at a variety of

difficulty with the easiest involving only the first five pitches of the B-flat Major scale, B-flat², C³, D³, E-flat³, and F³ (the minimum required notes that participants must know to participate in the study). Students who are more advanced are asked to play additional exercises that utilized the entire range and pitches of the one octave B-flat Major scale. The exercises are not intended to deceive or challenge the student and are selected during the assessment so that they were at or below the student's level for the ease of sight-reading the materials successfully. The least experienced students play four-to-five of the exercises, while the most advanced students play six or seven of the exercises. The individual who came into the study with only three weeks of experience on the instrument was unable to sight-read any of the music, so one was verbally instructed to play the pitches at a given duration for both the Initial and Final Assessments. The researcher records which exercises each student plays so that the Final Assessment is a retest of the same material for each participant. Additionally, all students demonstrate their present knowledge of the placement of the slide by asking them to show the researcher all seven position placements in a randomized order.

Quantitative data is collected during the Initial Assessment and Final Assessment to determine whether there is inherent improvement in intonation from the beginning to the end of the four-week study. The researcher separates the audio from the video recording and imports it into Audacity, an open-source digital audio editor and recording application software. The track is transformed to play back at half-speed while maintaining the pitch level, and each note in the assessment is evaluated in a tuning application, Tonal Energy Tuner (iOS), for the accuracy of

pitch. The tuner is set to A=440.0Hz and at equal temperament. Using the application's built in analysis program, the notes in each exercise are recorded as flat or sharp in terms of cents, which is standard on most tuning devices and applications. None of the participants are asked to tune their instruments prior to taking the assessment for two reasons: 1) novice band students typically do not have experience tuning their instruments, and 2) intonation on brass instruments can fluctuate due to embouchure and air-support inconsistencies. Therefore, the researcher developed a standard to analyze the data for this study based on pitch relationships to one another.

To quantitate the data, the researcher implements a system that analyzes the pitches in relation to one another, rather than to the tuner itself. After obtaining the intonation data of each note of an exercise, the researcher calculates the standard deviation of the mean (average) of all the pitches in each exercise individually to determine how many of the pitches fall within one standard deviation of the mean. Those pitches that fall within the acceptable range are labeled in-tune, while the remaining are considered out-of-tune. The accuracy percentage is calculated by dividing the number of in-tune pitches by the total number of notes played in the exercise, and that statistic is used to compare data between the Initial and Final Assessments (see Appendix B). While this is an attempt to analyze the data of the Initial Assessment versus the Final Assessment in a quantitative method, the system is prone to inaccuracies if the integrity of the trombonist's embouchure and air support systems are not maintained consistently throughout the entire exercise, a common issue with developing brass players. This analysis demonstrates overall improvement in the intonation and therefore slide position placement over the course

of the study, but the qualitative analysis provides a more in-depth opportunity to investigate growth in the participants' right-hand slide technique over the five week study.

Qualitative data is collected throughout the study and during the Initial and Final Assessments by observing the students' left-hand grip and support of the horn, the right-hand grip and facilitation of the slide, tone quality, as well as their ability to move the slide rhythmically while precisely stopping in each slide position. Students are determined to have demonstrated improvement, regression, or indiscernible change over the previous lesson or when comparing the Final Assessment to the Initial Assessment. The scoring of the lessons and tests takes place during the researcher's retroactive review of the video recording so that the researcher can focus on instruction and administration of the test during the study. This retroactive analysis also allows the researcher the ability to assess the students' execution of the exercises from the right-side vantage point of the recording device rather than the head-on position during the lessons.

While the purpose of the study is to address right-hand slide technique, the researcher theorizes that many other aspects of musicianship would likely be impacted by working on this isolated skill, such as tone quality and intonation. When drafting the observation notes, the researcher uses descriptive language to characterize each subject's ability in the above areas during both the Initial and Final Assessments as well as the four lesson plans and final review lesson. These descriptors allow the researcher the opportunity to cater the lesson plan material to the individual student throughout the course of the study by addressing general

individual weaknesses in the trombonist's playing. For example, a student who struggles with air-support while moving the slide is given exercises to encourage the student to not allow the motion of the slide to impact the constant airstream. Or a student who has an uncharacteristic tone quality is occasionally asked to buzz a note on the mouthpiece and breathe more deeply to create a more resonant sound on the instrument. While this analysis provides valuable insight into the growth of the student's musicianship over the span of the five lessons of the study, the data is not extensively collected and analyzed in this study and only serves as color commentary in the next chapter of this document, Chapter Four: Narrative.

3.4 Curriculum Draft

The curriculum comprises five lessons, each 30-minutes in duration, with four lesson plans introducing new material and one for review of all the concepts taught in the study. During the first and fifth lessons, an Initial Assessment and Final Assessment were administered to provide the researcher an opportunity to collect and analyze data regarding student understanding and mastery over the course of the study. The five lessons covered foundational aspects of proper playing position, hand grip, and right-hand slide technique using the components outlined in the "Research Problem" section of this chapter. To avoid any issues with students who are unable to fluently read music, all lesson plans are taught by rote with the researcher playing or singing a portion of the exercise and asking the student to mimic. During the fifth lesson, the final review, students are presented with a packet containing all the

exercises introduced throughout the study so that they can begin the process of understanding how the exercises look when notated on staff paper. The curriculum draft, lesson plans, and Initial Assessment are in Appendix B, and the following is an outline of the instruction:

3.4.1 Lesson Plans

LESSON #1: INITIAL ASSESSMENT & PLAYING POSITION

The first lesson begins with introductions, signing of consent documents, and allowing the student time to warm up before being guided through a brief assessment of their current abilities. The goals of the lesson are to: become acquainted with the participant so that one feels safe and comfortable in a new learning environment, assess the student's current ability and habits while playing the instrument, and introduce proper playing position. This lesson is foundational to all future lessons as it is imperative that the student demonstrates an understanding of proper playing position to maximize one's ability to move the hand-slide quickly and precisely in later lessons.

The Initial Assessment comprises ten exercises of varying degrees of difficulty so that the researcher can select exercises based on the individual subject's ability to play the music. No student will play all 10 exercises. Half of the exercises ascend only through the first five pitches of the B-flat Major scale (B-flat₂, C₃, D₃, E-flat₃, and F₃), while the other half utilize the entire range and pitches of the one octave B-flat Major scale (B-flat₂, C₃, D₃, E-flat₃, F₃, G₃, A₃, B-flat₃). Exercises 1-4 involve stepwise motion, exercises 5-7 use a pattern of alternating skipping

intervals of a third with stepwise motion, and exercises 8-10 incorporate intervallic leaps with the starting note remaining constant throughout the exercises (B-flat2, F3, or B-flat3). The assessment concludes with the researcher asking the student to demonstrate current knowledge of the slide position placement.

After the assessment, the student's instrument is outfitted with a WiseGrip for the left-hand grip and a small rubber gasket attached to the slide to help the student remember where to place the right thumb while holding the hand-slide. The former tool is described and reviewed in the "Pedagogical Devices" section of Chapter Two: Literature and Resource Review. Only one concept is introduced during this initial lesson, "Playing Position", which encompasses the posture of the body in seated position while holding the horn properly.

Students are asked to sit tall with their feet flat on the floor to establish a grounded posture while keeping the trombone in resting position (the instrument is vertical and the hand-slide bumper resting on the floor). While keeping their slide locked, they are asked to raise the instrument up to playing position and support it only using their left hand and arm while the right arm rests at their side. As noted in Chapter Two: Literature and Resource Review, it is crucial for the trombonist to learn to support the entire weight of the instrument with the left hand, arm, and shoulder in order to allow the right-arm to freely move the slide. Asking the student to practice holding the instrument in playing position with the left hand encourages the student to recognize what it feels like to accurately support the entire weight of the instrument.

Next, the student is asked to gently place one's thumb and first two fingers on the bottom of the second hand-slide brace where it meets the lower outer slide. Then,

they are asked to practice the transition between resting position and playing position several times. Once the subject demonstrates an understanding of proper support of the instrument, one is asked to unlock the slide and move it between first and sixth positions slowly while gliding the slide along the tracks.⁴⁴

Finally, the playing position concept is implemented into the student's habitual playing by asking them to perform a familiar exercise from their band or method book—familiar is defined as an exercise that one can play without hesitation and with few mistakes so that the subject can focus on the implementation of the new concept. If the student presents issues of remembering to fully support the horn in the left hand or loses the integrity of one's right-hand grip, then there are two optional exercises to reinforce the concept: (1) the student returns to holding the trombone in playing position with only the left-hand, while keeping the slide locked and moves the right arm to the approximate slide positions of each note; (2) unlock the slide and play "air trombone," while the student says the note names, sings the pitches, or does a wind pattern (articulating the rhythmic pattern with the air and tongue) while moving the hand-slide to the appropriate positions. After completing these exercises, the student returns to playing the method exercise as written and is encouraged to keep the instrument steady while doing so. The lesson concludes with a brief review of moving the horn between resting and playing position, and the student has an opportunity to ask any questions or seek clarification. The researcher encourages the student to implement proper playing position throughout the week whenever one would normally play the instrument.

⁴⁴ Vining, *Trombone Intonation Mastery*, 7.

LESSON #2: SLIDE POSITION PLACEMENT

The lesson begins with a warm-up and review of the exercises presented in Lesson #1, including playing position, supporting the instrument in the left hand and arm while gliding the slide. The participants play a simple ascending B-flat Major scale that ascends to either F3 or B-flat3, depending on the student's level.

The new concept introduced is an adaptation of Emory Remington's long-tone exercises outlined in Donald Hunsberger's *The Remington Warm-Up Studies*.⁴⁵ The student starts on a first-position note (B-flat2, F3, or B-flat3), and *glissandos* down to second position and back up with each pitch held for approximately two beats. The student then continues the exercise through the remaining slide positions, starting and returning to first position each time. The goals of the exercise are to introduce or refine the student's knowledge of all seven slide position placements and to practice proper playing position and manipulation of the hand-slide while doing so. Adjustments to slide placement and intonation are at the discretion of the researcher as the need arises in the lesson.

If time allows, the student is asked to play another familiar exercise from a chosen method book to help further reinforce the playing position and accurate slide position placement. Finally, the student can ask any questions or review any concepts. The researcher encourages the student to be aware of slide position placement and proper playing position throughout the week as one normally would play.

⁴⁵ Emory Remington, *The Remington Warm-Up Studies* (North Greece, NY: Accura Music, 1980), 11.

LESSON #3: SLIDE POSITION SPEED & ACCURACY, PART I

The third lesson begins with a review of Lessons #1 and #2, and any necessary adjustments to playing position and slide position placement are made in this warm-up. The objective of this lesson is to introduce and refine the idea of a “rhythmic slide” (moving the slide precisely with the timing of the beat). Exercise 2a follows the same alternating slide position pattern as Exercise 1a at two beats per note, but the student articulates two repeated quarter notes per note instead of sustaining and using a glissando to arrive at the next pitch. Adding the articulation creates a natural rhythmic pulse, which requires the student to move the slide rhythmically as well (as opposed to the *glissando* exercise where the student took time to gradually move the slide to the next position to focus on landing in the proper position). Now, the student must strive to arrive to the next position accurately while having less time to do so.

Exercise 2b uses the pitches of the B-flat major scale to implement the concept of the rhythmic slide—the number of notes articulated on each pitch reduces with each repetition to help encourage a rhythmical slide motion and to give the student an opportunity to focus on slide position placement accuracy each time. The tendency will likely be for the student to become careless with slide position placement as the duration on each note becomes shorter, so the student will be encouraged to look down at the right-hand slide to help ensure proper slide placement on each repetition. Exercise 2c is optional if time allows in the lesson; otherwise, it will be introduced in Lesson #4. This advanced version of the B-flat Major scale

exercise challenges the student to move the slide even more quickly and rhythmically while playing a familiar pattern.

The lesson concludes again with the opportunity for the student to ask questions or review any concepts covered in any lesson up to this point. The student is encouraged to continue noticing and implementing proper playing position, slide position placement, and moving the slide in a rhythmic fashion throughout the week.

LESSON #4: SLIDE POSITION SPEED & ACCURACY, PART II

Like the previous two lessons, the fourth begins by reviewing concepts covered in Lessons #1-3, and the researcher assesses the students' understanding of proper playing position, slide position accuracy, and the rhythmic slide. Exercises 2a-2c and 3a-3c are all utilized or retaught in the warm-up.

The final new concept of the curriculum is an introduction to the chromatic scale, which is taught in fragments, and it is the first time that students are asked to move from one slide position to the next without returning to first position in between. Prior to this, returning to first position provided a home base for the students to feel secure and certain of where the slide belongs. Now, the student must venture away from the edges of the pool (first position) for short periods of time while trying to maintain slide position accuracy.

First, students are asked to demonstrate their knowledge of the chromatic scale, if already known. Next, regardless of experience, students are taught to start in first position and descend stepwise down to seventh position, taking the time to slot every note in between (Exercise 3a). The slide should stop in each position, and the

researcher will correct any necessary issues with proper placement of the slide. When the student successfully plays from first to seventh and back without any issues in proper playing position or slide position placement, one should move on to Exercise 3b, which reinforces the idea by playing the chromatic scale in small fragments but using only three notes at a time. For students who master this quickly, the tempo can be increased for an added challenge, and if time allows, the student can learn Exercise 3c, which incorporates the rhythmic pattern from Exercise 2c while using the pitches from Exercise 3b.

The lesson concludes again with the opportunity for the student to ask questions or review any concepts covered in any lesson up to this point. The student is encouraged to continue noticing and implementing proper playing position, slide position placement, and moving the slide in a rhythmic fashion.

LESSON #5: REVIEW & FINAL ASSESSMENT

Unlike the previous four lessons, no new concepts are introduced in this lesson; instead, time is spent reviewing and refining all concepts taught throughout the research study up until this point. The purpose of the review is to provide the researcher one more opportunity to correct any minor issues in the students' playing position and slide position accuracy and speed. It also provides the students an opportunity to ask any additional questions or receive feedback about their playing for long-term development.

At the start of the review, the researcher provides the student with a packet containing all the exercises played throughout the curriculum so that the subject can

see them written out in music notation for the first time. Should the student be interested in continuing the exercises after the study, then one can recall how to do so independently. During the review portion of the lesson, the researcher selects a sampling of the exercises for the student to play to cover all concepts taught. Most students will not be able to review every exercise due to time constraints. Finally, the student is asked to perform the Final Assessment, and the researcher uses the notes from the Initial Assessment to ask the student to perform the exact same exercises again. At the conclusion of the assessment, the participant and parent are thanked for their time and efforts, and the study has ended.

CHAPTER 4: NARRATIVE

4.1 Setting

The research field study took place from Saturday, February 26th through Saturday, March 26th, 2022, in the trombone studio office at the University of Maryland School of Music in College Park, Maryland. Six novice trombone students between the ages of 10-13 years old received 30-minute lessons once-a-week for five weeks. Prior to the study, parents of the participants selected a 30-minute time slot between the hours of 11:00AM and 3:30PM, which remained their lesson time every Saturday for the duration of the study. Due to COVID-19 protocol, each lesson had a 15-to-20-minute gap in between, so families were asked to arrive five minutes ahead of their lesson time to ensure strict adherence to the schedule.

Every Saturday morning, the researcher arrived at the campus about an hour early to set up the trombone studio office, post signage from the entrance of the building leading students and parents to the location of the room, and to warm up. The office was set up with two chairs and music stands facing each other from opposite sides of the room, approximately six feet apart. There was a Zoom Q2n-4K Handy Video Recorder on a tripod and plugged into the wall to the participant's right, always recording, ready to capture a side angle of the trombonist's right-hand slide technique.

Each week's lessons roughly followed a similar structure and breakdown of time blocks—the exception being the first lesson, which involved a warm-up and an initial assessment of the student's abilities. The researcher opened the door to

welcome the student into the office exactly at one's scheduled lesson time, and students were directed to set up their instruments. Lessons were taught with only the researcher and the participant in the room while the parents or guardians waited outside on a bench in the hallway. Both student and teacher wore musician face masks and bell covers to limit the spread of aerosols during lessons. After a couple of minutes to set up and make small conversation to ease the student into the instructional time, the first portion of the lesson (approximately 10-to-12 minutes) was devoted to a warm-up and review of previous lesson content. The next 12-to-15 minutes encompassed introducing and implementing the new concept for that day's lesson plan. Finally, the last 3-to-5 minutes served as an opportunity to briefly recap the new material, answer any questions, ask the student to pack away, and say goodbye to the child and parents.

Between students, the researcher wiped down any contact surfaces, reset the audio and video recording device, and briefly reviewed any necessary observation notes to prepare for the next student. The researcher did not write any field notes during the lessons so that the focus and attention could remain on the instruction and content of the lesson plan. In the days following the Saturday instruction, the researcher reviewed footage and transcribed observation notes to keep a record of how each subject performed during the week's lesson and make note of any necessary adjustments to the curriculum needed for the next week. The researcher's goal was to adhere to the drafted curriculum as much as possible, but one quickly discovered that not all participants would proceed through the material at the same pace due to variation in ability and experience. To navigate this issue, some participants needed

more than one lesson to cover all the content of a lesson plan, so minor modifications were made to allow for these discrepancies in comprehension levels. At the conclusion of teaching for the day, the researcher returned the office to its normal state and uploaded the recordings to a password protected computer with all identifying information about the students redacted.

4.2 Participants

Six students participated in this study, and all demonstrated a wide variety of skills sets, habits, and learning styles. To maintain anonymity, the researcher created a coding system to protect the identity of all participants, and after taking the Initial Assessment, they were placed into two groups based on ability: Group A (early novice) and Group B (late novice). Early novices included students with a range of approximately one octave or less (B-flat2 to B-flat3), struggled to or were unable to sightread eighth-note rhythms, and did not have characteristic sounds on the instrument. Late novices had more than a one-octave range, had the understanding to be able to sightread all exercises in the Initial Assessment, and had a developing characteristic tone quality on the instrument. Within the group label, participants were ranked 1, 2, or 3 based on least-to-greatest level of experience on the instrument. The following is a description of each participant and the ID, which is also located in Appendix C:

Participant ID	Grade Level	Experience
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A-1	6 th	3 weeks
A-2	5 th	1.5 years
A-3	7 th	2.5 years
B-1	7 th	2.5 years
B-2	7 th	2.5 years
B-3	7 th	2.5 years

Figure 4.1: Participant IDs and Experience

Participant Descriptions:

Participant A-1 began playing the trombone three weeks prior to the study and was only fluent with the first three notes of the B-flat Major scale (B-flat2, C3, and D3). While this individual did not initially meet the eligibility requirements outlined in Chapter Three: Methodology to participate in this study, the participant met with the researcher over the video conferencing software Zoom in advance of the study to demonstrate that the individual could play the pitches E-flat3 and F3. The student was accepted into the study as the least experienced of all the trombonists, which made for an exciting challenge and opportunity to test the curriculum on an absolute beginner.

