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The playing of overtones on the saxophone helps in acquiring the altissimo register and improves clarity, definition, intonation, control, resonance, dynamics, timbre, and flexibility. This document seeks to identify the prevalent methods which exist for teaching overtone production techniques on the saxophone and organize them into a useful resource for other saxophonists. This study includes interviews with university saxophone professors who were asked: 1) why they teach overtone production, 2) how they teach overtone production, and 3) what books they use to teach overtone production. From the research it is evident that along with the perfection of altissimo, there are other common benefits associated with overtone production. The benefits referred to most often were altissimo, tone, and intonation. The preferred books among the interviewees were *Beginning Studies in the Altissimo Register*, *Top-Tones for the Saxophone*, *Saxophone High Tones*, *Voicing: An Approach to the Saxophone's Third Register*. Similar elements and procedures were used amongst the interviewees while discussing methods of teaching overtones. Using the information gathered, this document presents an expanded list of skills gained from overtone production, a list of the most commonly used method books for teaching overtone production, and a clear method for approaching, teaching, and refining overtone production on the saxophone. The method presented includes written out exercises accompanied by video examples of the exercises.

AN ANALYSIS OF OVERTONE PRODUCTION TECHNIQUES IN SAXOPHONE
TEACHING METHODS

by

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CHAPTER I

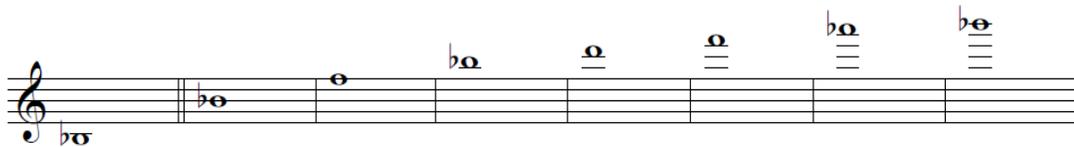
INTRODUCTION

Command of overtone production can result in improved overall control of saxophone sounds permitting proficiency in altissimo, tone quality, and intonation. Learning to produce overtones is a process that many consider essential to mastering saxophone performance. Overtones are the tones produced above a fundamental – or pitch that you perceive – when a sound is produced on a musical instrument. Overtones are always present, but it is their relative ratio that determines the tone; i.e., what instrument is being played or the timbre of a performer’s tone. Although overtone production is important to the saxophone, in my literature review for this study I discovered few facts and little research on saxophone overtone production. Moreover, from the information available, I found the approaches and terms involved with overtone production to be inconsistent or confusing. This lack of information and uniformity is not conducive to saxophonists struggling to produce - or teachers endeavoring to teach - overtones. This study is designed to bring clarity to the subject by reviewing and comparing different pedagogical approaches to overtone production and creating a synthesis of these approaches.

Producing overtones on the saxophone involves reaching each overtone and attempting to make it sound as the main tone, or fundamental. The goal for the saxophonist is to finger one note and be able to produce all of the overtones in sequence.¹

For example, the succession of overtones produced from B-flat is as follows: B-flat 3, B-flat 4, F5, B-flat 6, D7, F7, A-flat 7, B-flat 7, C8, D8, E8, F8, etc. (Fig. 1).² Because the first overtone on the saxophone is an octave, the saxophone is said to "overblow an octave." This is in contrast to the clarinet, which is said to "overblow a twelfth."

Figure 1. Overtone Series



In my research I discovered very few published methods available to assist in learning overtones. The few resources that were available were primarily in service of learning and perfecting altissimo. What are the best ways to go about learning overtones? Is perfection of altissimo the only gain from learning overtones? In view of the fact that the core books used to teach overtone production are focused on altissimo, I turned to university saxophone professors from around the world to help answer my questions.

This study includes interviews with university saxophone professors who were asked to describe the methods they used in teaching saxophone overtone production. From these interviews, I found that, along with the perfection of altissimo, there are other common benefits associated with overtone production. The benefits referred to most

often were altissimo, tone, and intonation. I also discovered the interviewees use comparable books when teaching overtone production. The preferred books are *Beginning Studies in the Altissimo Register*,³ *Top-Tones for the Saxophone*,⁴ *Saxophone High Tones*,⁵ and *Voicing: An Approach to the Saxophone's Third Register*.⁶ Although the language used amongst the interviewees while discussing methods of teaching overtones differed, I discovered similar elements and procedures were used.

The primary goal of this project is to identify the prevalent methods which exist for teaching overtone production techniques on the saxophone and organize them into a useful resource for other saxophonists. Using this research I will present the benefits of overtone production, common method books used in overtone pedagogy, and a clear method for approaching, learning, teaching, and refining overtone production on the saxophone.

CHAPTER II

REVIEW OF LITERATURE

An extensive review of literature delving into overtone production on the saxophone revealed that the majority of sources were focused on subjects other than production of overtones. Although saxophone overtones are considered essential to the mastery of saxophone performance, there are no method books or other literature currently being used that are devoted solely to teaching or learning how to achieve this important saxophone technique.

Saxophone pedagogues from around the world teach their students overtones and players from all backgrounds strive to master overtone production. Teachers and players alike consider it important for many reasons. Overtone production on the saxophone is considered to aid in altissimo, improve tone quality, and perfect intonation. The techniques used in producing overtones are utilized in producing saxophone low notes to multiphonics. Overtones also allow for overall tonal control of the saxophone. Below is a review of the literature currently available to teachers and players covering or at least mentioning overtone production.

Review of Commonly Used Method Books

The common method books employed in overtone pedagogy are marketed as altissimo method books. These books are *Beginning Studies in the Altissimo Register*,⁷

Top-Tones for the Saxophone,⁸ *Saxophone High Tones*,⁹ *Voicing: An Approach to the Saxophone's Third Register*.¹⁰ When the majority of saxophonists agree there is so much to be gained from mastery of overtone production, why are there no available method books focused exclusively on overtone production?

Donald Sinta clearly states that the purpose of the exercises contained in his book, *Voicing*, is to allow for greater access to the altissimo range..."¹¹ Sinta's method for teaching altissimo, centers on the idea of *voicing*. According to Sinta, voicing is "an awareness and control of the muscles and soft flexible tissue in the oral cavity and vocal tract."¹² Sinta makes clear that voicing is intended to be used as a "training procedure not as a technical skill directly applicable to saxophone performance."¹³ In his book, *voicing* is used to produce overtones.

Sinta states that the most "efficient means to meet the objective of controlled and consistent altissimo technique is through a study of overtones..."¹⁴ In tandem with that statement, the first portion of his book leading up to altissimo production is mastering overtone production.

The overtone exercises presented are systematic. Chapter two begins with preliminary exercises that are designed "to aid in developing awareness of the physiological movements in the oral cavity..."¹⁵ The preliminary exercises move through mouthpiece exercises, articulating different vowel sounds aloud, whistling tunes, singing, and the infamous front "F-trick." Chapters three through five of his book walk through detailed overtone exercises. Through these chapters overtone range is slowly expanded. Chapter six begins refinement of the newly learned overtones. This chapter includes transcribed

tunes and scales that are meant to be played using only overtones. Beginning in chapter seven, altissimo technique is introduced. He includes exercises bridging the gap between the normal range and the altissimo, an extensive altissimo fingering chart, and technical studies using altissimo.