Participant A-2 had been playing the trombone for about a year and a half, but the student's band classes during fourth and fifth grade only met once a week. Additionally, due to COVID-19, the band class was entirely virtual during the fourth-grade year (2020-2021), which according to the parent, severely limited the student's ability to grasp basic concepts of brass fundamentals, such as embouchure, air, and moving the slide. After the assessment, the researcher determined that the student had the ability of an average first-year band student whose classes meet at least two-to-

three times a week. One could play an entire octave B-flat scale, possessed a good understanding of quarter and eighth-note rhythms, but had an uncharacteristic tone quality and struggled with sightreading eighth notes.

Participant A-3 had the most experience of the Early Novice group, two and a half years, but struggled immensely with sightreading and tone quality, possibly due to the impact of the pandemic on music education. This student was in the middle of fifth grade when instruction switched to virtual, and one's band classes remained virtual entirely through sixth grade as well. However, the participant did understand eighth-note rhythms and could play an octave-and-a-half (F2 to B-flat3).

Participant B-1 had two and a half years of experience in band, played with a good tone quality, and had an octave and a half range (F2 to B-flat3). The student did struggle slightly with sightreading eighth notes but possessed an understanding of more advanced rhythms.

Participant B-2 had two and a half years of experience in band, played with a beautiful tone quality—particularly on the fourth partial—and had an octave and a half range (F2 to B-flat3). The student had a strong understanding and ability to execute more advanced rhythms, but struggled with proper air-support, especially on lower notes.

Participant B-3 was the most advanced student in the study with a range of over two octaves, good sightreading skills, and an understanding of more advanced rhythms. However, the subject struggled with issues of characteristic tone quality partially due to adjusting to braces as well as lacking an understanding of proper air support. From a technical perspective, the individual could have been classified as too advanced for the intended level of the study in comparison to the other participants, but it provided an opportunity to test the concepts with a more experienced trombonist.

4.3 Lesson Observation Notes

LESSON #1: PLAYING POSITION

DATE: SATURDAY, FEBRUARY 26TH, 2022

Initial Assessment:

The first lesson started with verbal introductions, signing of consent and assent forms (see Appendix D), and a brief warm-up before administering the Initial Assessment. During the warm-up, the researcher provided the opportunity for the students to mentally prepare for the lesson, so the students did breathing exercises before playing a familiar, friendly scale or exercise from their band method books. Then, the researcher placed the two-paged Initial Assessment (see Appendix B) on the student's music stand and guided the student through five-to-seven of the exercises depending on the student's ability. All but one student played the first three exercises to collect data on very basic aspects of playing the trombone, while only the students in Group B played exercises eight and twelve. The least experienced student,

A-1, was unable to read music notation efficiently at this point in one's development, so the researcher asked the subject to play the pitches, B-flat², C³, D³, E-flat³ and F³ in various patterns.

The researcher used the Initial Assessment as an opportunity to get to know the students' playing and habitual deficiencies or hinderances—how they held posture, playing position, left hand grip, right hand grip—and rated their tone quality, rhythm, and sightreading skills. Common issues with posture and playing position included, leaning back against the chair with feet tucked under the seat (not flat on the floor) and the head tilted forward to varying degrees rather than bringing the instrument to the person while seated in an upright manner.

Students in Group B all had a good left-hand grip, and the instrument appeared to remain consistently steady, while two of the three Group A students had smaller hands and could not comfortably hold the instrument in their left hands. Right-hand grips were inconsistent and less than ideal across all students; various grips observed included: fingers hooking around the brace, letting go of the slide during position changes, using first or second fingers to touch the bell for reference of third and fourth positions, holding the brace in the middle, a bent or loose wrist, struggling to reach sixth and seventh positions, supporting the weight of the instrument partially in the right hand, and inaccurate slide position placement. All students had inconsistent tone qualities, but Group A especially produced poor characteristic sounds. Every student—except A-1 who could not read music—had a good understanding of a steady beat, but the Group B were the only students comfortable with sightreading eighth notes. Participant A-3 particularly struggled

with sightreading and seemed anxious and overwhelmed when asked to do so, often giving up in frustration and putting down the horn. Lastly, students were asked to demonstrate their present knowledge of slide position placement by moving the slide to positions in a randomized order provided verbally by the researcher. Specific results for this portion of the assessment are found in Chapter Five: Results and Discussion.

New Concept

After the assessment, the remaining portion of the lesson was devoted to introducing a new concept, “Playing Position.” The researcher reminded the students that this research project was about right-hand slide technique and posed the question, “What is the most challenging aspect of playing the trombone, unlike any other band instrument?” All students responded with some sort of variation saying, “the slide.” The teacher then introduced the idea that the trombone should be held and supported exclusively in the left hand and arm, freeing up the right arm to focus on moving the slide. Four students either agreed or accepted that notion with no objection, while Participant A-3 felt that the right hand helped to keep the horn “steady,” and Participant B-2 thought that the weight of the instrument was distributed between both hands. However, after observing the warm-ups and Initial Assessments of all students, the researcher inferred that all subjects could benefit from a better left-hand grip to steady the instrument while moving the slide.

The researcher added the WiseGrip (Appendix A) to all six trombones and asked the participants to keep the device on their instruments throughout the study. Next, the students were asked to sit tall with their feet flat on the floor and the

instrument at resting position on their left thigh or gently resting vertically on the floor. With the slide locked, they were asked to raise the instrument to playing position while keeping their right arm resting on their right thigh or dangling at their side. The researcher made any necessary adjustments and asked the students to practice moving from resting to playing position on cue several times to understand what it feels like to truly support the full weight of the instrument in the left hand, arm, and shoulder. Two students in Group B and one in Group A described this as “easy,” Participant B-2 described the instrument as feeling heavier, and the two least experienced participants in Group A struggled to keep the instrument steady while holding it in playing position causing the bell to sway slightly back and forth. The researcher noted that both were unable to extend their first fingers to the mouthpiece receiver and suggested that they wrap it around the brace with the other three fingers instead. When asked about the comfort of the grip, most students said that they “liked it,” while two said it “felt weird” and would take some time to adjust to it.

For the right-hand grip of the hand-slide, the researcher asked all students to hold up two fingers and a thumb as if they were holding a teacup or a pencil in writing position. Next, they were told to hold the slide brace at the bottom where it intersects with the lower outer slide tube. One student was already habitually doing this when playing, four were aware of this ideal placement but were not implementing it habitually, and the least experienced student, Participant A-1, used all four fingers and thumb to grasp the slide. The researcher then discussed a pedagogical “trick” to help keep the grip in place, which is to use a coin between the right thumb and hand-slide brace—the player must maintain proper grip, or the penny will fall to the

floor!⁴⁶ However, instead of using coins, the researcher used 0.75-inch o-ring silicone gaskets, which have a similar diameter to a penny, are less slippery, and will not scratch the finish on the brace.

The researcher perceived an issue with the gasket constantly falling, so gaskets were attached to the brace with a two-inch lead of nylon fishing line, preventing them from hitting the floor or being lost. It took additional time for the student to adjust to using the gasket while grasping the hand-slide, but the device seemed to be an instant fix to teach proper handgrip. The only student who did not have the gasket attached to the instrument was Participant A-1 because the student was so new to the instrument, and the researcher determined that one needed more time to adjust to foundational aspects of playing the trombone, such as proper assembly, posture, and left-hand support. Instead, this student was verbally encouraged throughout the study to use two fingers and a thumb to move the slide.

To implement these new ideas, the researcher asked the subjects to lock their slides and bring the trombone up to playing position with only the left arm. Then, each brought their right hand up next to the instrument without touching the slide, with the two fingers and thumb touching to mimic the right-hand grip. With the slide remaining in the locked position, the students were asked to “air trombone-no slide” (holding the instrument in the left hand and moving the right hand as if moving the slide while not touching it) either their B-flat Major scale or just the first five pitches of it. The researcher observed the bell for any swaying while the right arm was in motion and asked students to repeat the exercise until they were able to maintain a

⁴⁶ Vining, “Teaching Brass”.

steady grip with the left hand while simultaneously moving the right. Once the students adjusted to the awkward nature of playing “air trombone-no slide,” it was an effective way to index the student’s ability to hold the trombone in the left hand exclusively without relying on any support from the right hand. Participants A-1 and A-2 continued to have issues with grip—the former’s instrument continued to have some issues with uncontrolled swaying, and the latter was able to hold the instrument steadily but needed frequent breaks to rest the fatigued hand and arm.

In the next step of the exercise, students were asked to unlock the slide and “glide it” to each position of their scale, while continuing to refrain from playing. The researcher, again, looked for swaying in the bell section to determine if the left hand was not doing its job. The four most experienced students had little issue with this step, while A-1 and A-2 continued to have difficulty controlling the movement of the instrument. Finally, students were permitted to play the scale, and most had success at maintaining both hand grips. Some issues that arose at this stage included transferring a portion of the weight of the instrument back into the left hand, and symptoms of doing so included: the subject’s right hand began to float up towards the middle of the brace, the right-hand fingers started to turn white from using so much pressure to grip the brace, or the horn started to sway or bump during position changes. Those students were asked to repeat the exercise while keeping their eyes on their right hand to ensure the integrity of the grip throughout the entire exercise. Participants A-2 and B-2 continued to have issues with weight distribution of the instrument into the right hand, so both were challenged to remove the second finger from the grip, allowing

only the thumb and index finger to glide the slide⁴⁷. Interestingly, this instruction inspired from Denis Wick's method instantly fixed issues with the swaying of the instrument for Participant A-2 and corrected weight distribution for Participant B-2 because disuse of the second finger entirely removed the ability to support the weight of the instrument with the right hand.

Finally, students were asked to repeat the same progression of exercises with an excerpt from their band method books to help the student begin the process of always implementing this concept into their playing. The researcher noted that the integrity of proper playing position dissolved within as little as four measures of playing the music. To experiment with addressing this issue, the researcher asked the participant to play one-to-two measures from memory while keeping their eyes trained on their right-hand grip. This suggestion provided an instant solution to both their awareness and ability to self-correct any issues. To conclude the lesson, students were encouraged to try to become aware of when they were not utilizing proper playing position throughout the week, and the researcher hoped that the addition of the WiseGrip and gasket to the instrument would help be a reminder for this goal. Lastly, the students were asked to try to glance at their right hand while playing the instrument throughout the week to "check in" on their positioning. After answering any additional questions and doing a brief review of the playing position exercises, students packed away and said goodbye.

Reflection

⁴⁷ Wick, *Trombone Technique*, 15.

The first lesson of the study was challenging in many ways, and perhaps the researcher attempted to accomplish too much in a short amount of time. In hindsight, it would have been more realistic to treat the first lesson as purely logistical for handling the signing of consent documents, getting acquainted with the student from a social perspective, taking the time to make observations on the student's strengths and weaknesses, and concluding with the initial assessment and some generalized feedback. About half of the students were reserved or shy during the first lesson, so it is possible that this approach would have eased them into the experience of a one-on-one instructional environment more organically.

The teacher effectively taught the concepts, and students seemed to understand and improve at all areas covered in the lesson. However, it seemed that there could have been less discussion about why a certain concept was important and more back-and-forth demonstration for the student's visual and auditory understanding. The latter would have provided more opportunity for repetitions of proper playing position and allowed the students to practice implementing this more thoroughly. Despite the challenges, all participants appeared to grasp every concept and displayed promising signs of an ability to habitually use proper playing position while gliding the slide.

LESSON #2: SLIDE POSITION PLACEMENT

DATE: SATURDAY, MARCH 5TH, 2022

The purpose of Lesson #2 was to refine the slide position placement of each student to help closer approximate the correct placement for each position. The lesson

started with a warm-up and review of the previous week's material to see how much the student retained from the instruction and to also correct any continuing issues with playing position. Students played all or a portion of the B-flat Major scale for the warm-up's musical material. The two least experienced students, Participants A-1 and A-2, needed a review of the "air trombone-slide locked" exercise, while others just needed brief reminders to hold the instrument steadily in the left-hand while moving the slide with the right. Notably, Participant B-3 showed significant improvement in the right-hand grip of the hand-slide—formerly the student hooked the first two fingers around the brace to "throw and catch" the slide and was now maintaining contact with the brace using two fingers and a thumb. Finally, the researcher asked each participant one's opinion on the WiseGrip, and all felt that they adjusted to using it and found it more comfortable to hold the instrument.

The new concept introduced in this lesson utilized exercises 1a-1c in the curriculum draft in Appendix B to refine the student's slide position placement. The exercises begin on a first position F3, B-flat 2, or B-flat 3 and extend down to each subsequent position. The primary purpose of returning to first position each time was to provide the opportunity for the trombonist to go to and return from the given slide position while always starting a returning from first position, which is the only absolute, secure position since the slide is all the way closed. Secondary benefits discovered in the study included:

- A. Rhythmic fluidity: more engaging and interesting to play than the standard Remington whole long-tone note exercises to a young mind.

- B. Air support: must be even and persistent to maintain tone through the transition from one position to the next
- C. Tone quality & aural skills: a gradual approach to the next slide position allows the player to take care while moving the slide position, both to ensure a good tone quality down and back up but also to provide the opportunity to learn what each interval sounds like

Some initial challenges included:

- A. Holding the horn properly while moving the slide (swaying of the bell or bumps and jerks of the instrument, which disrupt the flow of the pitch or even briefly disrupt the contact of the embouchure to the face causing a jolt in the sound).
- B. Over-adjusting the embouchure and air to change the pitch rather than passively allowing the slide to lower the pitch.
- C. Locking the right shoulder into the socket rather than allowing it to roll forward to aid extension of the arm to longer positions, particularly sixth and seventh positions.

In the final draft of the curriculum (Appendix B) the researcher entitled this exercise “Paint Brush Strokes” because the students responded to the analogy and imagery of brushing a thick, vibrant color of paint back-and-forth across the surface of a canvas: the consistency of the layer of paint is analogous to the tone quality and the stroke of the brush to the gliding of the slide. The researcher played the segments of these exercises back-and-forth with the student to help the student emulate proper air support and consistency of sound down and back up from each pitch. Lastly, since the

students were not reading music, they were asked to keep their eyes on their right-hand grip and slide positions so that they could be aware of proper placement throughout the whole exercise, which proved to be an effective approach. With repetition, the students said that they could hear the difference between an inconsistent sound, and they could visually recognize when they did not return to the same slide position for each repetition. For example, in Exercise 1c, mm. 1-2, the trombonist is instructed to *glissando* back and forth between F3 and E3, and most students struggled to place E3 in the same spot for second position on each repetition. By keeping their eyes on the slide, they were asked to visualize where the slide should go each time before moving to it, which improved placement accuracy in all six subjects.

Between the paintbrush analogy and watching their slides, the researcher was able to let the student take time to experiment with the exercise. When asked if they could hear a change in sound when moving the slide, all participants acknowledged that they could recognize it and were able to adjust issues with improper air support independently without being given instructions to “use more air” or “glide the slide more smoothly.” Additionally, the students’ intonation improved—based on the researcher’s perspective and experience with intonation—after the researcher either demonstrated the interval by either singing it or playing it on the instrument. Occasionally, a student needed an instruction to move the slide in or out to correct intonation issues; in such case, the individual was asked to repeat the interval to build both aural and physical reminders of that particular interval or slide position.

After taking observation notes and reflecting on Lesson #1, the researcher made the decision to emphasize quality over quantity during future lessons. The objective for each lesson did not change, and every student would be introduced to the concept for the day. However, the more advanced versions of the exercise would only be used if the researcher determined that the student understood and showed improvement with the simpler versions before moving to the next. In Lesson #2, not every student learned Exercise 1b either due to time constraints or the student needing more time to process 1a and 1c. Those subjects that did attempt 1b were Participants A2, A3, and B3, and all found the challenge of the continuous glissando pattern to be exciting and fun to try. Time ran out before any student could show command over the exercise, but it showed promise to introduce it to all participants the following week.

Reflection

In contrast to the first lesson, the students were given the opportunity to play their instruments a lot more, and the researcher presented a lot of playing examples for the student to mimic. This approach seemed to be an effective way to teach all three glissandi exercises as it gave the students a clear product to emulate. In addition, the image of a paintbrush stroke seemed to spark creativity and fun for the student and provided the researcher an opportunity to discuss more advanced concepts with novice students, such as air-support, tone quality, consistency of sound, and recognizing if an interval sounds in tune. The two least experience students, Participants A-1 and A-2 still needed frequent breaks to rest their left hands and arms,

and the others needed reminders about weight distribution of the instrument to the left hand with the right hand gripping the slide with two fingers and a thumb. However, both lessons seemed to provide the students with a solid foundation for beginning to understand and recognize when they are using proper playing position, slide position accuracy, and good tone quality, which was crucial for the success of Lessons #3 and #4.

LESSON #3: SLIDE POSITION SPEED & ACCURACY, PART I

DATE: SATURDAY, MARCH 12TH, 2022

Lesson #3 took place over the video conferencing platform Zoom due to inclement weather—an unseasonable winter storm brought 2-4 inches to the mid-Atlantic region and dumped over a foot on the northeast! Needless to say, a few aspects of the curriculum needed to be modified for virtual instruction, but it provided a unique opportunity to test the curriculum in a different setting to students who would rather be partaking in snowball fights, sledding, and other snow day shenanigans. Fortunately, all families were able to accommodate the change, and each had reliable internet connections and devices, likely due to the previous year-and-a-half of completely virtual instruction during the COVID-19 pandemic.