Eugene Rousseau lays out a "systematic approach to the extension of the range of all the saxophones..." in his method book *Saxophone High Tones*.¹⁶ The initial step in Rousseau's method is playing what he refers to as "closed tube exercises." These exercises equate with basic overtone practice where overtones are being played above a fundamental pitch (or fingering). After the opening exercises, this traditional way of playing overtones does not recur. Instead, Rousseau introduces the concept of venting. The process of venting uses a basic fingering and opening a key to produce an overtone. Another concept Rousseau introduces is overblowing sixths. Because of the conical shape of the saxophone it is fairly easy to overblow sixths beginning with high C and up to high F#. His book uses these concepts throughout the rest of the exercises.¹⁷

Rousseau also displays fingerings for different high notes within the overtone series derived from the fundamental. He creates and includes exercises using these fingerings. Overblowing more than a sixth is also introduced. Essentially Rousseau is giving the reader multiple ways to reach altissimo notes by promoting practice using venting and overblowing. After this practice Rousseau lays out multiple altissimo fingerings for each note and each saxophone. The altissimo fingerings are followed by exercises incorporating the fingerings and concepts presented.¹⁸

Sigurd Raschèr's book, *Top Tones for the Saxophone*, originally published in 1941, was the first published method for the production of the altissimo range. Raschèr bases his method on his belief that without exception, the saxophonist who fails to comprehend the "importance of the development of the 'inner ear'..." will fail to produce or master altissimo.¹⁹ Raschèr alleges that in order to produce higher overtones and altissimo these elements must be present: "a clear aim (emanating from the player's mind) for the exact pitch, a flexible, well-developed embouchure and a controlled air flow".²⁰

Raschèr's belief in the development of the 'inner ear' directs his methodical approach. Tone is the focus for the initial part of his method. Raschèr created multiple sustained tone exercises to help the saxophonist achieve the ability to play multiple notes with "uniformity of character and volume...".²¹ The tone exercises not only promote awareness of sound but also aid in the control of embouchure pressure and airflow. Continuing along the vein of intent listening, Raschèr's next section focuses on what he calls "tone imagination." The concept of "tone imagination" involves "activating the mind to the point of 'imagining' a tone"²² without physically hearing the tone. This section has exercises intended to aid in the practice of hearing certain intervals. Raschèr suggests practicing the tone imagination exercises for several months.²³

Overtone exercises are introduced in *Top Tones for the Saxophone* as part of the "necessary ear and embouchure training," and equivalent to the "lip slur" on brass instruments.²⁴ Raschèr explains that the altissimo fingerings later in the book will differ from the ones in the overtone exercises. He continues by saying that without studying overtone production first, it will be difficult to play altissimo using the fingerings presented.

The overtone exercises have precursor instructions that involve attempting to play the second overtone above the fundamental low Bb by singing the note first then playing. Raschèr then moves into overtone exercises which are based on playing overtones above the fundamental low Bb, B, or C. Next, altissimo fingerings are displayed and altissimo exercises are provided. The book ends with transcribed overtone scales.

Rosemary Lang's book, *Beginning Studies in the Altissimo Register*, is a lesser known publication used by a smaller number of saxophonists. However, those who do use this book readily proclaim its merit. Lang condenses the learning of altissimo to very basic and limited overtone exercises and familiar tunes played in the altissimo range. The foreword gives her recommended techniques for altissimo production: (1) Direct the air stream downward (2) Maintain an high arch in the tongue (3) Pull the tip of the tongue back (4) Keep a large gap between the tip of the tongue and the back of the teeth (5) Think "urr" while blowing (6) Avoid using the tongue for attacks. These suggestions in the foreword are the only instruction given directly in reference to altissimo other than fingerings in the remainder of the book.²⁵

Lang introduces overtones by stating "[b]y adjusting the position and arch of the tongue and by subtle control of the direction of the air column it is possible to play all of the following tones with the fundamental low Bb fingering"²⁶ (Bb overtone series is pictured below this statement). On the next page, Lang presents overtone exercises, and at the top of the page states, "practice the following until these tones can be played with comparative ease".²⁷ Lang then introduces one altissimo note at a time, providing a

fingering for the note and exercises using altissimo. The exercises include many familiar songs played predominantly in the altissimo range.²⁸

Review of Lesser Known Books

In my research it was difficult to find method books based solely on overtone production. However, I was able to find two obscure overtone method books. These two books are *A Complete Approach to Overtones* by Ben Britton²⁹ and *Overtone Practice on the Saxophone: the sure method to good tone* by Michael Furstner.³⁰ These method books are largely unknown and are not readily employed.

*A Complete Approach to Overtones*³¹ is a comparatively new book, published in 2014. The title describes it well. Britton goes into great detail regarding every aspect of overtone production, including altissimo, breathing, embouchure, voicing technique, air stream focus, and hearing the overtone first. Britton explains the importance of overtone practice, proclaiming that it is one of the most efficient ways to develop and maintain good tone.³² After extensive definitions and explanations, Britton provides wide-ranging overtone exercises starting with simple long tones releasing the octave key and maintaining the note and advancing on to bugle calls and slurring up the overtone series.³³

Britton's book has a great deal to absorb with over 40 pages of overtone exercises. The book is extensive and can be overwhelming. The method book begins with approximately seven pages of definitions and explanations of terms and techniques associated with overtone production. There are no immediate exercises to accompany these explanations. Following the initial pages of the book, there are 43 pages of

exercises. Some exercises are related to the previous exercises, but overall the exercises presented can stand alone. This book is a great source for definitions and multiple overtone exercises, but falls short of an accessible and clear method. Britton's book is not widely used amongst saxophonists.³⁴

The Furstner book is separated into two sections - theory and practice. The first section elaborates on why overtones should be practiced and includes detailed explanations of the process used to create overtones. Furstner believes that saxophonists need to "bring the body and the saxophone in phase" in order to develop and learn to manipulate the oral tract.³⁵

The second half of the book presents a method for learning overtones. Unlike other methods, Furstner expounds at length on overtone production yet provides minimal published exercises to accompany his explanations. He thoroughly explains things from the first practice routines to oral tract manipulation. At the end of the book, Furstner does include a few overtone exercises but with little to no instruction. His book is also only available through certain libraries.³⁶

Each of the common books used for teaching and learning overtones are in reality altissimo method books. Each one of these books uses overtones in a different way to achieve the proposed goal of altissimo. From these method books it is made clear the importance of overtones to the saxophonist, but the procedures presented vary widely. The few actual overtone method books that do exist are filled with information on overtone production but lack uniformity in how it is presented.

In the course of my research, I was able to locate a few lesser known books that also discuss overtone production. These books include *Practice Like the Pros* by Sue Terry,³⁷ *Saxophone Master Class* by Michael Hester,³⁸ and *Developing a Personal Saxophone Sound* by Dave Liebman.³⁹

Sue Terry includes an article discussing overtones by Taimur Sullivan in her method book, *Practice Like the Pros*. In the article Sullivan stresses the importance of practicing overtones. A richer more vibrant sound, awareness of the oral cavity, and better control and tone in the altissimo range are the benefits listed by Sullivan. The article covers production of the first two overtones, the octave and octave-and-a-fifth, using a fingering exercise. The exercise provided involves playing the actual pitch of the overtone note trying to be achieved then slowly placing fingers down while maintaining the same pitch, until the fundamental fingering is reached. For example to produce the octave-and-a-fifth off of Bb (F), finger a middle F. While holding out the F add the low C key, then the low Bb key, followed by finger three on the right hand, then finger two on the right hand. The fingering now is a low Bb while the F pitch still remains.⁴⁰

Michael Hester discusses the topic of "Altissimo" in his book *Saxophone Master Class*. Hester discusses the frustrations that occur when saxophonists experiment with altissimo fingerings and/or harmonic (overtone) exercises. Hester claims that "[h]armonic exercises may supply little or no useful information to a student who is not yet able to produce an altissimo note".⁴¹ Therefore, understanding of the flexibility available within the oral cavity should be explored before overtone and altissimo production is attempted.

The chapter continues with suggestions to practice building an understanding of the oral cavity and the effect of the tongue on air speed.⁴²

Dave Liebman has a chapter in his book, *Developing a Personal Saxophone Sound*, dedicated to overtone exercises. In his introduction to the chapter, Liebman claims that overtone exercises are the best way of pinpointing the most efficient vocal cord movement to produce different tone colors on the saxophone. Liebman discusses exercises using the mouthpiece alone and states that the range on the mouthpiece alone should be at least a tenth.⁴³ Liebman then introduces overtone exercises. He begins with exercises that practice the first or octave overtone. He then moves to *matching* exercises which involve matching the natural or real fingering to the overtone. Liebman states that "[m]atching the natural or real fingering to the overtone is the most important exercise because of the practical benefits in actual playing"⁴⁴ because the goal of timbral matching is "for the normal fingerings to achieve the same fullness, richness and depth of tone one hears in the overtone sound".⁴⁵ After an extensive explanation of matching, Liebman introduces several advanced methods for developing overtones. He goes on to list and discuss various skills acquired from learning overtones such as evenness of range, tonal variety, extended techniques, and aural imagination.⁴⁶

Review of Dissertations and Journal Articles

Similar to the books reviewed, most articles and dissertations discussing overtones were focused on another subject such as altissimo. No dissertations were found focusing solely on saxophone overtone production.

Timothy Feldkamp formulates a pedagogical study for mastering altissimo in which he includes overtones as a preliminary exercise. Feldkamp explains that mastering the altissimo range without perfecting overtone production is not uncommon. However, overtone exercises still assist in attaining control of the altissimo register by helping the saxophonist become aware of oral cavity changes.⁴⁷

Debra McKim devoted a study to the discussion of Joseph Allard's pedagogical principles and concepts employed in his saxophone and clarinet teaching. One of Allard's concepts which McKim focuses on is overtones. Allard utilized and taught overtones as a "means of achieving accurate intonation, fullness of sound, variation in tonal quality, evenness of sound throughout the range of the instrument, and 'inner-hearing'".⁴⁸ McKim discusses the different ways Allard used overtones to gain skills and the exercises he used for learning and teaching overtones.⁴⁹

Rev. Ralph Carl Verdi investigated true harmonics or overtones for the principal woodwinds, including the alto saxophone, to supply "listings of the practical availability of true harmonics" for woodwind instruments. In the saxophone portion of this study, Verdi discusses the ranges of available saxophone harmonics and "normal" ranges listed in saxophone method books.⁵⁰ Verdi conducted interviews to document the practical range of saxophone harmonics. He discovered that harmonics up to the eighth partial produced from fundamentals from low Bb to low D, and to the second partial (first overtone) off of the fundamentals D# to middle C "are the most practical and stable, and retain their timbral distinctness from sounds produced with altered or altissimo fingerings."⁵¹

Jason Adams has a series of articles in the *Saxophone Journal* discussing and comparing altissimo method books. In the articles, Adams briefly discusses the format of each altissimo method book chosen for his study. One category discussed concerning the formats is "overtone/harmonic based". The descriptions of each book in the overtone sections are brief and do not enter into any detail about the production of overtones.^{52 53}

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In his article, Jeremy Brown writes about improving intonation through altissimo exercises. Brown's discussion uses Donald Sinta's *Voicing: An Approach to the Saxophone's Third Register* as a reference. He walks through exercises for learning overtones, which he considers altissimo exercises. He starts with preliminary exercises such as playing the mouthpiece alone, whistle exercises, and using the front F key. Subsequently he suggests learning overtones by adding one overtone at a time and then working on matching the fingered tone to the overtone. Brown then supplies more advanced exercises including overtone scales.⁵⁵

Summary of Related Literature

The related literature provides information that is useful to learning and teaching overtones, but the information available is sparse and scattered throughout many sources. There are also decidedly few available sources based purely on overtone production. Most sources are based on altissimo, despite the fact that research shows there are many additional skills gained from overtone production.

There is a need for a study that is focused solely on how to learn and teach overtones. There is a need for a clear and concise method that provides multiple options for

producing overtones. The goal of this study is to meet those needs by compiling the most prevalent methods for teaching overtones in one place.

CHAPTER III

PROCEDURES

The related literature fails to answer the question saxophonists everywhere are asking, “What is the best way to learn or teach overtones?” What better way to answer this question than to ask saxophone pedagogues from around the world for their personal approaches to the teaching of overtones?

To gather these opinions, I approached 54 saxophone professors at various universities around the world and was able to identify 30 who were willing to be interviewed and contribute to this research. Primarily I wanted to know *how* these pedagogues teach overtones, so I simply asked “How do you teach overtone production?” However, while I had access to professional saxophonists, I decided to also ask *why* overtones were being taught. Did these teachers use overtones solely as a means toward perfecting altissimo? As a teacher, I further wanted to know the best resources available pertaining to overtone production. Hence, each interviewee was also asked what method books they utilize in their overtone instruction.

In order to receive as complete a picture as possible, saxophone professors from across a wide spectrum were chosen to be interviewed. The list of professors includes classical instructors, jazz instructors, classical/jazz instructors, male instructors, female

instructors, small university instructors, major university instructors, younger instructors, and more experienced instructors, all from varying places around the world.

Each of the chosen saxophonists were emailed separately. The email they received informed them of the details of the study, and included a consent-to-participate form. In order to make things more convenient for the professors and to boost the number of participants, each interviewee was able to choose whether they preferred a recorded phone interview or to type their responses and return them by email. After the interviews were completed the data was compiled and codified by teaching procedures, benefits listed, and method books used.

Using the information I gathered I was able to create an expanded list of skills gained from overtone production, and a list of the most commonly used method books for teaching overtone production. After analyzing the information I gathered I was able to create a clear method for approaching, teaching, and refining overtone production on the saxophone.