Warm-ups started with the usual B-flat Major scale (or fragment) to provide the researcher an opportunity to observe each subject's progress with the concepts of playing position, movement of the slide, slide position placement, and consistency of sound. Then, the researcher reviewed material from Lesson #2, including Exercises 1a-1c. For students who did not learn 1b, this exercise was introduced during the

allotted warm-up and review portion of the lesson so that all students were at the same level of progress in the curriculum. The theme of the day's lesson was the concept of a "rhythmic slide"—moving the hand-slide to the next position as late as possible while still arriving to the next position on time. As students played through the review exercises, they were encouraged to move their slides more quickly while always keeping their eyes on their right hand and visualizing where the slide should go for a given position prior to moving to it.

Since the students had two lessons worth of material at this point in the study, the researcher experimented with language and dialogue in the lessons while teaching the students. For example, rather than asking students to extend the slide further out if the pitch was sharp, the researcher would ask them to listen carefully to try to find where the interval sounds in-tune. If the students continued to struggle to locate the proper placement, the researcher would then either play the interval in question slowly or sing it once or twice to the students before asking the student to attempt it again. If the students were still unsuccessful, only then would the researcher instruct them to move the slide in or out to correct intonation. Finally, the students were asked to repeat that interval while watching the slide carefully to place it in the proper position each time. Other examples of changes to dialogue included the following types of statements:

- I. On proper playing position: "I am noticing sometimes you start with your trombone tilted down too much; bring that trombone to you and see if that sets you up for success."

- II. On left-hand grip: “Try to minimize the swaying motion [of the bell]—it’s never going to be perfect...see if you can maintain a steady bell. In general, if you see your bell swaying left or right, ask yourself, ‘am I sitting up tall,’ and/or ‘is the trombone fully in my left hand?’”
- III. On accurate slide position placement: “Visualize third position before you go to it. Think of each slide position as a landing pad that you need to hit each time.”
- IV. On an even, supported sound: “Bring that color down and back up...a paint brush stroke all the way down—bring the paint all the way down.”

In these verbal cues, the student’s focus shifted to the present, and one was able to monitor and improve or correct the issue. The success demonstrated in these moments helped shape the instruction portion of the lesson, as well, and break through the barriers of virtual music instruction. Additionally, the student was not reliant upon the teacher to instruct how to correct the habit, which encouraged the students to continue to build their awareness in their own playing.

The new concept in this lesson, the rhythmic slide, utilized articulation, rather than *glissandi*, exercises for the first time in the study to encourage a more precise placement and timing of the slide. Like the *glissandi* exercises from Lesson #2, the pattern of the slide positions remained the same (alternating first position with the other positions in descending order), so the student was able to mimic the exercise after hearing the researcher demonstrate it. The articulation turned out to be an added

layer that caused all participants to revert somewhat back to old playing position habits: loss of the integrity in the right-hand grip and instability in the left-hand grip.

To combat this issue, the researcher created an impromptu exercise to challenge the student to separate the stability of their playing position from the motion of the slide. Like the “air trombone-no slide” exercise introduced in Lesson #1, the students were asked to lock their slides and play repeated F3 pitches while moving their right hands as if they were moving the slide to the actual positions (with hands just to the right of the slide, not touching it). For example, in the first measure of Exercise 2a, the trombonist should articulate two quarter note F3 pitches (first position) followed by two quarter note E3 pitches (second position). With the modified exercise, the student was asked to play four quarter note F3 pitches, and on the third F3, switch one’s right hand to mimic second position. This exercise was awkward at first for every participant but was also enlightening to both student and teacher. As soon as the student moved the “air slide” to second position, the sound quality shifted, and the bell section had a slight bump or sway even though the slide did not move! After a few repetitions, the students were able to create even sounding articulated quarter note F3 pitches while the right arm played “air trombone,” and stability of the instrument carried over to the exercise when it was played as written.

To encourage fast slide position movement, the researcher discussed the idea with the students that the trombone is a unique instrument in the band due to the hand-slide while other instruments have valves and keys. To change pitches, those valves and keys move an inch or less while our instrument must move inches or even feet to get to the next note. This idea sparked a determination in the students to face

the challenge of trying to move the slide as quickly as the valves of one of their “trumpet friends” in band. With that idea in mind, the students worked on exercises 2b and 2c to continue to practice speed and timing of the slide. All students were able to play 2b very well, and the slides began to move with almost a robotic precision. However, Participants A-1 and A-2 were unable to play exercise 2c. The former needed a little extra time devoted to the review of Lesson #2, limiting time spent on new material, and the latter enjoyed the challenge of the exercise but was getting confused with the slide positions of the notes.

Reflection:

Considering the snowy circumstances and the virtual setting of the lesson, most students had very good lessons—Participant A-1 struggled the most, frequently peering out the window, likely longing to play in the snow. The review of the material in Lesson #2 provided the researcher an opportunity to experiment with the language and dialogue used in the lessons; and while several students needed some reminders about playing position or slide position placement, they all were showing progress and signs of development in these new habits and skills. This was also the most enjoyable lesson for the researcher at this point in the study because a rapport had been built between the participants and the researcher, and the students were progressing and providing valuable feedback and insight into the curriculum. Inevitably, some adjustments would need to be made for Lesson #4 to ensure that all students completed all objectives in the curriculum, but the researcher felt confident in all participants’ ability to do so.

LESSON #4: SLIDE POSITION SPEED & ACCURACY, PART II

DATE: SATURDAY, MARCH 19TH, 2022

Lesson #4 was the final instructional day in the curriculum, and the objective was to continue honing the skills of slide speed and accuracy. For the first time, students moved away from the comfort of returning to first position and had to navigate the remaining positions via exercises involving fragments of the chromatic scale. Like the other instructional days, the lesson began with a review of material and primarily focused on Lessons #2 and #3. During the review of exercises 1a-1c and 2a-2c, the students needed several reminders:

- I. Quote on consistency of sound in Exercise 1a: “Make sure you’re not adjusting your embouchure [during the glissando]; allow the slide to change the pitch. It does change a little bit, but we don’t actively control that—focus on the color of sound all the way down.”
- II. Quote on right-hand grip in Exercise 1a: “Bring the horn up to [you], find a stable position, then bring up [your] right hand, and use only [your] thumb and first finger to push and pull the slide; [like holding] a teacup.”
- III. Quote on left-arm support of the instrument in Exercise 1c: “Set the left arm and forget it; then focus on the breath and the right-hand [slide technique].”

- IV. Quote on sixth and seventh position placement accuracy: “You are taller now [in comparison to when you started playing trombone]. You don’t need to reach as far to get to sixth and seventh positions.”
- V. Quote on slide action in Exercise 1c: “My goal as I glide the slide up and down is to keep my horn as steady as possible. Bring your shoulder forward as you go down to achieve maximum extension [of the slide].”
- VI. Quote on rhythmic slide in Exercise 2a: “Be as rhythmic as possible—the slide is either in first or second position.”

Areas of improvement included:

- I. More consistent contact with the brace in the right hand, especially for students who struggled to do so previously, like Participant B-3.
- II. Quicker slide movements in Exercises 2a-2c. Students were especially responsive to the use of a metronome during the review of these exercises.
- III. Awareness of slide position placement: Sometimes students would move the slide past the intended position and correct it back to the proper placement.
- IV. Consistency and fullness of sound during the glissando Exercises 1a-1c.
- V. Good control and accuracy in Exercise 1c.
- VI. Continued demonstration of aural understanding of pitch relationships: If the student played an interval out of tune, the teacher would sing

the interval or demonstrate it on the instrument before asking the student to try it again. Second attempts were consistently better after this practice.

VII. Good rhythmic motion, timing, and accuracy in Exercise 2c.

Overall, the students needed reminders on all reviewed material, but adjustments were often quick and effective, so it seemed that every individual had a good understanding of each technique but still needed more practice to further implement it.

The objective for the fourth lesson was to introduce elements of the chromatic scale to the students; some had experience from their band classes, but Participants A-1 and A-2 had none. Individuals who did were asked to play their chromatic scale to demonstrate their knowledge and skill set to the researcher. All demonstrations had issues with slide position placement or accidentally getting lost and skipping over positions. To address these issues and to introduce the chromatic scale to the others, students were asked to start in first position (on either B-flat² or F³) and gradually descend to seventh position, which is the first half of Exercise 3a. Then, they were asked to take a breath, repeat the seventh position note, and ascend back to first position. Across the board, all students were more accurate with slide position placement during the descent and struggled on the ascent, often moving the slide too far past sixth position from seventh and subsequently running out of room for the remaining slide positions. Was this an issue of it being easier to control the “push” of the slide out than to “pull” the slide back in? Or did students feel uncomfortable being

so far away from the first position and were eager to get back to the first position “home”? To address this issue, subjects were asked to replicate the distance between the positions descending on the way back up; and they were also asked to “notch” each position, stopping carefully and looking ahead to the next one before moving.

Three students needed reminders that if they cannot see the stocking of the inner slide, then they have not reached seventh position. This guidepost helped correct placements for both sixth and seventh positions; however there appeared to be an issue with the right-arm getting locked into place when fully extended to seventh. When the student initiated the movement back to sixth, it was uncontrolled and overshot the distance between the two positions, landing somewhere between fifth and sixth positions and subsequently shrinking the distance between the remaining fifth to first positions. During the *glissandi* exercises, the students naturally maintained a neutral wrist while allowing the elbow to be the primary hinge for slide movement. Then, the shoulder rolled forward to achieve maximum arm extension for sixth and seventh positions. In this approach, the slide never stops and allows the player to maintain a natural fluidity of the motion. When students were asked to “notch” the slide positions in Exercise 3a, they seemed to get “stuck” in full extension and could not naturally figure out how to begin the ascending motion, which caused the inaccuracies on the movement from seventh to first positions. To experiment with this problem, the researcher first had the student just use the wrist to move between the positions. This gave the player more control, but it looked awkward and unnatural since the students had been asked to maintain a neutral wrist position throughout the study until this point. Instead, the researcher asked the subjects to allow the bend of

the elbow to control the movement of the slide, which appeared to mimic the natural, fluid motion of the glissandi exercises from Lesson #2.

Exercise 3a took more time to teach effectively than the researcher had initially hoped, so Exercise 3b was spontaneously created in the moment to utilize just the first three slide positions. All students, even the least advanced, were encouraged to play this as eighth notes to challenge the student to “notch” the slide in each position at a quick speed. Participants were asked to “take a risk” and not worry about perfection of placement but instead focus on stopping the slide in each position and keeping the sound even on all three notes. Across the board, students arrived at third position successfully from the first repetition, but the main challenge was having second position land in the exact same spot both on the descent and ascent. Upon subsequent repetitions of the exercises, subjects were asked to direct their attention to the second slide position, to address the issue, and all showed improvements. For three of the students (Participants A-2, B-2, and B-3) the researcher decided to create an impromptu challenge with Exercise 3b using the rhythmic pattern from Exercise 2c.

Reflection:

While the final exercise (3c) was unplanned, the participants who played it found it fun and challenging; and surprisingly to the researcher, all executed it with accuracy of position placement and rhythmic timing! Participant A-1 needed extra time to review and cover gaps from Lesson #3, so this individual only learned Exercise 3a. Participant A-3 struggled with air support and frequently needed

reminders about watching the slide for proper placement, so one did not proceed to the impromptu exercise. Finally, Participant B-1 executed the new material effectively but had arrived five minutes late to the scheduled lesson leading to a loss of instructional time; otherwise, the researcher speculates that the subject would handle the exercise with success, much like the other three participants.

Overall, this lesson was engaging for both the student and the researcher because it involved a lot of playing and less verbal instruction. When students needed to make adjustments or corrections, they did so quickly and effectively. While all students struggled with Exercise 3a and had to spend more time than originally planned on right-arm technique on the turnaround and ascent portion of the exercise, they breezed through Exercise 4b easily. The excitement of playing something fast inspired the spontaneity of the creation of a third exercise, which fused the rhythm of 2c with the notes of the amended 3b into another exercise to practice the chromatic fragment with speed and accuracy. With the conclusion of the day's lessons, the entire curriculum was covered, and the researcher was excited to do a final review and assessment to conclude the study the following week.

LESSON #5: REVIEW & FINAL ASSESSMENT

DATE: SATURDAY, MARCH 26TH, 2022

Lesson #5 consisted of a twenty-minute review of the curriculum and a Final Assessment, which lasted approximately five minutes. During the review of Lesson #2 and #3's material, students displayed proper playing position, a rhythmic slide, and consistent sounds. There were reminders needed, like correcting the occasional

slide position or right-hand grip, but it was clear to the researcher that the students were beginning to hone their ability with these techniques. Because this was the final lesson between teacher and student, the researcher addressed some minor breathing and articulation issues with a few of the participants so that they received help for their continued development on the trombone beyond the scope of the five-week study. Then, the lesson concluded with the Final Assessment, which was presented in the same manner as the Initial Assessment. Finally, the students were asked to pack away, and the researcher said goodbye to them and their parents. The researcher packed up the materials in the office one final time, and the five-week field study concluded.

CHAPTER 5: RESULTS AND DISCUSSION

5.1 Results

The research strived to answer the following questions: *1) Can novice students master proper playing position, including left-hand grip and support of the instrument and right-hand grip of the slide? 2) Can novice students move the slide with accuracy and efficiency? 3) Does proper playing position and movement of the slide improve overall tone quality? 4) Does proper playing position and movement of the slide improve intonation tendencies?* To establish a baseline of ability and habitual tendencies regarding playing position, slide action, tone quality, and intonation tendencies, students took an assessment at the beginning of the first lesson and retook the same assessment at the end of the fifth and final lesson of the field study. The assessment is entitled Initial Assessment and can be found in Appendix B. The assessment had ten total exercises, but no student played every selection. However, all students played exercises 1-3, and those were used to analyze growth over the course of the study. Students were assessed based on the following areas: Left-Hand Grip and Support, Right-Hand Grip, Tone Quality, and Rhythmic Slide. Growth was defined in terms of improvement in the objectives from the curriculum standards, and students were rated as having shown improvement, regression, or no discernible change. The qualitative data charts containing thorough descriptions of each participants progress between the Initial and Final Assessments are located in Appendix C.

Initial and Final Assessment Comparison: Improvement, Regression, or Indiscernible					
Participant	Left-Hand Grip and Support	Right-Hand Grip	Tone Quality	Rhythmic Slide	Intonation for Exercises 1-3
A-1	Improvement	Improvement	Improvement	Improvement	13.33%
A-2	Indiscernible	Indiscernible	Improvement	Improvement	12.12%
A-3	Indiscernible	Improvement	Improvement	Indiscernible	-9.09%
B-1	Regression*	Regression*	Improvement	Regression*	-12.12%
B-2	Improvement	Improvement	Improvement	Indiscernible	6.05%
B-3	Indiscernible	Improvement	Indiscernible	Indiscernible	-3.03%
Percentage (%) Showing Improvement	33.33%	66.67%	83.33%	33.33%	50%
Percentage (%) With No Noticeable Change	50%	16.67%	16.67%	50%	0%
Percentage (%) With Regression	16.67%	16.67%	0%	16.67%	50%

Figure 5.1: Initial and Final Assessment Results

For Left-Hand Grip and Support, 33.33% of students showed improvement, 50% demonstrated no discernible change, and 16.67% showed regression. The Rhythmic Slide category had identical percentage results, but the participant make-up varied and showed no consistent correlation to the Left-Hand Grip. 66.67% of subjects showed improvement with the Right-Hand Grip, 16.67% was indiscernible, and 16.67% showed regression. Tone Quality had the largest percentage of improvement at 83.33%, indiscernible change at 16.67%, and regression at 0%. Finally, students were assessed for intonation tendencies on Exercises 1-3 since all students played those three exercises. Three of the students had an increased

percentage in the number of pitches that fell within one standard deviation of the mean, one had a small decrease in the overall intonation, and two had significant decreases in intonation. However, these numbers do not entirely indicate the implications of the effectiveness of the curriculum as the Narrative in Chapter Four provides an in-depth look at overall mastery of the concepts.

5.2 Discussion

To fully understand the data presented in the previous section, one must observe the qualitative data presented in the chart in Appendix C. The following is a brief discussion of each participant's individual assessment and an interpretation of why the students did or did not show improvement in the four areas of Left-Hand Grip and Support, Right-Hand Grip, Tone Quality, and Rhythmic Slide.

Participant A-1

Participant A-1 had only been playing the trombone for three weeks at the start of the study, so the student had very little time to learn proper hand position. Encumbered by the weight, size, and awkwardness of the instrument, the student's left hand was fiercely gripping the instrument between the bell brace and the first hand-slide brace, but the first finger was improperly placed, leading to an unsupported instrument that swayed every time the individual changed slide positions. Over the course of the study, the student learned to extend the index finger to the shank of the mouthpiece, which created stability of the instrument in the left

hand. The student still needed frequent rest breaks, but there was definite improvement.

Like the left hand, the student had little understanding of proper right-hand grip and used the thumb and all four fingers to grasp the brace. As support of the instrument shifted to the left hand, the student was able to adopt the thumb-and-two-fingers approach to holding the slide. Additionally, the subject was able to move the slide rhythmically with the metronome, but as the note durations shortened, the student often overshot positions and had to correct it in the direction from which the slide came. The student's tone quality improved drastically due to the student's ability to center the pitch, support with more air, and have more resonance. Finally, the student became more confident in the first five pitches of the B-flat major scale and the overall intonation improved by 13.33%.

Participant A-2

Participant A-2 also could not reach the shank with the index finger, but this was unfixable due to the individual's small hand size. This student said that the WiseGrip made it more comfortable to hold the instrument, but left-hand stability of the instrument did appear to improve. At the start of the study, the student was habitually using the thumb and first two fingers for right hand grip of the slide while sometimes adding the first finger for additional support. Because the left hand could not fully grasp the trombone, this likely continued to impact the weight distribution of the instrument to partially shift to the right hand; thus, the right hand could not fully do its job of solely gliding the slide.

The student's tone quality improved over the course of the study. Initially, the individual struggled with air support and uncentered pitches even though the slide appeared to be placed accurately. In the final assessment, the student's sound resonated more, and the pitches were more centered. The student continued to struggle with moving the slide too early, but the overshooting of the positions was significantly less frequent, which was apparent in the 12.12% improvement in intonation.