CHAPTER IV

A METHOD TO TEACH OVERTONE PRODUCTION

I have always been intrigued by overtone production and pedagogy. From past experiences I became convinced that overtones were important and were being taught by many saxophone pedagogues mainly in service of learning or perfecting the altissimo register. That being said, I found very few published methods to assist me in actually learning overtones. What are the best ways to go about learning or teaching overtones? Are there other benefits from learning overtones in addition to altissimo? As a result of my interviews it was evident that there are many benefits associated with overtone production, and elements – such as method books, and methodologies - used in teaching overtones. By compiling their ideas I created an extensive list of the benefits of overtone production, and a list of the method books most often used in overtone production pedagogy. By combining the information gleaned from the interviews along with my personal experience, I created a method for approaching, learning, teaching, and refining overtone production on the saxophone.

Benefits

All the interviewees agree that overtones are used to aid in learning the altissimo register, but some believed there were additional skills obtained through overtone production. In order to be made aware of the different ways saxophonists use overtones, I

asked the subjects why they taught overtones and what skills they thought were improved from learning overtones. As speculated, the benefit mentioned most often by the interviewees was aid in the altissimo register, but *improved tone* and *intonation* were not far behind. Out of thirty interviewees, twenty-eight listed *altissimo*, twenty-seven listed *tone*, and nineteen listed *intonation* as benefits of overtone production. These three benefits were not the only ones mentioned. The next most listed skills improved by overtone production were *flexibility* and *control* of the saxophone. The remainder of the results mentioned by the interviewees are listed as follows: persistence, focus, proper lip and air pressure, adapting to a new instrument, confidence, improved low register, response consistency, vibrato control, articulation, strengthening of embouchure, air control, extended techniques, enhanced aural skills, awareness of oral cavity, ability to test the quality of an instrument, strengthening and training of throat muscles, and extreme dynamics.

Existing Method Books

There are only a few published method books based solely on overtone production. Consequently, I was curious to discover what method books were being used by pedagogues to teach overtone production. Since the main use for overtones amongst the interviewees was altissimo production and perfection, I had my suspicions as to the method books being used. There are four popular altissimo method books that are used by most saxophonists, so it was no surprise that *Beginning Studies in the Altissimo Register*,⁵⁶ *Top-Tones for the Saxophone*,⁵⁷ *Saxophone High Tones*,⁵⁸ *Voicing: An*

*Approach to the Saxophone's Third Register*⁵⁹ were the only method books discussed in the interviews.

When I originally wrote the interview question, "Do you use any books to teach overtones?" I expected to merely receive a list of books, but some interviewees also included how they used the books. Some professors in the interviews use one or more of the books in their one-on-one teaching. Some teachers only suggest or require their students to purchase the books and read and work through them on an individual basis. Still other professors only reference the books in lessons without using the physical book. Below is a chart showing the book usage amongst the interviewees (Table 1) .

Table 1. Method Book Usage

Method Book	Number of subjects (out of 30) who use the book
Sinta	19
Rousseau	13
Raschèr	20
Lang	3

Method

The following method was compiled from the most used procedures and techniques mentioned throughout the interviews. My intention is to present a basic but useful method to follow when teaching overtones. Teachers should feel free to adapt this guide as they see fit.

Preliminary Exercises

Before diving directly into overtone production, there are a few preliminary steps that should be completed. The first preliminary step involves whistling. Whistle a note and move the pitch up and down.⁶⁰ Changing the pitch while whistling will help in the next preliminary exercise that involves mouthpiece *pitch*. The goal is to become aware of and create the correct pitch on the saxophone mouthpiece alone. Manipulating the mouthpiece pitch is similar to changing the pitch while whistling. The most common saxophone mouthpiece pitches used are concert C for the soprano, concert A for the alto, concert G for the tenor, and concert E for the baritone. Baritone saxophone mouthpiece pitch varies and is sometimes concert D or Eb. Once the correct mouthpiece pitch is obtained, focus on attaining a clear, pure, solid, and non-wavering sound while playing the correct pitch.

Then, progress on to mouthpiece *exercises* (Fig. 2-3). Work on bending the pitch down chromatically from the pitch created in the above step. Bend the pitch down at least a sixth before proceeding. Mouthpiece work helps with awareness and manipulation of the oral cavity.⁶¹

Figure 2. Mouthpiece Exercise, Alto Saxophone Concert Pitch



Figure 3. Mouthpiece Exercise Video



Mouthpiece exercise.mp4

Double click or right click icon to open video

The next preliminary exercise also helps with awareness and management of the oral cavity (Fig. 4-5). First, finger a low D and try to play the higher octave without depressing the octave key. Once this step is completed successfully, move chromatically up from fingered low D to fingered middle G while playing the higher octave. Further exercises written by Kyle Hutchins using low D as the starting fundamental can be found in the appendices.⁶²

Figure 4. Low D No Octave Key Exercise



Notation: bottom note is the fingered note and the top is the note produced

Figure 5. Low D No Octave Key Exercise Video



Low D No Octave Key Exercise.mp4

Double click or right click icon to open video

The Method

Step 1: The First Attempt⁶³

Finger and play low Bb. Next, finger low Bb and play any note that is not low Bb (Fig. 6).

Figure 6. Step 1 Video



Step 1.mp4

Double click or right click icon to open video

Step 2: The 1st and 2nd Overtone⁶⁴

Attempt to play middle Bb and F using *matching*. *Matching* involves connecting the actual fingered note and the same note fingered as an overtone pitch.

2a. Play middle Bb (Fig. 7).

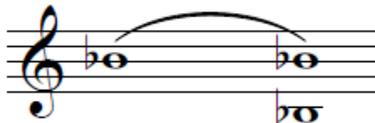
Figure 7. Step 2a



written pitch

2b. Move to the fingering for low Bb while keeping the middle Bb pitch sounding (Fig. 8).

Figure 8. Matching Middle Bb Step 2b



Notation: bottom note is the fingered note and the top is the note produced

2c. Repeat until the overtone is stable and easily produced

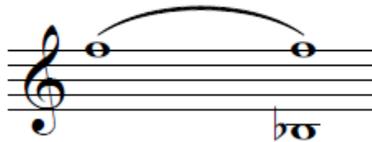
2d. Play middle F (Fig. 9).

Figure 9. Middle F Step 2d



2e. Move to the fingering for low Bb while keeping the middle F pitch sounding (Fig. 10).

Figure 10. Matching Middle F Step 2e



2f. Repeat until the overtone is stable and easily produced (Fig. 11).

Figure 11. Step 2 Video



Step 2.mp4

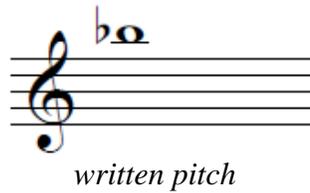
Double click or right click icon to open video

Step 3: Add and Refine Overtones using *Matching*⁶⁵

Use the matching exercise described in Step 2 with high Bb, palm key D, etc. for as many overtones in the series above Bb as possible.

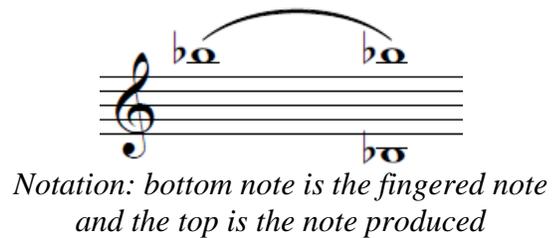
3a. Play high Bb (Fig. 12).

Figure 12. High Bb Step 3a



3b. Move to the fingering for low Bb while keeping the high Bb pitch sounding (Fig. 13).

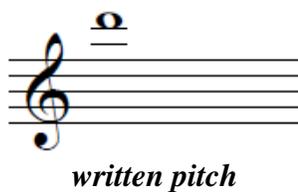
Figure 13. High Bb Matching Step 3b



3c. Repeat until the overtone is stable and easily produced

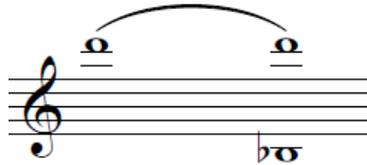
3d. Play palm high D (Fig. 14).

Figure 14. Palm D Step 3d



3e. Move to the fingering for low Bb while keeping the high D pitch sounding (Fig. 15).

Figure 15. Matching Palm D Step 3e



Notation: bottom note is the fingered note and the top is the note produced

3f. Repeat until the overtone is stable and easily produced

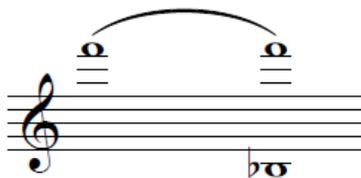
3g. Play palm high F (Fig. 16).

Figure 16. Palm High F, Step 3g



3h. Move to the fingering for low Bb while keeping the high F pitch sounding (Fig. 17).

Figure 17. Matching Palm High F step 3h

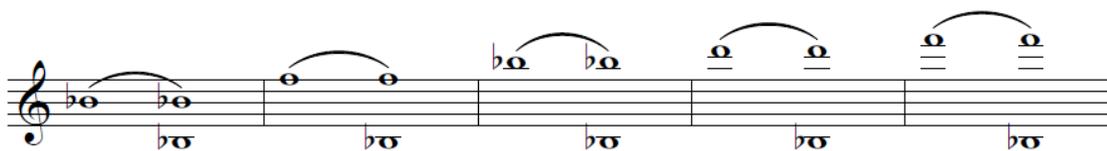


Notation: bottom note is the fingered note and the top is the note produced

3i. Repeat until the overtone is stable and easily produced.

3j. Play through the following exercise to continue practice matching the 1st, 2nd, 3rd, 4th, and 5th overtones to the actual fingerings to stabilize them (Fig. 18-19).

Figure 18. Matching Exercise Step 3j



Notation: bottom note is the fingered note and the top is the note produced

Figure 19. Step 3 Video



Step 3.mp4

Double click or right click icon to open video

Once adding more overtones using matching appears to not be a possibility, move on to step 4.

Step 4: Add and Refine Overtones using Chromatic Overtone Exercises

Chromatic exercises provide different approaches to reaching certain overtones. Once a particular overtone is produced, focus on how the oral cavity, throat, and tongue feel in order to reproduce the overtone later.

Use the following exercises to upwardly expand the overtone range, and practice producing the octave and a fifth overtone.⁶⁶

4a. Finger low B \flat and maintain the octave and a fifth overtone. Sounding pitch should be middle F (Fig. 20).

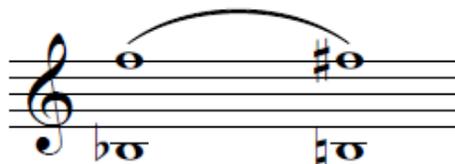
Figure 20. Chromatic Exercise 4a



Notation: bottom note is the fingered note and the top is the note produced

4b. Move to fingered low B from low B \flat and maintain the octave and a fifth overtone. Sounding pitch should be middle F \sharp (Fig. 21).

Figure 21. Chromatic Exercise 4b



Notation: bottom note is the fingered note and the top is the note produced

4c. Move to fingered low C from low B and maintain the octave and a fifth overtone.

Sounding pitch should be middle G (Fig. 22).

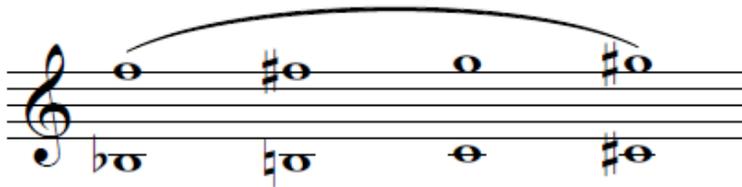
Figure 22. Chromatic Exercise 4c



Notation: bottom note is the fingered note and the top is the note produced

4d. Move to fingered low C# from low C and maintain the octave and a fifth overtone. Sounding pitch should be middle G# (Fig. 23).

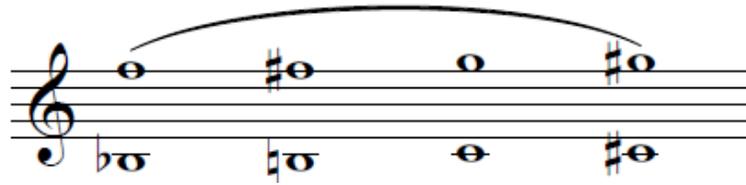
Figure 23. Chromatic Exercise 4d



Notation: bottom note is the fingered note and the top is the note produced

4e. Repeat this exercise until each overtone is stable and easily produced. (Fig. 24-25).

Figure 24. Chromatic Exercise 4e



Notation: bottom note is the fingered note and the top is the note produced

Figure 25. Chromatic Exercise 4a-4e Video



Chromatic Exercise 4a-4e.mp4

Double click or right click icon to open video

Use the following exercises to upwardly expand the overtone range, and practice producing the octave overtone.⁶⁷

4f. Play middle F, E, Eb, D, C#-but for C# switch to low C# fingering, while the sound pitch remains middle C# (Fig. 26).

Figure 26. Chromatic Exercise 4f



**Notation: bottom note is the fingered note and the top is the note produced*

4g. Play middle E, Eb, D, C#, C-but for C switch to low C fingering, while the sound pitch remains middle C (Fig. 27).

Figure 27. Chromatic Exercise 4g



**Notation: bottom note is the fingered note and the top is the note produced*

4h. Play middle Eb, D, C#, C, B-but for B switch to low B fingering, while the sound pitch remains middle B (Fig. 28).

Figure 28. Chromatic Exercise 4h



**Notation: bottom note is the fingered note and the top is the note produced*

4i. Play middle D, C#, C, B, Bb- but for Bb switch to low Bb fingering while the sounding pitch remains middle Bb (Fig. 29).