Participant A-3

Participant A-3 showed little improvement between the initial and final assessments. A minor adjustment with the right-hand grip was successful, and the tone quality was slightly better due to an increase in air support which allowed the student to sustain the pitches longer. While this student was receptive to all concepts taught in the curriculum, it was apparent that this student possibly struggled with anxiety and confidence when playing the instrument. During the final assessment, the individual seemed to be flustered and slightly overwhelmed while having to sightread material. Interestingly, the student did not show these issues as extremely during the Initial Assessment. Perhaps the student was having a bad day or felt pressure to show improvement to "please" the researcher, which resulted in a subpar performance in the Final Assessment. The student's intonation suffered as well, showing a regression of -9.09%.

Participant B-1

Unfortunately, Participant B-1 sprained the third finger of the left-hand and had to wear a brace for Lessons #4 and #5, which negatively impacted the individual's ability to hold the instrument in the left hand and appeared to impact right-hand grip and the rhythmic slide. During the Initial Assessment, the student excelled in left-hand and right-hand grips, and moved the slide quickly, rhythmically, with some minor inaccuracies. Due to the brace and discomfort of the left hand, the student understandably regressed in all areas except tone quality, which seemed more open and resonant, especially when the rhythms were slower moving. It is possible that the shorter duration rhythms like quarter notes and eighth notes were also negatively impacted by the student's inability to fully support the instrument in the left hand. This student's intonation regressed the most of all students at -12.12%.

Participant B-2

Participant B-2 improved in nearly all categories. The left thumb was adjusted to grip around the bell brace rather than the neck-pipe, which steadied the instrument. The right hand shifted to only using the thumb and two fingers at the bottom of the brace, and the right arm continued to demonstrate a quick and rhythmic slide with fewer bumps or jerks of the horn. However, the student's development in tone quality was dramatically different. Initially, the student struggled with air support, and the tone was described as airy, uncentered, and lacked resonance, which also caused response issues in faster playing. At the conclusion of the study, the student possessed a characteristic tone quality that was resonant, pleasing, and supported. While this student's intonation did not increase as much as A-1 and A-2, it still improved by 6.05%.

Participant B-3

Participant B-3 showed discernible improvement in only one area—the right-hand grip. The participant came into the study with a good established habit of holding the instrument securely with the left hand while moving the slide quickly, rhythmically, and as if each position was “slotted,” which continued in the Final Assessment, as well. Initially, the right hand did not maintain contact with the brace, which was held with the middle of the fingers rather than the tips. Additionally, the student used the thumb and second finger to touch the bell during third and fourth position placements. By the Final Assessment, the subject habitually maintained contact with the brace using the first two fingers and the thumb and was no longer using the bell as a reference point for position placement. Lastly, the student’s tone quality remained stuffy, condensed, and unsupported, which caused a waiver in pitch. The student’s jaw also had a slight chewing motion during the initial articulation of a note, which caused the note to start flat (jaw too open) and then pinch sharp at the end of the note. Because of these fundamental flaws in sound production, the overall intonation showed no improvement and even decreased slightly by 3.03%.

5.3 Conclusion

The research indicates that novices should be held to the standard practice of properly playing position and movement of the slide, and in doing so, can improve in areas of tone quality and possibly intonation. All participants understood the importance of the left hand to support the instrument securely to free up the right

hand to only glide the slide. In practice, the younger students with smaller statures continued to struggle with the left-hand grip causing some of the weight of the instrument to distribute to the right hand. However, these least experienced individuals still improved in the overall accuracy and efficiency of the slide movement.

For the right hand, all students were able to adjust to only using the thumb and two fingers placed at the appropriate position where the brace meets the lower outer slide tube. However, the left and right-hand grips did not appear to impact the slide movement, and results were inconclusive. Participants A-1 and A-2 demonstrated slight improvement in speed and accuracy but no change in the rhythmic timing of the slide. Participants A-3, B-2, and B-3 showed no discernible improvement in this area, and Participant B-1 suffered due to injury.

Interestingly, the area where nearly all subjects improved the most was tone quality, and this likely happened for three reasons:

- 1) The curriculum, especially the *glissandi* exercises in Lesson #2, required the students to use supportive air, and to move the slide without disrupting the air support or embouchure connection. The articulated exercises in Lessons #3 and #4 reinforced this concept of separating the movement of the right hand from the left-hand support of the instrument and the continuous airflow from the body.
- 2) Throughout the curriculum, the researcher provided a sound demonstration either through the instrument or by singing the

exercises and then asked the student to mimic it, which was an effective technique to efficiently produce positive change in air support, stability of sound, and tone quality.

- 3) The increased stability of the instrument in the left hand caused fewer swaying, jerking, or bumping motions of the instrument during position changes, which provided an environment for a healthy, uninterrupted air stream that fueled a more resonant sound.

Results for intonation were inconclusive with 50% showing improvement and the remaining showing regression. There were far too many variables within the curriculum to determine precisely why some students improved while others did not. Intonation is an advanced concept that depends on many factors, including aural skills, air support, embouchure formation and integrity, tongue placement, oral cavity shape, and slide position placement. Participants A-1 and A-2, the youngest and least experienced, likely showed the most improvement because they were able to better center the pitches with their air and embouchure. Participant B-2 had the largest development in tone quality, and the resonance and centeredness of sound appeared to impact intonation to a degree as well.

Participant B-3 demonstrated no improvement in tone quality, and the pitch of a given note fluctuated dramatically from start to end of the note due to excessive jaw movement. This subject's intonation only decreased by 3.03%, and it is possible that a retest would yield minor fluctuations of an increased or decreased intonation tendency. Participants A-3 and B-1 showed the most regression, with the former

struggling with anxiety and stress during the test and the latter coping with the finger injury in the left hand. Participant A-3's degradation poses the question that is beyond the scope of this study: How does a negative mindset or willpower impact air support and intonation?

This study indicates that novice level students are capable of understanding and implementing proper playing position and movement of the slide, but more research needs to be done to see exactly how it impacts tone quality and intonation. Tone quality improved significantly in five of the six participants and intonation only improved in half of the subjects. There were many variables in the curriculum instruction, how the content was taught, and in the ability for all students to perform at their best. Additionally, this study was limited to six participants with no control group, so the sample size was not large enough to determine overall effectiveness of the curriculum on the student's development in the complex area of tone quality and intonation. If the two participants who struggled mentally and physically (Participants A-3 and B-1) are removed from the data charts, then results indicate that this curriculum aids in the development of aural skills and slide position placement.

To test these theories, future research studies focused on the development of tone quality or intonation could include a larger sample size of students, a control group, and a reduction in variables. It could also be tested in a sectional or group lesson setting to ascertain its validity in a classroom environment. Additionally, tone quality and intonation are advanced concepts that take time to understand, develop, and master. So, a study spanning a longer period would also provide a greater opportunity to track long term implementation, understanding, and progression of the

concepts. Lastly, these concepts could be implemented in a way that supplements other musical instruction and material. The initial four lessons in this study were exclusively devoted to the instruction and implementation of the curriculum. Private teachers or music educators working with their trombone sections in small group instruction over longer periods could devote the first half of a lesson or sectional to the practice of these fundamental concepts and use the remaining portion of the instructional period to implement these ideas into other musical material, such as method book exercises and concert music. Overtime, this might be a more effective way to gradually implement these complex techniques, allowing the students to process the skill sets more gradually and organically.

CHAPTER 6: CONCLUSION

6.1 Purpose

The aim of this dissertation was to define proper playing position and slide technique and use that information to develop and test a new curriculum on novice level trombone students. The Literature and Resource Review in Chapter Two examined dissertations, scholarly articles, websites, instrument-specific methods (beginner through advanced), and band methods to determine what is the modern standard for the technique and how it is taught. Additionally, the research aimed to see what resources are available to the novice trombonist, private teachers of the instrument, and classroom music educators. Content was assessed for information related to left-hand grip and support of the instrument, right-hand grip of the hand-slide, action of the slide, as well as for suggested exercises to help implement and refine the technique. Additionally, the researcher deciphered whether the materials were suitable for the novice trombonist or the music educator who is not a specialist of the instrument.

After conducting the Literature and Resource Review, it can be concluded that the modern standard for trombone slide technique is: a left hand and arm that supports the entire weight of the instrument while using the proper hand position to stabilize the instrument to the body, freeing the right hand to glide the outer slide over the inner slide, and a right hand that grasps the second hand-slide brace with the thumb and first two fingers positioned towards the bottom with a wrist that is neutral along the same plane as the forearm. Most trombone methods introduce these concepts in

the beginning of the book and provide advanced exercises to refine the technique. Band methods typically also discuss playing position in the beginning of the book, but rarely address the action of the slide and do not provide exercises for implementation. Resources available to the novice beyond these materials include pedagogical devices and aids as well as some online resources. Therefore, it can be concluded that there is a significant gap in instruction for the novice trombonist, especially regarding exercises specifically addressing slide technique and development.

The gap discussed in the Chapter Two: Literature and Resource Review informed the creation of a researcher-developed curriculum to teach proper playing position and slide technique to the novice trombonist. The research aimed to identify whether the participants could master proper playing position and slide technique, move the slide with accuracy and efficiency, and whether skill sets in those areas improve the students' tone quality and intonation tendencies. After the five-week study, it can be concluded that novices can learn and implement proper playing position and slide technique, but mastery would take a longer period. Some of the youngest students were smaller in stature and holding the instrument exclusively in the left hand was challenging or impossible. Additionally, most students improved at position accuracy and movement efficiency, and nearly all improved in overall tone quality. Results were inconclusive regarding intonation improvement: three students had significant improvement, while the other three regressed. However, the data was impacted by one student's injured finger and another student's anxious demeanor when performing the Final Assessment.

6.2 Reflection and Recommendations

6.2.1 Literature and Resource Review

The research in the Chapter Two: Literature and Resource Review aimed to sample materials that are most readily available to the private or classroom instructor of the trombone. Choosing this method allowed for a thorough investigation into the standard for proper playing position and slide technique. However, in the current digital age, there is a plethora of information about trombone pedagogy on podcasts, blogs, video sharing platforms, such as YouTube, and social media platforms, such as Facebook, Instagram, and TikTok. Such investigation was beyond the scope of this dissertation, but there are many reputable professional trombonists and music educators who disseminate useful information related to trombone pedagogy on these platforms. Future researchers on the topic could consider exploring material available in the online community to contribute to the pedagogy of modern trombone slide technique.

6.2.2 Curriculum

The curriculum was drafted with the private teacher and classroom educator in mind. Exercises were created to build sequentially starting with proper playing position, then accurate slide position placement, and finally, developing an efficient, rhythmic slide. Rote learning was used to teach the exercises so that the material was accessible to all abilities and music reading skills. This approach allowed the students

to focus on technique and emulation of the teacher's sound without being inhibited by the need to decipher the musical notation of the exercises. The rote learning style likely impacted student progression in a positive way because the participants were frequently asked to mimic how the teacher modeled a given exercise.

The researcher expected to conclude that both tone quality and intonation would improve for most participants. The former held true, but the latter was inconclusive. The curriculum did not utilize any tuning devices or drones to reference pitch, so intonation was not directly taught to the subjects. However, it was assumed that through repetition of accurate slide position placement and emulation of the teacher's demonstrations that intonation might improve organically. Due to the inconclusive results stated above, further research should be conducted to test this theory. Recommendations for future research in the area include:

- **Larger Sample Size:** As discussed in Chapter Three: Methodology, the COVID-19 pandemic impacted outside research in area schools, so a small group of six participants was recruited to the study in a one-on-one instructional environment. Future researchers could pull individuals for shorter amounts of times directly from the classroom environment in a school setting for one-on-one instructor. Or the researcher could teach the curriculum in a group setting.
- **Control Group:** The use of a control group was not utilized in this study due to the limitations of recruitment and the time needed for one-on-one instruction and reflection, as discussed in Chapter Three: Methodology. A control group could be more realistic in a group

environment. The control group could have a sectional on the music and exercises that the band director is currently implementing in the classroom while the experimental group could spend half of the time on the trombone-specific curriculum and the remaining time implementing the concepts with the classroom music and exercises.

- **Prolonged Engagement:** Private one-on-one teaching is time-consuming, but a study spanning longer than five weeks is more feasible in a small-group environment. Additionally, this would allow the techniques in the curriculum to be more gradually introduced and implemented into the students' playing over a longer period.
- **Home Practice Implementation:** The curriculum could be audio and video recorded to serve as a "play along" opportunity for students to implement the curriculum into their personal practice at home between lessons.
- **Intonation Study:** Tuning devices, drones, or singing to develop aural skills could all directly influence improvement in intonation. Perhaps coupled with a longer study for an advanced skill, this curriculum has the potential to develop a student's tuning abilities.
- **Intermediate and Advanced Study:** This study was taught to six novices of the instrument. It would be valuable to see how these fundamental exercises impact the technique, tone, and intonation of intermediate and advanced students.

Ultimately, little research has been conducted on this topic, and future scholars could approach this topic in many ways that would further build on the results of this study. For implementation of this curriculum as it is written, it is recommended that the private teacher incorporate these fundamental technique exercises into the first 10-15 minutes of a lesson and use the remaining time to work out of the band method book to implement the techniques into the student's daily playing. Additionally, the private teacher should model the exercises as often as needed to help reinforce concepts of tone quality, intonation, and air support. The classroom teacher should implement this curriculum in a one-on-one or small group setting to use for warm-up and technique building before proceeding to the classroom band method. Ideally, the classroom teacher will use 10-15 minutes of the devoted sectional time to implement the curriculum and then carry over the goals or themes to the band method materials. Non-trombone classroom educators who are comfortable demonstrating exercises on the trombone should be prepared to model the exercises. Otherwise, those who cannot play the trombone should model the exercises by singing and should listen carefully for consistency of tone quality, air support, and intonation.

6.3 Contributions to the Field

The primary purpose of the literature and resource review and researcher-developed curriculum was to address common hinderances and deficiencies in the novice trombonist. After researching and collecting pedagogical resources from

numerous sources (dissertations, scholarly articles, websites, instrument-specific methods, and band methods), it is apparent that there is a gap in the pedagogical materials that are created with the novice trombonist in mind. Most beginner level method books require that the student have an intermediate level understanding of reading music, rhythms, and an ability to play at least an octave range on the instrument. Students who do not yet have these skills are left with beginner band methods as their primary source of pedagogical information, which means that novice trombonists learn slide positions and slide technique at the pace of the band method book. This slow development of slide technique leads to trombone sections with sluggish slides, poor tone quality and intonation, and awkward, limiting slide technique.

The creation of a novice level curriculum that does not rely on reading music and only requires the student to be able to play the first five pitches of the B-flat major scale provided the opportunity for young trombonists to begin slide technique refinement at an earlier stage. These exercises are flexible across beginner to intermediate levels of mastery on the instrument, and they can be taught in private or group lessons and sectionals. Additionally, since the exercises are taught using rote learning and knowledge of the seven slide positions, the student does not need to read music as one works on these exercises. As one of the most cumbersome instruments in the beginning band setting, investing time into the trombone section will allow the young trombonists to be held to the same standard as other beginning band instruments that depress valves and keys to change notes. Trombone sections will

likely play with better pitch accuracy, air support, tone quality, and possibly improve in areas of intonation, rhythm, and sight-reading.

APPENDICES

APPENDIX A

LITERATURE & RESOURCE REVIEW TABLES

A.1 Pedagogical Devices

	Description	Website	Aids
WiseGrip	A 3-D printed that attaches to the upper brace of the hand-slide. Fits numerous small, medium and large bore horns. Made of Nylon 12; “approved for skin contact, and has a host of industrial applications, and medical and surgical uses such as prostheses. Clips on for easy attachment and removal	https://wisegrip.com/about-section/	Left-hand grip and comfort
Yamaha YAC1535P Trombone Handstrap	Leather Trombone Handstrap, adjustable Velcro; “shifts the weight of the instrument to the back of the left hand, away from the base of the thumb and the middle finger.” Fits on all small and large bore trombones, alto through bass; wraps around the mouthpiece shank & then slides over the hand. A little cumbersome at first and takes getting used to.	https://www.hickeys.com/music/brass/trombone/accessories/trombone_straps_and_supports/products/sku032309-yamaha-yac1535p-trombone-hand-strap.php	Left-hand comfort and support of the instrument
Neotech Trombone Grip	“Creates a comfortable custom grip to support the weight of the instrument; easy to attach; adjustable to 18 positions; fits most trombones.” Neoprene strap for the hand, taking the weight of the instrument off the hand and down to the arm; “balances the weight and gives you added control.” Takes away strain and is good for small hands that cannot grip the instrument properly.	https://www.neotechstraps.com/trombone-grip.html	Left-hand grip comfort and control of the instrument
Bulletbrace	Provides left arm relief, redistributes weight to the bigger, lower muscles of the left arm. “Takes the tension off of the smaller upper muscles in the wrist region; removable. Its predecessor, the Stegeman bar, had to be soldered onto the instrument. Made of aluminum (light and helps maintain sound quality of the instrument). Intended for horns with F-attachments or double valves because of the inability to use the bell brace when holding the instrument	https://www.edwards-instruments.com/trombone-options/bullet-brace/	Left-hand control and comfort
Trombone Ax Handle	Similar to the Bulletbrace; redistributes the weight of the instrument to the larger muscles of the left arm; also made of aluminum; Intended for use with F-attachment horns.	https://instrumentinnovation.com/ax-handle-420/	Left-hand control and comfort
Extendabone	“Slide extension handle. Its simple and ergonomical design lets everyone play trombone!” Attaches to the lower hand-slide brace and pivots from a 90-degree angle to flush with the outer tubes. Helps the player reach 6th and 7th positions more easily. It is plastic and clips onto the brace for easy attachment and removal. Requires	https://extendabone.com/about/	Right arm reach and control of the slide

	good left-hand control of the instrument, as any weight distribute to the right hand will cause the handle to dislodge.		
Hagmann RM09 Trombone Hand Rest Support	The paddle attaches to the bell brace and supports the back of the hand; intended for instruments with valves but can feasibly attach to any type of trombone.	https://www.hickeys.com/music/brass/trombone/accessories/trombone_straps_and_supports/products/sku111681-hagmann-rm09-trombone-hand-rest-support.php	Left-hand comfort
Rath Trombone Hand Rest Support	Similar to the Hagmann RM09; attaches to bell brace, shifts weight from fingers to back of left hand	https://www.hickeys.com/music/brass/trombone/accessories/trombone_straps_and_supports/products/sku128595-rathtrombone-hand-rest-support.php	Left-hand comfort
Get-A-Grip	“No soldering or alterations to your horn. No scratches. It goes on and off in seconds with no screws or tools. Made of aluminum with foam padding covered with deerskin to protect your instrument. Adjustable for just about any size hand. It can be bent, and it will hold its shape.”	https://www.sheridanbrass.com/store/get-a-grip-dmVtg-fWd00	Left-hand control and comfort

A.2 Trombone Methods: Beginner

	Author	Year	Title	Description	Left Hand	Right Hand	Slide Action/Manipulation	Wrist
1	Davis, Michael & Shari Feder	2004	<i>Brass Buzz</i>	A thorough daily routine for a young musician; student needs to know at least the one octave B-flat major scale and eighth notes and syncopated rhythms. Approximately half-way through a first-year band method; not for the novice.				
2	Gendron, Denise A.	2003	<i>Learn From a Pro: 23 Easy Lessons</i>	Intended for novice; similar band book structure and material; alternate option.	Pg. 3: "Trombone left hand: Place your curved thumb behind the bell brace and rest your index finger on the mouthpiece tubing (not the mouthpiece itself). Wrap your other fingers around the first slide brace to position and support the instrument."	Pg. 3: "Trombone right hand: Carefully grasp the second slide brace with your thumb and first two fingers. Keep your hand and wrist flexible."		
3	Gouse, Charles F.	2005	<i>Learn to Play the Trombone!, Bk 1</i>	Intended for novice; similar band book structure and material; alternate option.	Pg. 3: "Keep your left thumb in back of the bell brace. Let your left index finger rest on the top of the mouthpiece tube. The other fingers are placed around the first slide brace. The wrist should be kept as straight as possible."	Pg. 3: "The thumb and the first two fingers are used to grasp the slide. Make <i>sure</i> that the slide lock is secure when the slide is not held."	Pg. 20: "Keep the air moving and move the slide quickly and smoothly. Think of 'throwing' the slide to its next position. Try to hear the notes before you play them."	
4	Helvig, Aaron	2010	<i>Launch Pad for trombone Blast off! Tone and Technique</i>	Requires 2 octave range, fluent reading of bass clef; Like Michael Davis & Shari Feder book but a thorough daily routine and method, need at least one year of playing experience, no discussion of slide technique				
5	Hudson, Drummond	?	<i>Let's Play Trombone, v. 1</i>	Starts with beginner instruction and quickly jumps to advanced concepts. By lesson 3, chromatic scales, Major scales, etc. Not meant for first-year band student.				