Figure 29. Chromatic Exercise 4i



**Notation: bottom note is the fingered note and the top is the note produced*

4j. Repeat this exercise until each overtone is stable and easily produced (Fig. 30).

Figure 30. Chromatic Exercise 4f-4j



Chromatic Exercise 4f-4j.mp4

Double click or right click icon to open video

Use these exercises to upwardly expand the overtone range, and practice producing the two-octave and two-octave and a fifth overtones.⁶⁸

4k. Finger low Bb and maintain the octave and a fifth overtone, Sounding pitch should be middle F (Fig. 31).

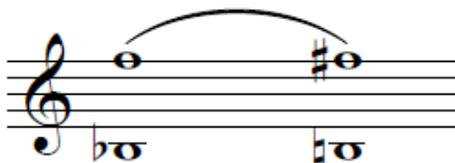
Figure 31. Chromatic Exercise 4k



Notation: bottom note is the fingered note and the top is the note produced

4l. Move to fingered low B from low Bb and maintain the octave and a fifth overtone. Sounding pitch should be middle F# (Fig. 32).

Figure 32. Chromatic Exercise 4l



Notation: bottom note is the fingered note and the top is the note produced

4m. Move to fingered low C from low B and maintain the octave and a fifth overtone.

Sounding pitch should be middle G (Fig. 33).

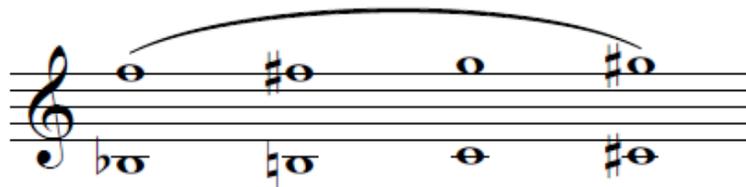
Figure 33. Chromatic Exercise 4m



Notation: bottom note is the fingered note and the top is the note produced

4n. Move to fingered low C# from low C and maintain the octave and a fifth overtone. Sounding pitch should be middle G# (Fig. 34).

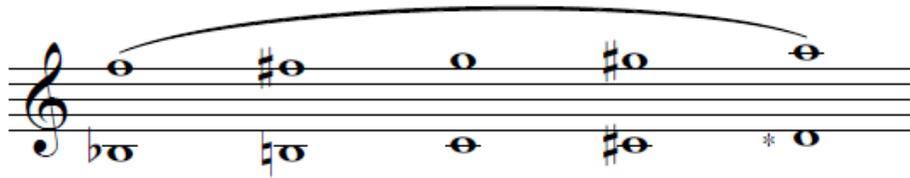
Figure 34. Chromatic Exercise 4n



Notation: bottom note is the fingered note and the top is the note produced

4o. Move to fingered low D from low C# (keep low C# open)* and maintain the octave and a fifth overtone. Sounding pitch should be middle A (Fig. 35).

Figure 35. Chromatic Exercise 4o



Notation: bottom note is the fingered note and the top is the note produced
**Vent C#*

4p. Move to fingered low D# (keep low C# open)* from low D and maintain the octave and a fifth overtone. Sounding pitch should be high Bb (Fig. 36).

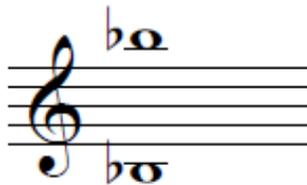
Figure 36. Chromatic Exercise 4p



Notation: bottom note is the fingered note and the top is the note produced
**Vent C#*

4q. Reset on the low Bb keeping the high Bb overtone (Fig. 37-38).

Figure 37. Chromatic Exercise 4q



Notation: bottom note is the fingered note and the top is the note produced

Figure 38. Chromatic Exercise 4k-4q Video



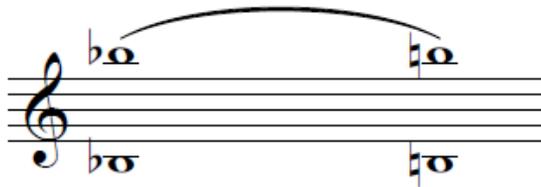
Chromatic Exercise 4k-4q.mp4

Double click or right click icon to open video

4r. Move to fingered low B from low Bb and maintain the two-octave overtone.

Sounding pitch should be high B (Fig. 39).

Figure 39. Chromatic Exercise 4r



Notation: bottom note is the fingered note and the top is the note produced

4s. Next move to fingered low C from low C# and maintain the two-octave overtone.

Sounding pitch should be high C (Fig. 40).

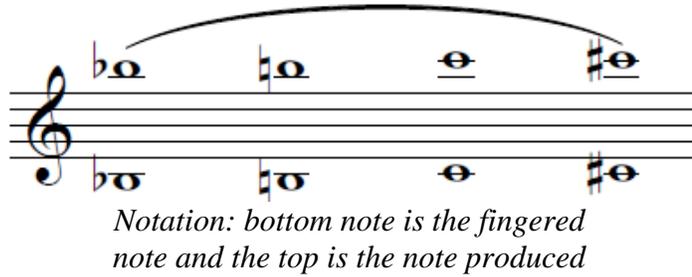
Figure 40. Chromatic Exercise 4s



Notation: bottom note is the fingered note and the top is the note produced

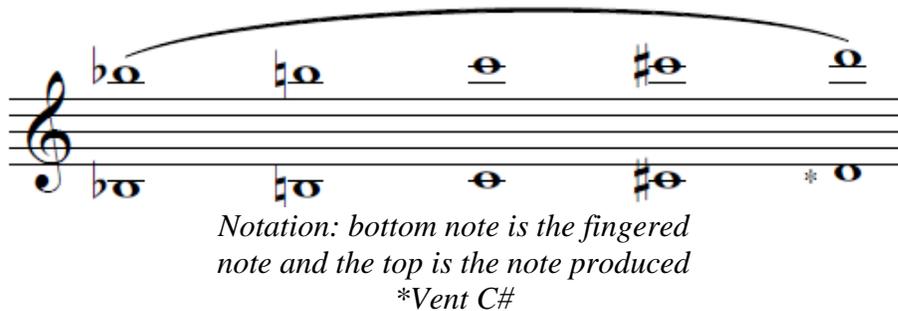
4t. Finger low C# and maintain the two-octave overtone. Sounding pitch should be high C# (Fig. 41).

Figure 41. Chromatic Exercise 4t



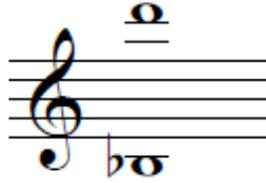
4u. Move to fingered low D from low C# (keep low C# open)* and maintain the two-octave overtone. Sounding pitch should be palm key D (Fig. 42).

Figure 42. Chromatic Exercise 4u



4v. Then reset to low Bb holding the palm key D (Fig. 43-44).