6	Kinyon, John	1984	<i>Breeze Easy Method 1 Trombone</i>	Intended for the novice similar band book structure and material; alternate option. Outdated.	Pg. 3: "The left hand supports the weight of the instrument"	Pg. 3: "...the right hand is relaxed."		
7	Long, Newell H.	Unknown	<i>RUBANK Elementary Method Trombone or Baritone</i>	Trombone method, no discussion of set up or technique; simply volume of exercises to supplement band instruction. At least 1 year band experience needed.			Pg. 38: "Shift the slide quickly between notes and make the interruption in tone while the slide is being shifted as slight as possible. Recontinue the tone after the shift with a very light "doo" attack."	

A.3 Trombone Methods: Intermediate & Advanced

	Author	Title	Left Hand	Right Hand	Slide Action/Manipulation	Wrist
1	Ed. Charles L. Randall and Simone Mantia.	<i>Arban Famous Method for Slide and Valve Trombone and Baritone.</i>	Pg. 11: “Holding the Trombone and Need of Relaxation: The entire weight of the Trombone should be sustained by the left hand.	Pg. 11: “The Slide should be freely thrown between the thumb and fingers of the right hand, use the elbow and wrist like hinges to lengthen the reach and not forgetting that the player must learn to throw the Slide to the finger-tips for the seventh position.”	Pg. 13: “Slide position chart w/ distance between positions (inches)” Pg. 31: “The player should go as far as possible in either direction, thinking more of attacking as the slide passes the position desired, than of a deliberate stop with the slide. The gliding must be done with the right hand, and unless the attack is made as the note is passed, a stiff and impossible system will develop. The idea of picking up a note at either end of the slide is paramount.”	Pg. 11: “Modern players use no tension in the right hand as relaxation will enable a freer system of shifting when using both elbow and wrist.” Pg. 84: “The should be practised legato with a loose wrist and students will derive a sense of position with the right arm which is very valuable in chromatic passages...”
2	Alessi, Joseph & Brian Bowman	<i>Arban Complete Method for Trombone & Euphonium</i>		Pg. 11: “Hold the slide with the first two fingers and the thumb. The third finger should ride on the underside of the lower slide. The first two fingers and the thumb should always be in contact with the slide brace.	Pg. 11: “SLIDE MATTERS: It is important to have your slide in good working order to avoid any stress when maneuvering the landslide. Dents, alignment, and corrosion can all contribute to a sluggish slide.” Pg. 11: “When the slide is being extended, the thumb should act like a drive train—initiating the movement—and the first two fingers should act like the brakes. The reverse is true when retracting the slide—the thumb being the brakes and the two fingers being the drive train.” Pg. 15: “Perform these exercises slowly, attempting to have the smoothest possible slide connections. Listen to what happens while traveling to and from notes. Is the sound clean and smooth? Try to move the slide as late as possible without affecting your air flow. Separate air flow and slide movements so that these functions work independently.” Pg. 29: “Move the slide rhythmically. Often we do not think of a slide movement in this way.” Pg. 43: “...we are moving the slide the distance of only one position and	Pg. 11: “The wrist and arm act together as one unit, thus avoiding excessive movement with the wrist which leads to sloppy slide technique and glissy slide movements.”

					believe it is fine to relax the wrist and mind...moving the slide later rather than sooner.”	
					Pg. 88: “CHROMATIC SCALES: When using a slower tempo, notice how the slide pauses for each position. Master this technique first before increasing speed. At faster tempi, let the slide go in one motion so as not to stop on each position. In other words, let the slide glide. One danger when playing faster is the slide may get ahead—or fall behind—the tongue and the mind. If you are having trouble with this, slightly accent each downbeat.”	
3	van Dijk, Ben	<i>Ben's Basics for Trombone</i>	Pg. 15: “HOLDING YOUR INSTRUMENT: It's extremely important to find a way to hold your instrument as easy and relaxed as possible. There should not be any tension in your hands, arms, neck and back of your body.” 15: When the slide moves, the trombone should be as still as possible so there will be no negative influence on our embouchure!”	Pg. 15: “I also recommend holding your slide in a very gentle way. Realize you have something of high quality in your fingers. The more you treat it like that the better it will work for you.	Pg. 34: “Now move your slide as late as possible, staying as long as possible on that last note you played before you move to the next one. This will make your slide go fast. Remember to hold your slide gently. Stop the slide on the exact spot for the note. I see many players go too far and then return to the correct placement. This makes for jerky slide movement, insecure playing and will result in bad intonation.” 50: “...move it gently and precisely.”	Pg. 15: “I make use of flexible, but controlled slide-hand-wrist, like you will use in a “Jazzy” vibrato. This makes it much easier to move it quickly and stop it when I want it to.” “Hold the slide gently between your thumb, index, and middle finger. Your wrist has to be flexible like when you use a “Jazzy” slide vibrato.”
4	Reginald H. Fink	<i>Introducing Legato for Trombone</i>	Pg. 2: “In addition, the left hand must do all the work of holding the weight of the trombone so that the right hand is free to flick the slide from position to position without disturbing the embouchure.”		Pg. 2: ELEMENTS OF LEGATO “Move the slide quickly, at the last possible moment, to the next position.” Pg. 2: “...the breath must flow in an almost steady stream, independent of what the tongue and the slide are doing.” Pg. 2: “...the slide must remain in the last position as long as possible and move to the next position at the last possible moment. This means that the slide must be held properly, must be lubricated and be in excellent working order. Pg. 2:	

					<p>“Note: If observing a good trombonist through sound proof window, the slide would move smoothly when playing staccato. The slide would be timed to pass the position at the proper moment. The slide would be moved in an almost jerky style when playing legato because the slide must remain in each position until the last possible moment.”</p> <p>Pg. 2: “The rhythm must be precise...the slide must move at exactly the same time...without disturbing the smooth flow of breath.”</p>
5	Reginald H. Fink	<i>Studies in Legato for Trombone</i>	<p>Pg. 7: “USE PROPER HAND GRIPS FOR LEGATO PLAYING: Establish correct hand grips from the very beginning. Left Hand. The work of holding the weight of the trombone is done by the middle, ring, and little fingers of the left hand. The index finger is usually held by the lead pipe near the mouthpiece. The thumb is hooked easily around the bell brace or is held loosely against the valve lever of the F attachment. Never prop the instrument against the embouchure to help hold the weight of the trombone. Check the left-hand grip by holding the trombone in playing position, but away from the embouchure. Extend the slide with the right hand, but do not grip the slide or hold the weight of the slide. Make the left hand do all of the work of holding the trombone and</p>	<p>Pg. 7: “Right Hand. The right hand has only one purpose—to move the slide back and forth. With the palm of the hand open to the face, place the index and middle finger on one side of the slide brace and the thumb on the other side of the brace. The brace touches the crease of the first joint near the two of the fingers and the pad of the thumb. Holding the slide with more than 2 fingers will slow the slide action. Holding the slide at the second or third going will also slow the slide action. Turning the hand over so that the palm faces the floor will stiffen the wrist and slow the slide action. In time this palm down grip will cause RSI (Repetitive Stress Injury) to the right elbow if a lot of rapid technical work is required. If the right hand must help hold the weight of the trombone, the left hand is not doing its job of suspending the instrument properly.”</p>	

			the weight of the extended slide.”			
7	Ed. Donald Hunsberger	<i>The Remington Warm-Up Studies.</i>		Pg. 10: “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.”	Pg. 11: “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 the slide technique which provides a truly relaxed approach to both staccato and legato playing.”	
8	Denis Wick	<i>Trombone Technique</i>	Pg. 15: “The trombone is usually held at an angle of about sixty degrees to the vertical. The left hand must support the entire weight of the instrument. This may seem very difficult, if not impossible, to the beginner; to him the instrument may seem much too heavy to be held in this way. Most trombones made today are very well balanced, however, and when in a playing position will ‘sit’ in a perfectly natural and easy way in the left hand. Supporting the weight of the trombone with the right hand will cause premature wear of the outer slide and distort the inner slide, as well as possibly giving rise to bad intonation. In order to hold the instrument more steadily, the index finger of the left hand is extended and presses against the mouthpiece. This	Pg. 15: “The slide should be held firmly but lightly by the thumb and index finger of the right hand. Other fingers may support the index finger. Pg. 15-16: Various hand grips & slide position notes (PHOTOS) Pg. 35: “In making a slide movement the first problem to be overcome is the inertia of the slide. It needs quite a firm push, outwards with the thumb or inwards with the index finger. On the way down, the index and the third finger act as a brake, while the thumb brakes upward movements. This may sound very straightforward, but unfortunately the natural result of these movements is that the hand travels not in a straight line but in an arc. Just as the violinist compensates for this by turning his wrists the trombonist slightly projects his shoulder for 5th, 6th and 7th positions.	Pg. 15: “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.” Pg. 35: “The actual slide movements should in both theory and practice take up as little time as possible, whether one is playing long or short notes. Perfect co-ordination of breath control, tongue-action, and slide movement are absolutely essential. Having been told all this, young players often find that in a valiant effort to move the slide as quickly as possible they jerk it, so that the embouchure becomes disturbed – even battered – by the violence of the movement. I should add that a slick fast slide action has to be carefully studied – a quick acceleration from rest, and a controlled ‘cushioned’ braking to stop. None of this should be obtrusive, and any great effort to make it happen must not be noticeable. In fact ‘effortless’ seems a good word to describe how this should appear. The right hand should hold the slide firmly but gently, with just two fingers and thumb. One particular problem here is often the moving back of the slide to first position. Only careful practice (with the thumb ‘brake’) will prevent the slide from either stopping short or crashing against the stops with distinctly unpleasant effects on the embouchure. Pg. 35: “One important aspect of trombone technique that is often overlooked is the fact that however short the notes in running passages may be, they do still have a definite	Pg. 15: “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 (see photos below). 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.” Pg. 35: “In the chapter on holding the trombone, we saw that the right-hand wrist is kept more or less straight, to cut down too many unpredictable joint-movements. Pg. 35: “Some players use a distinctive wrist action to return from 7th to 6th or 5th positions and vice-versa. This is not necessarily the best method but it is quite a good idea, and is probably neater than involving the whole arm. The only condition that I place upon its use is consistency.

			considerably improves balance and stability. The player's body should be erect, with the seat well back in the chair. The legs should not be crossed. The whole bodily attitude should be alert and poised, but not tense. The standing position is similar, with shoulders back and head upright.		<p>duration. The old-fashioned concept of a continuously moving slide is no doubt graceful to look at, but certainly guarantees that some notes are played out of tune. The slide must stay in the correct position for the duration of the note, however short it may be. This idea will often give rise to the somewhat odd effect in fast passages that the slide appears to click into place, to 'slot' into each position. It should certainly appear to do this, but in a very controlled way, so as not to jerk the instrument at each movement. If the acceleration and braking are practised thoroughly then the slide action need never be a barrier to the acquisition of a really fine technique."</p> <p>Pg. 37: "Chromatic scales on the trombone present a problem which in a way sums up the main technical difficulties of the instrument – making long slide movements as effectively and as accurately as very short ones. Here the comparisons are between the longest slide movements, 1-7, and adjacent positions."</p>	<p>The pattern of joint movements has to be learned and always used in precisely the same way; players with comparatively short arms will probably have to support the slide with the 2nd and 3rd fingers in the 7th position.</p> <p>Pg. 83: "ERRORS AND REMEDIES: Too much flexibility in right wrist generally causes uncontrolled intonation and lack of slide precision, speed and co-ordination, because of wasted movements and time. Remedy. Turn wrist until thumb and finger are roughly in the same plane on the trombone slide. Minimize wrist movement, but keep slide hand and wrist supple enough not to jerk the slide."</p>
9	Brad Edwards	<i>Lip Slurs: Progressive Exercises for Building Tone & Technique</i>			<p>Pg. 8: "Keep the air flowing steadily as you quickly move the slide to the new position. Avoid "snapping" or "jerking" the slide too violently. Keep the slide motion smooth and relaxed."</p> <p>Pg. 10: "Think of the arm as a "shock absorber" to minimize shaking of the instrument and torso (and thus the air stream) with longer slide shifts."</p>	
10	David Vining	<i>Trombone Intonation Mastery</i>			<p>Pg. 7: "...feel as though you are just gliding the slide on its track—not pushing and pulling it."</p> <p>Pg. 7-8: "Understanding that the shoulder blade is part of the arm can help you free up your arm to reach sixth and seventh positions." "When you use your entire arm to trace a straight line, you will use all five</p>	<p>Pg. 7: "Your intonation depends on your ability to consistency play the slide accurately which, in turn, depends in part on how you move the slide. Many non-trombonists (and</p>

					<p>jointed areas: fingers, wrist, elbow, upper arm going, and SC joint. The five jointed areas will naturally be used in different combinations as you travel the length of the slide—you will probably use the SC going more in the lower slide positions, for example. There is no need to think about how much wrist to use or whether or not to engage the SC joint because the movement is organic in cooperation with how your body is constructed.”</p> <p>Pg 9: Pics of “Allowing the shoulder blade to rotate around the body”</p>	<p>even some trombonists) advise “using a lot of wrist” in order to stay relaxed, but this approach is far too simplistic and typically does not result in consistently accurate intonation.”</p>
11	Edward Kleinhammer & Douglas Yeo	<i>Mastering the Trombone</i>	<p>Pg. 35: “This slide inaccuracy and carelessness is one of the reasons we trombonists are the “black sheep” of the brass family. However, slide accuracy I probably one of the easiest facets of trombone playing to master. In fact, one need not even place the mouthpiece on the lips to practice slide technique; placing the mouthpiece on the chin will suffice.”</p>			

A.4 Band Methods

	Title	Publisher	Year	Left Hand	Right Hand	Action/Manipulation	Wrist
1	<i>Accent on Achievement</i>	Alfred Music Publishing	1997				
	CONDUCTOR				<p>Pg. 95: "Trombone: Although it is not required that you do so this time, the first two measures contain an excellent opportunity to use the alternate 6th position F...)"</p> <p>Pg. 336: Accent on Trombone duplicate of student exercises</p> <p>Pg. 42</p>	<p>Pg. 52: "Trombone: Don't be concerned if your younger trombone players are not able to reach a true 6th position. In virtually all cases, they will grow into it, and by tolerating some out-of-tune Cs for a period of time you will gain performers on this much needed instrument."</p>	
	STUDENT			<p>Pg. 3: "Check Your Playing Position: 1. Sit on the front half of your chair. 2. Keep your feet flat on the floor. 3. Sit up straight and tall. 4. Your left thumb goes around the bell brace and your left index finger rests on top of the mouthpiece receiver. Your other fingers wrap around the first slide brace.</p>	<p>Pg. 3: "5. The slide is held at the second slide brace with your thumb and first two fingers."</p> <p>Pg. 42 "Accent on Trombone" Exercises trombone-specific, snippets of exercise, no direction other than alternate positions for F & Bb.; exercises throughout the book as well at the bottom of the page...no direction, just the exercise (even for lip slurs; they waited until the student could read the pitches before introducing them, pg 24 #91)</p>		<p>Pg. 3: "Keep your right hand and wrist flexible."</p>
2	<i>Premier Performance, Book 1</i>	Sueta	1999				
	CONDUCTOR			<p>Pg. 49: "Posture and Playing Position: Sit up straight on the front part of your chair. Keep your head up, feet flat on the floor and look straight ahead. Relax your shoulders and move them down and back a little. Wrap the second,</p>	<p>Pg. 49: "Curl the third and fourth fingers into the palm of your right hand. Keep your elbows slightly away from your body."</p>	<p>Pg. 142: "The slide should be moved quickly when changing positions."</p>	<p>Pg. 49: "...and your right wrist relaxed and flexible."</p> <p>Pg. 95: "Always use your wrist when moving your slide."</p> <p>Pg. 427: "Develop a quick wrist action." (What does</p>

				third and fourth fingers of your left hand around the upper slide brace. Place your left index finger against the mouthpiece and your left thumb at the base of the bell brace.			that mean???)
3	<i>The Yamaha Advantage: Musicianship from Day One, Book 1</i>	Carl Fischer	2001				
	CONDUCTOR				<p>Pg. 125: "Make sure the slide is being held with the tips of the fingers and the wrist is loose."</p> <p>Pg. 330-331: Student Page 43 Advantage Trombone; duplication of exercises; no additional instructions</p>	<p>Pg. 125: "Trombone: Fast, smooth slide movement is essential for good technique."</p> <p>Pg. 204: "Trombone: A foundation of good trombone technique is using alternate positions. This exercise beings this process by presenting alternate sixth-position F."</p>	<p>Pg. 125: "Make sure the slide is being held with the tips of the fingers and the wrist is loose."</p>
	STUDENT			<p>Pg. 2: "Getting started: Sit up straight on the edge of a chair with your feet flat on the floor; Hold the trombone in the left hand with the thumb wrapped around the bell section brace;</p>	<p>Pg. 2: "The left hand holds the outer slide with the first two fingers and thumb at the tips. Curl the other fingers into the palm. Try not to touch the bell with fingers." [Mistake, RIGHT HAND]</p> <p>Pg. 25 & Pg. 31 #143: "Advantage Trombone (Lip Slurs): #111 notates the first three positions and then instructs the player to "continue down with 4th, 5th, 6th and 7th positions.</p> <p>Pg. 42-43: Advantage Trombone: exercises trombone-specific; various patterns, snippets, more lip slur patterns; some tips but no discussion of RH slide tech.</p>		
4	<i>Band Expressions</i>	Smith et al.	2003				