Figure 43. Chromatic Exercise 4v



Notation: bottom note is the fingered note and the top is the note produced

Figure 44. Chromatic Exercise 4r-4v Video



Chromatic Exercise 4r-4v.mp4

Double click or right click icon to open video

Step 5: Playing the Overtone Series

After success with steps 1-4, it is time to play through all of the overtones of a fundamental pitch. Begin by slurring down through the overtones. Finger low Bb, but produce the highest altissimo note possible. Once the altissimo note is achieved bend the pitch downward slowly. Under the proper control, the pitch will begin to drop, and at a certain point abruptly fall and land on the next overtone below the initial pitch. Continue to bend the pitch, and once again it will at some point drop to the next overtone. Go as far as possible until the note drops to low Bb. Next start on low Bb and attempt to play up the overtone series. It is quite difficult to slide up through the overtones, so individually attacking each overtone while ascending is encouraged in the beginning, rather than slurring in this direction.

Step 6: Refinement

Once playing up and down the overtone series is relatively effortless, progress to more advanced exercises. Practice playing bugle calls, simple songs, and scales using only overtones. See *Sinta Voicing* for examples.

Ideas to Aid in Overtone Success

The above method begins by teaching to produce any overtone above a fundamental, and then adding additional notes onto the series. Some may find it difficult to produce any overtones at first, even with the aid of the preliminary exercises. Because people are diverse in how they learn and how they are physically shaped, I believe it is important to include different approaches to helping with the production of overtones. The following suggestions include various ideas to producing overtones.

Awareness and Manipulation of the Oral Cavity and Throat

Overtones are created by slight changes of the oral cavity (including the tongue) and throat. It is important to become aware of the sensation of the throat and oral cavity while manipulating them. Up to this point I have not discussed in detail precisely how to shape the oral cavity. I find that self-discovery with overtones should take place before a detailed explanation is introduced. However at a certain point it is important to discuss and research what is physically occurring when playing overtones, especially if overtones continue to be elusive.

Overtones are created by slight movements of the tongue, which in turn changes the shape of the oral cavity. These movements are so slight that I avoid remarking on tongue movement extensively. Instead, discussing mouth shape and air movement has proven to

be more beneficial. Think about pushing the air to different parts of the mouth to create different shapes of the oral cavity. It is also helpful to visualize the airstream, envision blowing the air stream to different parts of the facial mask for different overtones. For example, imagine directing the air stream to the bridge of the nose or the top of the head. The visualization can also help when slurring between overtones. To help slide to different overtones, think about the air sliding slowly between two points on the facial mask, such as the bridge of the nose to the tip of the nose (Fig. 45-46).⁶⁹

Figure 45. Airstream Visualization Up Video



Airstream Visualization Up.mp4

Double click or right click icon to open video

Figure 46. Airstream Visualization Down Video



Airstream Visualization Down.mp4

Double click or right click icon to open video

The following suggestions and exercises explore different approaches to achieve awareness of the oral cavity and throat to help with overtone creation and are compiled from the interviews:

- Play low Bb and change vowel shapes without moving the lips or jaw. It is important to find the correct vowel shape to help produce overtones.⁷⁰
- Practice reproducing noises such as squeaks and multiphonics.⁷¹

- Double-tongue on high palm-key F. When double-tonguing on that note, squeaks and scoops up to the note will occur. The squeaks and scoops are from oral cavity movement.⁷²
- Donald Sinta's F-Trick: Play front F and attempt to lower the pitch half of a step using only the oral cavity. Work to produce a true half-step with a glissando between the notes. Continue this exercise by expanding the interval to a whole step, then a minor third, and so on. The muscles used for this exercise are also used in overtone production.⁷³
- Using a newspaper rolled into a long funnel, buzz into the end or attach a mouthpiece and attempt to play different overtones.⁷⁴
- While in the beginning stages, try to be flexible and try manipulating the embouchure.⁷⁵

Here are some suggested alterations:

-Take more mouthpiece into the mouth

-Take less mouthpiece in the mouth

-Firmer embouchure

-Looser embouchure

-Push jaw forward

- While attempting to play overtones above low Bb, bump the Eb key to stimulate a different partial.⁷⁶
- Whistle the overtone pitch and keep the oral cavity shape the same. Then with the same oral cavity shape play the overtone.⁷⁷

- Sing or hum the overtone pitch in falsetto in the correct octave and then play the overtone.⁷⁸
- To help overtones "pop" out do not tongue, but attack the overtone with air using a "hee" or "hurr" shape. Also guttural sounds (back of the throat) can be used at the start of an overtone to assist.⁷⁹
- Starting on low Bb, play a chromatic scale as high as possible without using the octave key.⁸⁰
- While playing raise the eyebrows. This places the oral cavity, tongue, and throat in a position similar to the one needed to play overtones.⁸¹
- Depress the octave key while playing overtones.⁸²
- Have someone standing very close play the correct overtone. The vibrations from the saxophone will help the other saxophone to vibrate at the correct frequency making it easier to produce the overtone.⁸³
- Watch videos of people playing with a fiber optic scope camera. Videos like this can be found on Steve Jordheim's website, <https://www2.lawrence.edu/fast/jordheis/>. These videos provide a visual of what is happening in the oral cavity while playing. Viewing these can be helpful in becoming aware of how to move the oral cavity properly to play overtones.⁸⁴

Everyone is different, and it is important to keep this in mind while learning or teaching overtones. The above method and suggestions are what I believe work best from my experiences and from reviewing the interviewees' input. However, as a student or a

teacher you may mold and reshape this method in any way to fit your own personal learning or teaching style.

The following are helpful quotes on overtone production from the interviews:

...you know at that time, pretty much my very first lesson with him (Sinta) we started fooling around with overtones and he was obviously great at it. And for me I would just try and hit an overtone he wanted me to hit, and I would hit something else. So of course I would swear and say 'oh man that's messed up,' and he would say 'no no no, you just hit this one.' So I was learning even though I didn't realize it. Him, being who he was, pointed out to me "hey look you are actually playing overtones just not the ones that you want to, but they are all coming" -Philip Barham⁸⁵

I think overtones are closely related to voicing practice in general. I do not teach overtones alone. I also teach mouthpiece manipulation and the f trick mentioned in Sinta's book, and a little later in study, 'undertones.' All of these elements (mouthpiece, f-trick, overtones, and undertones) are part of the daily voicing routine that I teach my students. I think all are helpful in accessing voicing in slightly different ways.- Ann Bradfield⁸⁶

I believe it's best for students to work one-on-one with experts on this subject. It's easy to go astray. It's also important at the early stages especially, that students have other students (who're already doing overtones) who are willing to sit in a room together and demonstrate successful practices.-Griffin Campbell⁸⁷

While practicing manipulations of the vocal tract for the mastering of altissimo is something that likely requires long hours of solo practice time, it is important to note that the input of a trusted mentor is practically indispensable when dealing with voicing in relation to focus of tone. It can be incredibly difficult for a player, especially in the early stages, to be discerning and objective about which sounds might be ideal. At some point, most of us go through a somewhat frustrating period of sound identity crisis, when we aren't sure which of the versions of a tone we were able to produce is ideal – this frequently seems to happen during the freshman year of college. - Christopher Creviston⁸⁸