	CONDUCTOR			<p>Pg. 49: "Balance comfortably with body leaning slightly backward. Elbows comfortably away from the body. Left hand first finger near shank of mouthpiece. Other fingers placed on the lower side of the upper cross bar with thumb on base of bell."</p>	<p>Pg. 49: "Right hand takes slide between the second and third finger with the thumb as a support." Pg. 183: "Trombone—Players should extend the slide to the correct 6th position for low concert C. This reach will be challenging for some young students. The thumb and first two fingers of the right hand will help to extend the slide to low 6th position (and 7th position)."</p>	<p>Pg. 113: "The students should move fingers and slide positions quickly to avoid unwanted or delayed sounds." Pg. 113: "Trombone—Students need to visualize their muscles, remembering where the correct 3rd and 4th position is for D and E-flat, before playing."</p>	
5	<i>Essential Elements for Band w/ EEi</i>	Hal Leonard	2004				
	CONDUCTOR					<p>Pg. 133: "This exercise features the trombone "glissando." Trombones - use a steady stream of air to get the maximum effect." "A special trombone technique used in ragtime and other styles of music is called a glissando, which looks like this: ___ To play a glissando, move your slide without tonguing and use a full airstream. Remember that glissandos are different from legato tonguing (slurs)." "Trombone: Play all 'F's' in 6th position in this exercise."</p>	
	STUDENT			<p>Pg. 3: "Place your left thumb under the bell brace, and your index finger on top of the mouthpiece receiver. Gently wrap your other fingers around the first slide brace." "Support the trombone with your left hand only."</p>	<p>Pg. 3: "Place your thumb and two fingers on the brace. Unlock the slide. Your right hand and wrist should be relaxed to move the slide comfortably. Hold the trombone as shown." Pg. 24: "Special Trombone Exercise - Lip Slurs" -Pg. 46-47: Slide position charts</p>		
	ONLINE & DIGITAL					<p>www.essentialelementsinteractive.com > Teacher Account > Resources > "EEi Section -Study #5: Trombone" SECTION STUDY #5 - Changing Notes. -EEi Reminders: 1) Be sure your air stream moves consistently and your lips vibrate through note changes. 2) For each exercise, practice saying note names while moving to the correct slide positions. 3) Smearing: Move the slide slowly to establish the correct positions and pitches. *Be sure to have</p>	

						<p>a full and consistent tone throughout the slide movement. 4) Quick Change: Once the positions and pitches are correctly established, work to move the slide more quickly.”</p> <p>-“Perform these notes with one air stream. After you learn Section Study #6, play these again and add articulations.” “Strive to let each note have the same full sound.” “Keep your air flowing consistency through note changes.” “As you change partials, your mouth should not change drastically and [your] air should move at a consistent speed.” “Move the slide precisely to the correct position when changing notes.”</p>	
6	<i>Standard of Excellence</i>	Bruce Pearson	2010				
	STUDENT			<p>Pg. 3: Sit up straight on the edge of your chair. Place your left thumb around the bell brace. Place the other fingers of your left hand around the first slide brace. Place your left index finger on or near the mouthpiece.”</p> <p>-“For Trombones Only” throughout the book; technique exercises; extra practice of the notes; one teaches alternate slide positions.</p> <p>Pg 39-40: “Excellerators-For Trombones Only” various technique exercises, no commentary or direction.</p>			
7	<i>Measures of Success</i>	The FJH Music Company inc.	2010				

	CONDUCTOR					<p>Pg. 113: "Trombones learn the glissando in this piece (the real reason they wanted to play the trombone to begin with!). Remind them to keep their air moving. In this case, the slide moves from 1st to 6th back to 1st positions (F-C-F). Move the slide so that it reaches 6th position by beat 2 (measure 8). Reinforce "landing" on the C by sustaining it and listening to good tone quality and intuition before moving back up to the F." "Tbn. To play a glissando, tongue the first note, then move the slide without tonguing."</p> <p>Pg. 210: "Sometimes it is better to use an alternate slide position to make technique smoother. Alternate F is particularly useful when approaching or leave low C."</p> <p>-Pg. 275: "Trombones are introduced to 7th position. Depending on the player's reach, this may be a challenge since 7th position is the furthest from 1st position. If your students are having trouble reaching 7th position, have them move the right shoulder forward a bit to add some length to the reach." (Specific Instruction!)</p> <p>-Pg. 346-347: Slide position charts</p>	
	STUDENT			<p>Pg. 3: "Posture Checklist: Sit on the front edge of the chair; feet flat on the floor; sit straight and tall; shoulders relaxed; elbows comfortably away from your sides."</p> <p>- "Hand Position Checklist: Left thumb grips the underside of the bell brace while the left index finger sits not the mouthpiece receiver (remaining fingers wrap around the first slide brace); Left hand supports the trombone, while relaxed right wrist and hand moves the slide."</p> <p>Pg. 35: "5.3 Sometimes it is better to use an alternate slide position to make technique</p>	<p>Second slide brace is secured between the right thumb and first two fingers</p>		

				smoother. Alternate F is particularly useful when approaching or leaving low C.” Pg. 54-55: Slide position charts.”			
8	<i>Sound Innovations for Concert Band, Book 1</i>	Alfred Music Publishing	2010				
	CONDUCTOR					<p>Pg. 22: “Trombone: Students must maintain a firm grip on the slide while extending to 6th position. Some players may need to rotate their right shoulders forward to reach this extended position.”</p> <p>Pg. 165: “Trombone: Encourage students to work toward a clean slur, rather than a glissando, by moving the slide quickly between positions, waiting until the last moment before moving between notes. Have them refer to the online video about slurs.”</p> <p>Pg. 258: “Trombone: This is the first time students will be playing F in 6th position. Ask them to find the correct pitch by comparing that sound to F played in 1st position.”</p> <p>Pg. 397: Slide position charts</p>	
	STUDENT			<p>Pg. 3: “Posture and Playing Position: A. Sit on the front edge of the chair. B. Keep feet flat on the floor. C. Sit tall with your back straight. D. Hold the trombone with your left hand. E. Place your left thumb around the bell brace. F. Place your left index finger on the mouthpiece receiver. G. Wrap your other fingers naturally around the first slide brace. H. Your left hand holds the weight of the trombone.</p>	<p>Pg. 3: “I Place your right thumb and first two fingers on the second slide brace to move the slide.”</p>		<p>Pg. 3: “J. Keep your right hand, wrist, elbow, and shoulder relaxed and flexible.”</p>
	ONLINE & DIGITAL			-Hold the trombone with just the left hand	online.alfred.com (product no. 36603) Joseph Rodriguez	-Slide Position Guidelines: 3rd position right next to bell (don’t reach for it, aim for it); 2nd position right in between 1 and 3; 4th position end of	

					-RH only function is to move the slide; thumb, two fingers; rest of fingers go underneath the slide; firmly, always hold on and never let go.	outer slide is next or just past the bell; 6th position is really far out but before you can see the stockings, if you can see the stocking it is too far (probably where your arm is fully extended); 5th position is between 4th and 6th position. 7th position is where the slide is past the stocking; be careful to hold the slide so the slide doesn't fall off. Go down or to the side to reach 7th position. -glissando, glissing in between the notes (uses this to teach legato). Move the slide fast but not jerky. Troubleshooting.	
9	<i>Tradition of Excellence</i> , 2nd Ed.	Bruce Pearson	2016				
	STUDENT			Pg. 2: "Posture & Hand Position: 1) Sit up straight at the edge of your chair with your feet flat on the floor. 2) Place your left thumb around the bell brace and place your left index finger on or near the stem of the mouthpiece. 3) Place the remaining fingers of our left hand around the first slide brace. 5) Bring the instrument to your mouth, resting it on your left shoulder. 6) Your left wrist should be straight and in line with your forearm."	Pg. 2: "4) Grasp the second slide brace with your right thumb, index, and middle fingers with the thumb on top and two fingers underneath."	Pg. 10: "Trombone Private Lesson: move the slide very quickly as you tongue. Tongue only the first note of each slur." Pg. 16: "Trombone Private Lesson: Repeat this exercise using the following slide positions: 1, 2, 3, 4, 5, 6, 7." Again on Pg. 24 Pg. 26: "Trombone Technique: glissando—wavy line connecting two notes which indicates that the slide position should change from the first note to the second note without breaking the air stream." Pg. 38-40: "Preparatory Exercises" specific to the trombone. More lip slurs and some chromatic ideas. Slide positions written for lip slur patterns.	Pg. 10: "Your right wrist should remain flexible. Keep your elbows away from your body."
	ONLINE & DIGITAL			KJOS CDROM Interactive: includes videos that follow same instructions in the book -IPS (Interactive Practice Studio) Software: Book as is; can record and make notes			

<p><i>Tradition of excellence : technique & musicianship for group or private instruction. Conductor score</i></p>	<p>Kjos Music Press</p>	<p>2012</p>				
<p>CONDUCTOR</p>				<p>Pg. 318: “Trombone: Tuning and Intonation. To play with excellent intonation is a goal of every individual musician and musical ensemble. The art of playing in tune is an ongoing process based on the necessary prerequisites of excellent tone quality and skilled listening. Without either of these components, efforts to play in tune will fall short. To tune a trombone, the player should tune to an established pitch that is played in 1st position. For most instruments, the tuning slide should be pulled out 3/4 to 1 inch. Because the slide can make small adjustments in pitch, the trombone doesn’t have the same intonation problems as valued brass instruments. This feature allows the trombone the capability of playing perfectly in tune. A common cause of trombone intonation problems is an inaccurate 3rd position. Because 3rd position is near the bell, many players touch the bell to help place the slide. This habit should be avoided because it prohibits fine tuning, creates intonation problems, and inhibits technical development.” From <i>Teaching Band with Excellence (W74)</i>, 2011 Kjos Music Press.</p>		

					Pg. 384: Extended Lip Slurs = 9 different exercise in 1st position, student asked to continue down through 7th Pg. 404: Slide position chart and depiction of slide position placement.		
10	<i>Habits of a Successful Beginner Band Musician</i>	GIA Publications	2020				
	CONDUCTOR					<p>Pg. 36, No. 9: “Remediate trombones going from 1—3 to 1—4”</p> <p>Pg. 39: “help trombones decide between 6th position at T 1 for “C.”</p> <p>Pg. 41: “We realize that all students don’t have an F-attachment and we also realize that some teachers like for all low C’s to be learned sixth position first: we are offering both choices, but it’s up to you.”</p> <p>Pg. 52: “Trombones: teach them the difference between the natural slurs in this exercise versus what is required in exercise #21.</p> <p>Pg. 53: “For trombones, they should use the syllables “Tah-Dah” with a fast slide to avoid the smear; the first note of a slur is a Tah or Toh— everything else is a “Dah.”</p> <p>Pg. 54: “For trombones, we would encourage the C in m. 7 to be played sixth position to continue the same direction of the slide.”</p> <p>Pg. 164: “Teach the trombones to do a gliss between the first two notes! Have them practice this between first and sixth positions before starting the song.”</p> <p>Pg. 425: Trombone Position Chart</p>	
	STUDENT			Pg. iv: “Use good posture by putting both feet flat on the floor, shoulder width apart, and bring the instrument to you. Sit on the front part of the chair with your back straight and shoulders relaxed. Hold the trombone with your left hand.”	Pg. iv: “Use your thumb and first two fingers of the right hand to move the slide deliberately.”		

APPENDIX B

INITIAL ASSESSMENT & CURRICULUM DRAFTS

B.1 Initial Assessment

Initial Assessment

The musical score consists of seven staves, each labeled with a number (#1 through #7) and a measure number. The key signature is one flat (Bb) and the time signature is 4/4. The music is written in bass clef.

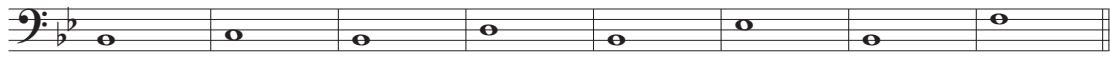
- #1**: Measures 1-8. A sequence of whole notes: G2, F2, E2, D2, C2, B1, A1, G1.
- #2**: Measures 9-14. A sequence of notes: G2, A2, B2, C3, D3, E3, F3, G3.
- #3**: Measures 15-22. A sequence of notes: G2, A2, B2, C3, D3, E3, F3, G3, A3, B3, C4, B3, A3, G3.
- #4**: Measures 23-30. A sequence of notes: G2, A2, B2, C3, D3, E3, F3, G3, A3, B3, C4, B3, A3, G3, F3, E3, D3, C3.
- #5**: Measures 31-34. A sequence of whole notes: G2, F2, E2, D2, C2, B1.
- #6**: Measures 35-42. A sequence of notes: G2, A2, B2, C3, D3, E3, F3, G3, A3, B3, C4, B3, A3, G3, F3, E3, D3, C3.
- #7**: Measures 43-50. A sequence of notes: G2, A2, B2, C3, D3, E3, F3, G3, A3, B3, C4, B3, A3, G3, F3, E3, D3, C3.

2

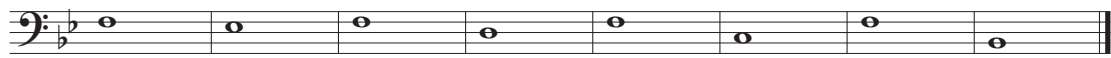
Initial Assessment

47

#8



55



63

#9



71

#10



75



B.2 Curriculum Initial Draft

Trombone

Curriculum Initial Draft

Exercise #1a: Accurate Slide Placement

Slide

Positions: 1 2 1 1 3 1 1 4 1



Positions: 1 2 1 1 3 1 1 4 1



Positions: 1 2 1 1 3 1 1 4 1



Exercise #1b: Air Support

1 2 1 3 1 4 1 5 1 6 1 7 1



A musical staff in bass clef with a key signature of one flat (Bb). The notes are: Bb2, Bb2, Bb2, Bb3, Bb3, Bb3, Bb4, Bb4, Bb4, Bb5, Bb5, Bb6, Bb6, Bb7, Bb7, Bb8. The notes are connected by a wavy line. The staff ends with a double bar line and a repeat sign.

1 2 1 3 1 4 1 5 1 6 1 7 1



A musical staff in bass clef with a key signature of one flat (Bb). The notes are: Bb2, Bb2, Bb2, Bb3, Bb3, Bb3, Bb4, Bb4, Bb4, Bb5, Bb5, Bb6, Bb6, Bb7, Bb7, Bb8. The notes are connected by a wavy line. The staff ends with a double bar line and a repeat sign.

1 2 1 3 1 4 1 5 1 6 1 7 1



A musical staff in bass clef with a key signature of one flat (Bb). The notes are: Bb2, Bb2, Bb2, Bb3, Bb3, Bb3, Bb4, Bb4, Bb4, Bb5, Bb5, Bb6, Bb6, Bb7, Bb7, Bb8. The notes are connected by a wavy line. The staff ends with a double bar line and a repeat sign.

Exercise #2a: Rhythmic Slide

1 1 2 2 1 1 2 2 1 2 1 2 1



A musical staff in bass clef with four measures. The notes are: G2, A2, B2, C3; G2, A2, B2, C3; G2, A2, B2, C3; G2, A2, B2, C3. The notes are quarter notes. The first measure has fingerings 1 1 2 2, the second 1 1 2 2, the third 1 2 1 2, and the fourth 1. The fourth measure ends with a whole rest.

Continue the position pattern...



A musical staff in bass clef with four measures. The notes are: G2, A2, B2, C3; G2, A2, B2, C3; G2, A2, B2, C3; G2, A2, B2, C3. The notes are quarter notes. The first measure has a flat on the second note (A2). The second measure has a flat on the second note (A2). The third measure has a flat on the second note (A2). The fourth measure ends with a whole rest.



A musical staff in bass clef with four measures. The notes are: G2, A2, B2, C3; G2, A2, B2, C3; G2, A2, B2, C3; G2, A2, B2, C3. The notes are quarter notes. The fourth measure ends with a whole rest.



A musical staff in bass clef with four measures. The notes are: G2, A2, B2, C3; G2, A2, B2, C3; G2, A2, B2, C3; G2, A2, B2, C3. The notes are quarter notes. The first measure has a flat on the second note (A2). The second measure has a flat on the second note (A2). The third measure has a flat on the second note (A2). The fourth measure ends with a whole rest.



A musical staff in bass clef with four measures. The notes are: G2, A2, B2, C3; G2, A2, B2, C3; G2, A2, B2, C3; G2, A2, B2, C3. The notes are quarter notes. The fourth measure ends with a whole rest.



A musical staff in bass clef with four measures. The notes are: G2, A2, B2, C3; G2, A2, B2, C3; G2, A2, B2, C3; G2, A2, B2, C3. The notes are quarter notes. The fourth measure ends with a whole rest.

Exercise #2b: Rhythmic Slide with B-flat Major Scale



Exercise #3a: Chromatic Fragment on Each Partial

1 2 3 4 5 6 7 6 5 4 3 2 1

Musical notation for Exercise #3a, first staff. Bass clef, 3/4 time signature. The melody consists of quarter notes: B \flat , A, G, F, E, D, C, B, A, G, F, E, D, C. The first six notes have a flat, and the last six have a sharp. The piece ends with a whole note B \flat with a fermata.

Continue the position pattern...

Musical notation for Exercise #3a, second staff. Bass clef, 3/4 time signature. The melody continues with quarter notes: B, A, G, F, E, D, C, B, A, G, F, E, D, C. The first six notes have a flat, and the last six have a sharp. The piece ends with a whole note B with a fermata.

Musical notation for Exercise #3a, third staff. Bass clef, 4/4 time signature. The melody continues with quarter notes: B, A, G, F, E, D, C, B, A, G, F, E, D, C. The first six notes have a flat, and the last six have a sharp. The piece ends with a whole note B with a fermata.

Exercise #3b: 3-Note Chromatic Fragment



Continue the pattern with positions 2-3-4, 3-4-5, etc.

Exercise #3c: 3-Note Chromatic Fragment with Rhythmic Slide



Continue the pattern with positions 2-3-4, 3-4-5, etc.

B.3 Curriculum Final Draft

Trombone

Curriculum Final Draft

Exercise #1: Paintbrush Strokes

Pay careful attention to your slide position placement. Bring the color of your sound in 1st position down to the next note and back up, much like thick, beautiful paintbrush strokes.

Slide

Positions: 1 2 1 1 3 1 1 4 1

1a

1 2 1 1 3 1 1 4 1

Positions: 1 2 1 1 3 1 1 4 1

1b

1 2 1 1 3 1 1 4 1

Positions: 1 2 1 1 3 1 1 4 1

1c

1 2 1 1 3 1 1 4 1

Exercise #2: Seesaws

Continue to focus on a beautiful, colorful sound on every glissandi while moving your slide rhythmically between position changes.

2a

1 2 1 2 1 1 3 1 3 1 etc....

2b

1 2 1 2 1 1 3 1 3 1 etc....

2c

1 2 1 2 1 1 3 1 3 1 etc....

Exercise #3: Slithering Snakes

Have fun with these! Watch your slide and "slot" each slide position as you go. Take a big breath and complete each "snake" in one breath. Continue to focus on accuracy and color of sound - then speed it up!

1 2 1 3 1 4 1 5 1 6 1 7 1



3a

Exercise 3a: A single staff of music in bass clef with a key signature of one flat. The melody consists of 12 measures, each containing a single eighth note. The notes are: G2 (with a flat), F2, E2, D2, C2, B1, A1, G1, F1, E1, D1, C1. The notes are connected by a wavy line representing a slide. The first measure has a finger number '1' above it, and subsequent measures have finger numbers '2', '1', '3', '1', '4', '1', '5', '1', '6', '1', '7', '1' above them. The staff ends with a double bar line.

1 2 1 3 1 4 1 5 1 6 1 7 1



3b

Exercise 3b: A single staff of music in bass clef with a key signature of one flat. The melody consists of 12 measures, each containing a single eighth note. The notes are: G2 (with a flat), F2, E2, D2, C2, B1, A1, G1, F1, E1, D1, C1. The notes are connected by a wavy line representing a slide. The first measure has a finger number '1' above it, and subsequent measures have finger numbers '2', '1', '3', '1', '4', '1', '5', '1', '6', '1', '7', '1' above them. The staff ends with a double bar line.

1 2 1 3 1 4 1 5 1 6 1 7 1



3c

Exercise 3c: A single staff of music in bass clef with a key signature of one flat. The melody consists of 12 measures, each containing a single eighth note. The notes are: G2 (with a flat), F2, E2, D2, C2, B1, A1, G1, F1, E1, D1, C1. The notes are connected by a wavy line representing a slide. The first measure has a finger number '1' above it, and subsequent measures have finger numbers '2', '1', '3', '1', '4', '1', '5', '1', '6', '1', '7', '1' above them. The staff ends with a double bar line.

Exercise #4: Light Switches

Move the slide rhythmically - on time and as quickly as possible - like the flick of a light switch!
Continue to focus on beautiful tone quality throughout.

4a

4b

Exercise #5: Chromatic Fragments

"Slot" each slide position as you go. Take a risk with 5c and have some fun while keeping your eyes on the slide. Bring your sound and articulation down and back up on each rep.

1 2 3 4 5 6 7 6 5 4 3 2 1 etc....

5a

1 2 3 2 1 2 3 2 1 2 3 2 1 etc..

5b

After you've mastered this, continue this exercise down through different neighboring slide position combinations: 2-3-4, 3-4-5, etc....

6

1 ----- 2 3 ----- 2 1 2 3 2 1 2 3 2 1 etc....

5c

After you've mastered this, continue this exercise down through different neighboring slide position combinations: 2-3-4, 3-4-5, etc....

APPENDIX C

DATA

C.1 Participant IDs and Descriptions

Participant IDs and Descriptions		
Participant ID	Grade Level	Experience
A-1	6th	3 weeks
A-2	5th	1.5 years
A-3	7th	2.5 years
B-1	7th	2.5 years
B-2	7th	2.5 years
B-3	7th	2.5 years

C.2 Initial Assessment: Qualitative Data

Initial Assessment: Qualitative Data				
Participant	Left-Hand Grip and Support	Right-Hand Grip	Tone Quality	Rhythmic Slide
A-1	The thumb is extended too far to and wrapping around the brace too greatly, which inhibits stability of the instrument. The first finger does not reach the mouthpiece shank and is instead curled around the top hand-slide brace with the other three fingers. The instrument sways between slide position changes, the student struggles to support the instrument in the left hand and needs frequent breaks between exercises.	The thumb and four fingers grasp the brace in the middle; occasionally the student lets go of the brace with the thumb.	The sound is airy, unsupported, uncentered, and lacks resonance.	The slide is moved quickly and stops in the position with confidence. The student takes a big breath between each pitch, so one has a lot of time to set the next position.
A-2	The first finger does not reach the mouthpiece shank and is instead curled around the top hand-slide brace with the other three fingers. The student struggles to support the instrument in the left hand and needs frequent breaks between exercises.	The student is using the thumb and first two fingers but occasionally adds the third finger. When extending to sixth position, the student releases the thumb and uses the fingers to extend the slide all the way to sixth.	The student is going to correct slide positions, but often is not hitting the center of the pitch due to unsupported air or possible an unfocused embouchure.	The slide is slow, and the student takes a long time to shift between positions, which are often overshot and then corrected.
A-3	The thumb is placed on the neck-pipe rather than wrapped around the bell brace. The instrument appears unsupported due to excessive swaying motions.	The slide is gripped with the thumb and fingers 1-3 at the middle of the brace.	The sound is stuffy, unsupported, uncentered, and not sustained.	The slide moves early, causing it to arrive at the next pitch too soon, but the student moves rhythmically in a consistent manner.
B-1	The thumb is placed on the neck-pipe rather than wrapped around the bell brace, but the instrument is rather steady and does not move around a lot.	The thumb and first two fingers grip the slide in the appropriate place at the bottom of the brace with the third and fourth fingers curled into the palm.	The sound is supported and steady but condensed and lacks resonance.	The action of the slide is quick and rhythmic.
B-2	The left thumb is placed on the neck-pipe rather than wrapped around the bell brace. The instrument has an abrupt jerking motion when the student moves to or from sixth position.	The student uses the thumb and fingers 1-3 to grasp in the middle of the brace.	The sound is airy, unsupported, uncentered, and lacks resonance. When playing rhythms with quarter notes or eighth notes, the student struggles with response issues.	The action of the slide is quick and rhythmic.
B-3	The instrument appears to be supported because it is steady and does not sway or jerk back and forth. It is possible that some of the weight of the instrument is distributed to the right hand because the right hand's third and fourth fingers are under the lower outer slide rather than in a relaxed position.	The first two fingers of the right hand are hooking around the brace and the thumb does not always maintain contact. When the brace is grasped, it is held at the middle of the fingers rather than at the tips. When approaching fourth position, the student uses the thumb to touch the bell for a reference point. The student also uses the second finger to touch the outside of the bell to reference third position.	The tone quality is stuffy, condensed, lacks resonance, and the air is unsupported, which causes the pitch to waver. This is especially noticeable on longer notes.	The action of the slide is quick and rhythmic, and the student "slots" the slide positions in an accurate manner.

C.3 Final Assessment: Qualitative Data

Final Assessment: Qualitative Data				
Participant	Left-Hand Grip and Support	Right-Hand Grip	Tone Quality	Rhythmic Slide
A-1	The student still struggles to support the instrument full with the left hand and still needs frequent breaks. However, the student is able to reach the mouthpiece shank with the index finger, and the thumb is placed correctly on the bell brace, which creates a more stable instrument.	The student actively attempts to use the thumb and first two fingers to grasp the slide at the bottom of the brace. Occasionally, the third finger is added, but one is no longer letting go with the thumb.	There was improvement in tone quality—the pitches were more centered and the sound was more resonant.	The student is able to play quarter notes with no breath in between, and occasionally overshoots the positions at faster tempos.
A-2	There was no discernible difference in left-hand grip and support.	There was no discernible difference in right-hand grip.	There was improvement in tone quality—the pitches were more centered and the sound was more resonant.	The student still moves the slide too early but overshoots the desired position significantly less frequently.
A-3	There was no discernible difference in left-hand grip and support.	The thumb and first two fingers grasp the brace at the appropriate position.	The sound is slightly more sustained and resonant, but the tone quality is still uncharacteristic.	The slide continues to move rhythmically, but the coordination of the timing of the slide showed no improvement.
B-1	The student sprained the third finger of the left hand while playing basketball and had to wear a brace, which significantly impacted the student's ability to grip the instrument.	There was no discernible difference in right-hand grip. It is possible the weight of the instrument was distributed slightly to the right hand due to the poor left-hand grip.	The sound was more open and resonant when the student played slower moving rhythms such as whole and half notes.	The poor left-hand grip negatively impacted the horn stability and the rhythmic motion of the slide.
B-2	The thumb wraps around the bell brace, and the instrument is more steady when moving from first to sixth positions. One still has issues with air support when moving that distance on the slide.	The thumb and first two fingers grasp the brace at the appropriate position.	There was a drastic improvement in tone quality—a very characteristic sound and by far the best tone in the group.	There was no discernible difference in the rhythmic slide. It remains quick and rhythmic.
B-3	There is no discernible change in the student's left-hand grip, and the third and fourth fingers of the right hand continue to support the hand-slide from underneath the lower outer tube.	The student maintains contact with the brace using the first two fingers and the thumb. One no longer touches the bell with the thumb or second finger when placing the slide in fourth or third positions, respectively.	There is no discernible difference in tone quality.	There was no discernible difference in the rhythmic slide. It remains quick and rhythmic.

C.4 Initial and Final Assessment Comparison

Initial and Final Assessment Comparison: Improvement, Regression, or Indiscernible					
Participant	Left-Hand Grip and Support	Right-Hand Grip	Tone Quality	Rhythmic Slide	Intonation for Exercises 1-3
A-1	Improvement	Improvement	Improvement	Improvement	13.33%
A-2	Indiscernible	Indiscernible	Improvement	Improvement	12.12%
A-3	Indiscernible	Improvement	Improvement	Indiscernible	-9.09%
B-1	Regression*	Regression*	Improvement	Regression*	-12.12%
B-2	Improvement	Improvement	Improvement	Indiscernible	6.05%
B-3	Indiscernible	Improvement	Indiscernible	Indiscernible	-3.03%
Percentage (%) Showing Improvement	33.33%	66.67%	83.33%	33.33%	50%
Percentage (%) With No Noticeable Change	50%	16.67%	16.67%	50%	0%
Percentage (%) With Regression	16.67%	16.67%	0%	16.67%	50%

C.5 Participant Scores

Participant A-1

Exercise #1	Bb	C	D	Eb	F	F	F	Eb	D	C	Bb	TOTAL	MEDIAN	MEAN	STDEV
Sidev	0	1	0	1	1	1	1					3			
Cents	12	6	-65	-48	-24								-24	-23.8	33.364651
Sidev	1	0	1	0	1	1	1	1	0	0	1	3			
Cents	10	33	1	-22	27	25	-3	-28	40	3			10	9.8	21.924871
Sidev	1	1	1	1	0	0	0	1	0	1	0	4			
Cents	2	23	1	-1	28	42	43	11	28	5			2	10.6	13.756632
Sidev	1	0	1	1	1	1	0	1	0	0	1	4			
Cents	-11	32	-12	-14	3	33	18	-20	59	-9			-11	-0.4	19.320972

Participant A-3

		TOTAL																MEAN	SE	STDEV														
		Bb	C	D	Eb	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Mean	SE	Stdev					
Exercise #1	Stdev	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6							
Table 1	Cents	-30	-20	-21	17	-1	-2	-10	-7	-1																	-2	-4.60000E-11	1715374					
Table 2	Cents	0	1	0	0	1	1	1	0	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	5								
Exercise #2	Stdev	-11	-47	-65	-2	-28	-45	-63	-17	-37																	-37	-30	2227606					
Table 1	Cents	-12	-7	-25	5	-1	-34	-57	-14	1																	-12	-10000E-10	1027231					
Table 2	Cents	-22	-70	-68	-32	-29	-34	-56	-29	-12																	-32	-581111E-05	2050584					
Exercise #3	Stdev	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9								
Table 1	Cents	10	-62	-59	-36	2	-45	-58	-33	-21	-15	-75	-31	-9													-23	-42000E-03	3331735					
Table 2	Cents	-27	-59	N/A	-50	-5	-67	-37	-11	-46	-43	-10	N/A	-62	-85												-27	-501350E-05	1254416					
Exercise #4	Stdev	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12								
Table 1	Cents	17	-22	-45	N/A	1	-68	-37	-9	31	-27	-37	-20	-36	-35	3	N/A	-55	-99	-29	16	N/A	-5				-22	-181005E-04	3472628					
Table 2	Cents	-22	-37	-59	-36	-2	-36	-25	2	-39	-30	N/A	-37	-31	-14	N/A	-42	1	-60	24	-32	-7					20.5	-243	2029206					
Exercise #5	Stdev	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20								
Table 1	Cents	14	-24	-29	37	-91	-14	-40	-24	-30	81	-40	N/A	N/A	N/A	-9	-21	N/A	-20	-31	-1	-6	-53	10	-59	-25	-36	-8	-13					
Table 2	Cents	-19	-62	-56	-25	N/A	21	-89	-83	-58	80	14	17	-16	22	-1	2	-28	N/A	-18	-59	-13	-25	N/A	-9	-32	-7	-18	0	-8	15			
Exercise #6	Stdev	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12							
Table 1	Cents	-3	-11	-12	-45	-12	-82	5	-20	14	-27	5	-1	-31	-27	-1	-4										-12	-17666E-03	2033025					
Table 2	Cents	-11	-18	-34	-21	-8	-41	-12	-20	-12	-65	-5	-16	-12	-4	-2											-12	-187323E-05	1049810					

Participant B-1

Exercise #1	Bb	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	TOTAL				
																										Median	Mean			
Table 1	15	25	3	21	0	-21	2	18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7	3	7.111111	14.20726
Table 2	30	20	7	-7	5	-35	-7	5	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	5	4.833333	13.01422	
Table 3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	4	1.333333	14.60277	
Table 4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	-5	-1.777777	6.400000	
Table 5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12	12	12	12	
Table 6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	10	10	10	
Table 7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	11	11	11	
Table 8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12	12	12	12	
Table 9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	19	19	19	19	
Table 10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24	24	24	24	
Table 11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9	9	9	9	
Table 12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	10	10	10	
Table 13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	20	20	20	
Table 14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16	16	16	16	
Table 15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Table 16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Table 17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Table 18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Table 19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Table 20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Table 21	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Table 22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Table 23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Table 24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Table 25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Table 26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Table 27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Table 28	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Table 29	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Table 30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Table 31	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Table 32	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Participant B-2

		Bb	C	D	Ea	F	Bb	D	C	Bb	TOTAL													MEDIAN	STDEV																						
Exercise #1	SBW	1	1	0	1	1	1	1	1	1														7																							
	Conts	6	4	3	19	13	35	6	19	14														13	13.22222	9.634077																					
	SBW	1	0	0	1	1	1	1	1	0														6																							
	Conts	23	12	13	25	30	30	19	35	25														25	23.65556	7.779906																					
Exercise #2	SBW	0	0	1	1	1	1	1	1	1														7																							
	Conts	16	23	-2	-4	6	-4	-1	1	13														1	1.500000	10.113247																					
	SBW	0	1	1	1	1	1	0	0	1														6																							
	Conts	30	19	30	22	22	33	17	20	29														23	24.77778	6.039024																					
Exercise #3	SBW	1	1	0	1	0	0	1	0	1														8																							
	Conts	1	9	-9	19	11	-10	12	-11	4	-9	-5	-8	-13	5														4	1.153333	9.881792																
	SBW	0	1	1	1	1	1	1	0	0														12																							
	Conts	42	32	11	28	28	19	5	13	-5	-9	-14	30	22	24	31														22	19	14.92792															
Exercise #4	SBW	1	1	0	1	1	0	0	1	1														12																							
	Conts	5	Null	18	21	27	Null	41	-8	-33	Null	0	2	7	-19	Null	-34	22	0	-5	-4														1	2.722222	18.21466										
	SBW	1	0	1	1	1	1	1	0	1														13																							
	Conts	34	25	13	21	22	22	24	-5	23	20	6	37	11	46	-3	Null	15	38	22	31	4														22	17.96191	17.36692									
Exercise #5	SBW	0	1	1	1	1	1	1	1	1														17																							
	Conts	0	12	16	16	2	13	5	0	1	-4	-29	-4	-31	-6	-16	-23	Null	21	24	15	27	34	-1	19	-2	21	12														2	6.691732	30.130424			
	SBW	1	0	1	0	0	1	1	1	1														20																							
	Conts	21	-15	21	4	37	23	31	14	18	18	13	13	27	25	20	11	-4	-10	19	9	29	17	5	46	35	31	28	42	46	-1														18.5	19.85555	14.51596
Exercise #6	SBW	4	-8	-9	23	-6	0	5	23	17	-25	-18	-30	18	-14	-15	-21	-13	-16	-8	-6	-10	Null	-16	-6	-22	-30	-14	-9														-13	-8.70707	13.39277		
	Conts	0	1	1	1	1	0	1	0	1														16																							
	SBW	0	1	1	1	1	0	1	0	1														12																							
	Conts	4	12	20	18	26	37	29	35	22	-10	30	21	15	10	2	-7	-16	2	20	22	20	25	23	20	23	20	23	12														21	17.74024	14.30373		

APPENDIX D

INSTITUTIONAL REVIEW BOARD DOCUMENTS

D.1 IRB Approval Letter



1204 Marie Mount Hall
College Park, MD 20742-5125
TEL: 301.405.4212
FAX 301.314.1475
irb@umd.edu
www.amresearch.umd.edu/IRB

DATE: February 9, 2022

TO: Leanne Hanson
FROM: University of Maryland College Park (UMCP) IRB

PROJECT TITLE: [1852347-1] A Pedagogical Study of Modern Trombone Slide Technique and Common Deficiencies or Hinderances in the Early Developing Trombonist

SUBMISSION TYPE: New Project

ACTION: APPROVED
APPROVAL DATE: February 9, 2022

REVIEW TYPE: Expedited Review

REVIEW CATEGORY: Expedited review category # 7, *Subpart D applies, 45CFR46.404*

Thank you for your submission of New Project materials for this project. The University of Maryland College Park (UMCP) IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

Prior to final approval of this project scientific review was completed by the IRB Member reviewer.

This submission has received Expedited Review based on the applicable federal regulations.

This project has been determined to be a MINIMAL RISK project.

Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Unless a consent waiver or alteration has been approved, Federal regulations require that each participant receives a copy of the consent document.

Please note that any revision to previously approved materials must be approved by this committee prior to initiation. Please use the appropriate Amendment forms for this procedure.

All UNANTICIPATED PROBLEMS involving risks to subjects or others (UPIRSOs) and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. Please use the appropriate reporting forms for this procedure. All FDA and sponsor reporting requirements should also be followed. All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

Please note that all research records must be retained for a minimum of seven years after the completion of the project.

If you have any questions, please contact the IRB Office at 301-405-4212 or irb@umd.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Maryland College Park (UMCP) IRB's records.

D.2 Parental Consent Form



Initials: _____ Date: _____

Institutional Review Board

1204 Marie Mount Hall • 7814 Regents Drive • College Park, MD 20742 • 301-405-4212 • irb@umd.edu

CONSENT TO PARTICIPATE

Project Title	A Pedagogical Study of Modern Trombone Slide Technique and Common Deficiencies or Hinderances in the Early Developing Trombonist
Purpose of the Study	This research is being conducted by Leanne Hanson at the University of Maryland, College Park. We are inviting your child to participate in this research project because your child is a beginner or intermediate level trombonist with 0-3 years of experience on the instrument. The purpose of this research project is to observe and address common hinderances or deficiencies in the right-hand slide technique of developing trombonists.
Procedures	<p>Your child will attend 5 lessons/sessions, each 30-minutes in duration, once a week for five weeks, which is a total of 150 minutes of instruction. The study will run every Saturday from Feb. 26th – Mar. 26th. In each lesson, the first 5-10 minutes will introduce or review a concept, the next 15-20 minutes will implement and practice the concept, the final 5-minutes will review the new concept and provide an opportunity for your child to ask any additional questions.</p> <p>At the start of the study, your child will perform four standardized exercises to serve as an initial assessment of skill/ability. They will re-perform these same exercises at the end of the final (5th) lesson to show growth and effectiveness of the five lesson plans. Your child will be encouraged but not required to practice the techniques introduced to them in each lesson during the week between lessons. They will be asked to implement the new concept on their own to the best of their ability and recollection throughout the week whenever they would normally play their instrument.</p> <p>The four standardized exercises will involve reading musical patterns based on the first five notes of the concert B-flat scale, which are pitches: B-flat, C, D, E-flat, and F. Therefore, at minimum, your child must be able to play those five notes listed above. If you are unsure of your child's ability to do so, please</p>

	<p>reach out to Leanne Hanson to confirm his/her eligibility.</p> <p>Concepts covered in the instruction portion of the study include: proper posture while seated in a chair, how to hold and support the instrument properly, how to move the slide accurately and efficiently, and proper slide position placement through all seven positions of the instrument.</p> <p>Each session will be audio and video recorded, and a signed parental consent form giving your child permission to be recorded is a requirement for participation.</p>
<p>Potential Risks and Discomforts</p>	<p>There may be an increased risk by coming to campus due to the state of the COVID-19 pandemic. Risks of exposure to COVID-19 will be mitigated by the following protocols: all individuals (researcher, children and parents) will be required to follow the University of Maryland campus guidelines for PPE. N-95 masks must be worn at all times, your child must have proper brass playing masks and bell covers for their instruments to limit the spread of aerosols, hand sanitizer will be provided before entering and leaving the room, contact surfaces will be disinfected, the room used for the research will have time to settle between participants, and the researcher and student will maintain physical distancing of at least six feet at all times. There are no additional known risks for participants outside of the potential risk of COVID-19. There is a potential risk of breach of confidentiality, which will be mitigate through the procedures described in Section 6, "Confidentiality".</p>
<p>Potential Benefits</p>	<p>There are no direct benefits from participating in this research. However, possible benefits for your child include improved technique and facility on the trombone. We hope that, in the future, other aspiring young trombonists and music educators of the instrument might benefit from this study through improved understanding of how to teach right-hand slide technique efficiently and effectively to early developing trombonists.</p>

<p>Confidentiality</p>	<p>Any potential loss of confidentiality will be minimized by storing data on a password protected computer in a locked office. Data, including audio and video recordings, will only be accessible to the researcher. At the conclusion of each weekly session, the audio and video recordings will be uploaded to the password protected computer and all files will be deleted from the recording equipment SD cards.</p> <p>At the start of the five-week study, an identification key will be created for the purpose of organizing all recordings of each individual student into the participant's individual file folder. This document will be password protected with a different password from the one used to access the computer. At the conclusion of the study, the researcher will retain the audio and video recordings with names or other identifying information redacted, and the identification key will be deleted. The researcher will retain the audio and video recordings for up to three years after the conclusion of the research project for the purpose of supporting further research in the field. At the end of three years, the audio and video recordings will be deleted.</p> <p>If we write a report or article about this research project, you and your child's identity will be protected to the maximum extent possible. Participant names and identifying information will be coded: (1) your name or your child's name will not be included on collected data; (2) a code will be placed on the collected data; (3) through the use of an identification key, the researcher will be able to link your child's audio and video recordings to their identity; and (4) only the researcher will have access to the identification key. In the event the researcher uses the video (or screenshots of the video) in private or public presentations, your child's face will be blurred or covered.</p> <p>A Photo Consent & Release Form has been included to address the possibility that the researcher may need to take screenshots of the video recordings for data collection during the research and for future use in reports, articles, and presentations of the data. Your child's face will be blurred or covered if a screenshot photo is utilized.</p> <p>Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law.</p>
<p>Right to Withdraw</p>	<p>Your child's participation in this research is completely</p>

<p>and Questions</p>	<p>voluntary. Your child may choose not to take part at all. If you decide to participate in this research, your child may stop participating at any time. If your child decides not to participate in this study or stops participating at any time, your child will not be penalized or lose any benefits to which you otherwise qualify. You and your child's decision to participate or not participate in this study will have no positive or negative impact on your relationship with your music teacher or school.</p> <p>If your child decides to stop taking part in the study, if you have questions, concerns, or complaints, or if you need to report an injury related to the research, please contact the investigator:</p> <p style="text-align: center;">Leanne Hanson University of Maryland School of Music 2110 Clarice Smith Performing Arts Center College Park, MD 20742 Lrhanson@umd.edu 704-658-6877</p>
<p>Participant Rights</p>	<p>If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:</p> <p style="text-align: center;">University of Maryland College Park Institutional Review Board Office 1204 Marie Mount Hall College Park, Maryland, 20742 E-mail: irb@umd.edu Telephone: 301-405-0678</p> <p>This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects. For more information regarding participant rights, please visit: https://research.umd.edu/irb-research-participants?</p>
<p>Statement of Consent</p>	<p>Your signature indicates that you are at least 18 years of age; you have read this consent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree to have your child participate in this research study. You will receive a copy of this signed consent form via email.</p>

Initials: _____ Date: _____

	If you agree to participate, please sign your name below.	
Signature and Date	NAME OF MINOR PARTICIPANT [Please Print]	
	NAME OF PARENT [Please Print]	
	SIGNATURE OF PARENT	
	DATE	

D.3 Minor Assent Form



Initials: _____ Date: _____

Institutional Review Board

1204 Marie Mount Hall • 7814 Regents Drive • College Park, MD 20742 • 301-405-4212 • irb@umd.edu

ASSENT TO PARTICIPATE

Project Title	A Pedagogical Study of Modern Trombone Slide Technique and Common Deficiencies or Hinderances in the Early Developing Trombonist
Purpose of the Study	A research project is being conducted by Leanne Hanson at the University of Maryland, College Park. We are inviting you to participate in this research project because you are a beginner or intermediate level trombonist. The purpose of this research project is to help you become better at your instrument! This form will give you information about the project. We will talk to you about the project and answer any questions you may have. If you do not understand something, please ask us to explain it to you. We will ask you to sign this form to show that you understand the project and agree to take part in it.
Procedures	<p>During this study, you will receive five 30-minute private trombone lessons with Leanne Hanson over the course of five weeks. The lessons will take place at the University of Maryland School of Music. The lessons will begin with a short test to see your current ability on the trombone. Then, you will take five separate lessons over the course of the five-week study. The final lesson will conclude with a re-take of the test you already took at the beginning of the study to see how much you improved since the beginning of the research project.</p> <p>During this research project, you will get better at: holding your instrument properly, memorizing where the slide positions go, making a beautiful tone, and your ability to read music!</p> <p>Finally, the lessons will be audio and video recorded so that Leanne Hanson can go back and review how much she was able to help you get better at the trombone.</p> <p>Please remember to ask us as many questions as you want to about the study. We want to answer all of your questions whether they are simple or complicated. You are also free to stop whenever you like, and no one will get angry with you if you decide you don't want to participate.</p>
Potential Risks and Discomforts	There are no known risks for participating in this study. To minimize the risk of the spread of COVID-19, you will be asked to bring your playing mask and bell cover to all of your lessons. You will also be

Initials: _____ Date: _____

	given hand sanitizer and all of the surfaces you need to touch (like the chair and music stand) will be cleaned before you use them.
Potential Benefits	<p>There are no direct benefits from participating in this research. However, possible benefits from your participation include improved ability and skills on the trombone.</p> <p>We hope that, in the future, other young trombonists (like you) and teachers of the trombone (like Leanne Hanson) will have new ways of learning how to get better at the trombone.</p>
Confidentiality	<p>Any potential loss of confidentiality will be minimized by storing data on a password protected computer in a locked office.</p> <p>If we write a report or article about this research project, your identity will be protected to the maximum extent possible.</p> <p>Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law.</p>
Right to Withdraw and Questions	<p>Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not get in trouble with anyone.</p> <p>If you decide to stop taking part in the study, if you have questions, concerns, or complaints, or if you need to report an injury related to the research, please contact the investigator:</p> <p style="text-align: center;">Leanne Hanson University of Maryland School of Music 2110 Clarice Smith Performing Arts Center College Park, MD 20742 Lrhanson@umd.edu 704-658-6877</p>

Initials: _____ Date: _____

Participant Rights	<p>If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:</p> <p style="text-align: center;">University of Maryland College Park Institutional Review Board Office 1204 Marie Mount Hall College Park, Maryland, 20742 E-mail: irb@umd.edu Telephone: 301-405-0678</p> <p>For more information regarding participant rights, please visit: https://research.umd.edu/irb-research-participants This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.</p>	
Statement of Consent	<p>Your signature indicates that you have read this assent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree to participate in this research study. Your parents will receive a copy of this signed assent form via email.</p> <p>If you agree to participate, please sign your name below.</p>	
Signature and Date	STUDENT NAME [Please Print]	
	STUDENT SIGNATURE	
	DATE	

D.4 Photo/Video/Audio Release Form



Institutional Review Board

1204 Marie Mount Hall • 7814 Regents Drive • College Park, MD 20742 • 301-405-4212 • irb@umd.edu

PERMISSION & RELEASE FOR PHOTO / VIDEO / AUDIO RECORDING

I grant permission to the University of Maryland, College Park (a) to record my child's participation in the event titled A Pedagogical Study of Modern Trombone Slide Technique and Common Deficiencies or Hinderances in the Early Developing Trombonist ("Event") being held at the University on February 26th through March 26th, 2022; (b) to make a recording by any means University chooses (e.g., audio, audio-visual, digital) of my child's participation in the Event ("Photographs and/or Recording"), and (c) to exercise all rights under copyright for the duration in support of activities sponsored by or conducted under the auspices of the University.

I understand rights under copyright are the right to reproduce the Photographs and Recording, in whole or in part and in any form and by any means now known or hereafter created; the right to modify, adapt, and create derivative works based on the Recording and Photographs; the right to distribute the Recording and Photographs; and the rights to broadcast the Recording publicly, by and through any medium or technology currently available or that becomes available in the future.

I also give permission to the University of Maryland to use my child's image in support of University activities without my additional consent.

I expressly waive any right or privilege to review or edit the Recording, Photographs or specific uses of the Recording or Photographs in advance, any claim for compensation of any kind, and all rights of privacy that I might have under applicable federal or state laws.

I understand and agree that the University will hold copyright in the Recording and Photographs and that, subject to this Agreement, I own copyright in any copyrightable materials I may use in the Event.

In the event I am a currently-enrolled Student, I understand that my own image is not considered 'directory information' by the University as defined by the federal Family Educational Rights & Privacy Act (FERPA). Consequently, my likeness cannot be used without this grant of permission. In addition, I understand that with this Permission & Release, I am expressly granting the University permission to use and release my likeness for future University use.

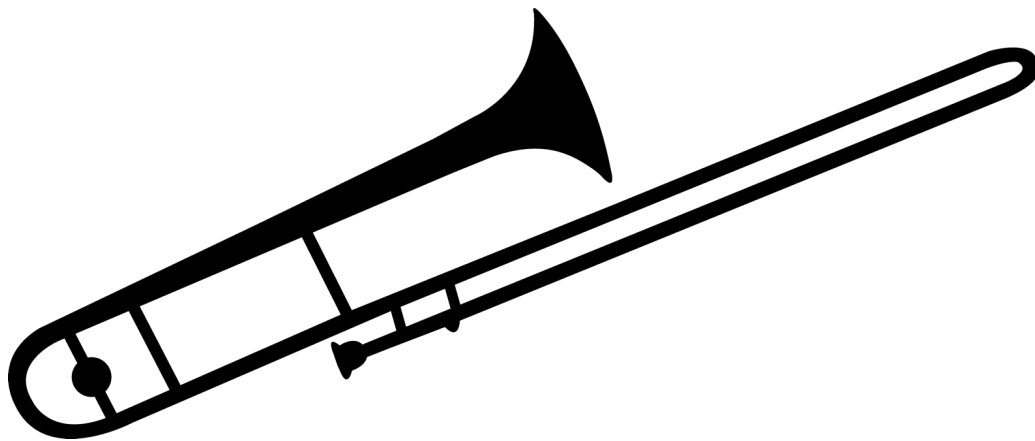
I have read the above permission and release prior to its execution, am over the age of 18 and am fully familiar with its contents and meaning.

AGREED TO:

Parent Name: _____ Child Name: _____

Signature and Date: _____

Title and Affiliation: _____



TROMBONE LESSON RESEARCH OPPORTUNITY

The UMD School of Music is looking for trombone players, ages 10-13, to participate in a music study. You will receive 5 weekly trombone lessons - that is 150 minutes of instruction at no cost to you! Over the course of the study you may get better at note accuracy, tone quality, rhythm and sight-reading!

WHEN: Every Saturday from Feb. 26th to Mar. 26th

WHAT TIME: 30-minute lesson spots are available between 9AM-5PM

WHERE: University of Maryland School of Music

MORE INFO: Email Leanne at Lrhanson@umd.edu for more details!

Dear Parents/Guardians,

I am writing to let you know about a new research study being conducted at the University of Maryland School of Music from Feb. 26th to Mar. 26th. The focus of the study is on beginner trombone pedagogy, specifically on right-hand slide technique. I am recruiting trombonists, ages 10-13, to participate in this study. Each participant will receive five 30-minute private lessons with me over the course of five weeks at no cost! See below for more details:

STUDY TITLE: An Introduction to Proper Trombone Slide Technique

STUDY PURPOSE:

This study evaluates common hinderances and deficiencies in beginning trombonists and takes the student participants through a series of lesson plans designed to introduce and implement proper instrument posture and right-hand slide technique.

ELIGIBILITY REQUIREMENTS:

Participants must: (1) be trombone students who are enrolled in their school's band program, (2) be between the ages of 10-13 years old, (3) have no more than 3 years of traditional band experience on the trombone, and (4) be able to play at least the following five notes on their instruments: B-flat, C, D, E-flat, and F.

PARTICIPATION REQUIREMENTS:

The study spans five (5) weeks at the University of Maryland School of Music on Saturdays from Feb. 26th to Mar. 26th. Over the course of the study, students will have a total of five (5) weekly private lessons, each 30-minutes in duration, which is a total of 150 minutes of private trombone instruction at no cost to you! Prior to the start of the study, participants will sign up for a 30-minute lesson timeslot between 9AM-5PM every Saturday. Students must be available for their lesson time on all Saturdays between Feb. 26th-Mar. 26th. All lessons will be audio and video recorded for the sole purpose of retroactive research documentation, and you will be required to sign a consent form.

BENEFITS:

Students may develop and refine their right-hand slide technique, which will help improve: note accuracy, intonation, tone quality, rhythm and sight-reading skills.

CONTACT INFORMATION:

If your child is interested in participating in this study or learning more about it, parents/guardians can contact me, Leanne Hanson, at (704) 658-6877 or Lrhanson@umd.edu.

Participating in research is voluntary. Enrollment will be limited to 6 students.

Thank you,

Leanne Hanson
Doctor of Musical Arts Candidate in Trombone Performance
University of Maryland School of Music
Lrhanson@umd.edu
704-658-6877

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