As a teacher, I find it's important to spend lesson time checking the things you want the students to practice. If you don't spend lesson time on something, the students don't practice it, because it's not a priority.-Susan Fancher⁸⁹

I become more comfortable playing the instrument. Instead of the instrument playing me I am playing the instrument - I feel more in charge. When I am teaching overtones, I am hoping my students are feeling that way also. By giving them this tool they can control what comes out of the bell of the horn as opposed to the opposite way around.- Sean Fredenburg⁹⁰

So I always tell my students, that even if it doesn't sound good and even if it doesn't come out, to keep doing it's like going to the gym. So if you go to the gym and you pick up a barbell and you go "one," and you set it down and walk off you didn't do anything. So you just to spend time going through those motions and develop those muscles in your face, it's like going to "face gym"-Kyle Hutchins⁹¹

It takes persistence - students make mistakes in dividing up their practice sessions. Overtones should be done along with long tones every time you play. Every time you put the reed to your mouth you need to create a few overtones, sing the note and then play the overtones. Sing and play - sing and play. Play the overtones soft, not just loud. Volume is important to all these overtone exercises once they get it at a comfortable volume then they have to get it at a softer volume. It's always easier to play overtones loud, but the louder we play the more out of tune we are. The softer we play the more refined our manipulations must be. I also found if students do overtones on more than one instrument it comes easier and more quickly for them.-Joseph Luloff⁹²

It's really important to not get in the way of their learning...I think the big thing with students is to not make them do things but find a way to make them intrigued by what you are doing. I leave my music out on the stand and my saxophone out because I want people to ask about them. ... hooking them by getting them to ask "What is this?" "How do you do that?"-Steven Stusek⁹³

CHAPTER V

CONCLUSIONS

Mastery of overtone production aids saxophonists in gaining overall control of the saxophone. Skills acquired from overtone production aren't limited to improved command of altissimo, but extend to enhanced tone, perfected intonation, flexibility and control, persistence, focus, proper lip and air pressure, ease of adaptation to a new instrument, confidence, improved low register, response consistency, vibrato control, articulation, strengthening of embouchure, air control, extended techniques, enhanced aural skills, awareness of oral cavity, ability to test the quality of an instrument, strengthening and training throat muscles, and extreme dynamics. This suggests that learning overtones is an ability all saxophonists should aspire to achieve.

Teaching and learning overtones are disciplines that most saxophonists struggle with at some point. Factors that contribute to this struggle are the lack of focused published research and the scattered information on the subject of overtones. This study gathered the ideas of thirty saxophone pedagogues into one document in order to provide a clear method for approaching, learning, teaching, and refining overtone production on the saxophone.

While the language used in teaching overtones differed dramatically from saxophonist to saxophonist, many of the approaches used were actually quite similar. There were definite agreements amongst the interviewees pertaining to the gains from overtone production. In the thirty interviews only four method books were cited by the teachers. Although there is clearly no singular approach to teaching or learning overtone production on the saxophone (indeed, there are many), I was able to compile the ideas of the interviewees and present what I consider to be an excellent overtone method.

Recommendations for Further Research

As I mentioned above there is no "best way" to teach or learn overtone production, but what if there were? Experimental research is the next step needed to truly find the best approaches to teaching overtone production. The methods presented in the related literature, the methods gleaned from the interviewees, and the compiled method presented in chapter IV would be tested on different saxophonists who are learning overtones. Each saxophonist would be instructed using one of each of the methods, and the progress of each of the subjects using the different methods would be compared. This study would be conducted several times on different saxophonists in order to gain a meaningful degree of validity. Following this study I am convinced that a method book should be written. This method book would include the most successful methods from the aforementioned study. Multiple methods should be included in the book so that saxophonists are not limited to a single option.

Further research should also be done using images and videos of the oral cavity while playing overtones. Steve Jordheim has a collection of videos and pictures of the inside of

saxophonists' mouths and throats playing different techniques such as altissimo, pitch bending circular breathing, and more, <https://www2.lawrence.edu/fast/jordheis/>. There is also a study done by Matthew Patnode using fiber-optic cameras to image what happens to tongue position when saxophonists play altissimo.⁹⁴ There needs to be a study where the oral cavity is video recorded while saxophonists play overtones. An experiment should then be conducted to ascertain if understanding and being able to explain exactly what is happening in the throat would be beneficial to overtone production.

ENDNOTES

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- ¹ Donald J. Sinta, *Voicing: An Approach to the Saxophone's Third Register* (1992; repr., Blaris Publications, 2008).
- ² Rosemary Lang, *Beginning Studies in the Altissimo Register*, Rev. ed. (Indianapolis: Lang Music Publications, 1988).
- ³ Ibid.
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APPENDIX A

RECRUITMENT EMAIL AND INTERVIEW QUESTIONS

Recruitment Email

Subject headline: Dissertation Assistance, Interview on overtone production techniques in saxophone teaching methods

My name is Emily Loboda, and I am a DMA candidate currently studying at University of North Carolina at Greensboro. I am asking for your assistance with collecting data for my dissertation.

As a University Saxophone instructor you have been selected to participate in an interview on overtone production techniques in saxophone teaching methods. The purpose of this project is to collect data for use in the dissertation, *An Analysis of Overtone Production Techniques in Saxophone Teaching Methods: A Method*. This study is about discovering the different teaching methods used to produce overtones. I am interested in learning what types of overtone production teaching methods are used among university saxophone professors, which ones are used most commonly and which seem to be the most effective. During the interview you will be asked if you teach overtones, what benefits you think come from overtone production, and for an explanation of your overtone production teaching method. The results from this interview study will help with compiling different overtone production teaching techniques, and eventually will help in developing an experimental study to determine the most effective way to teach saxophonist to produce overtones.

If you wish to participate in this project please contact me as soon as possible to set up an interview time. You can choose to either do a phone interview or to respond to the interview questions through email. Attached you will find an informed consent document which gives you more information. You can verbally consent over the phone or you can sign the papers and email them back to me.

Thank you so much for your time and I look forward to hearing from you.

Interview Questions

Hi,

Thank you so much for agreeing to today's interview. If you choose to do so I will keep your name and identity confidential throughout this interview.

This interview is in conjunction with my dissertation entitled "A Descriptive Analysis of Overtone Production Techniques in Saxophone Teaching Methods." The purpose of this project is to collect data for use in the dissertation. This study is about discovering the different teaching methods used to produce overtones. I am interested in learning what types of overtone production teaching methods are used among university saxophone professors, which ones are used most commonly and which seem to be the most effective. During the interview you will be asked for an explanation of your teaching method and your opinion on other teaching methods. The results from this interview study will help with compiling different overtone production teaching techniques, and eventually will help in developing an experimental study to determine the most effective way to teach saxophonist to produce overtones.

INTERVIEW QUESTIONS:

1. Do you teach overtone production? If so, why do you teach it?
2. What benefits do you think come from learning overtones?
3. Can you describe how you teach overtones?
4. Do you use any specific method books to teach overtones?
5. Is there any other information you would like to share that will be helpful to my research?

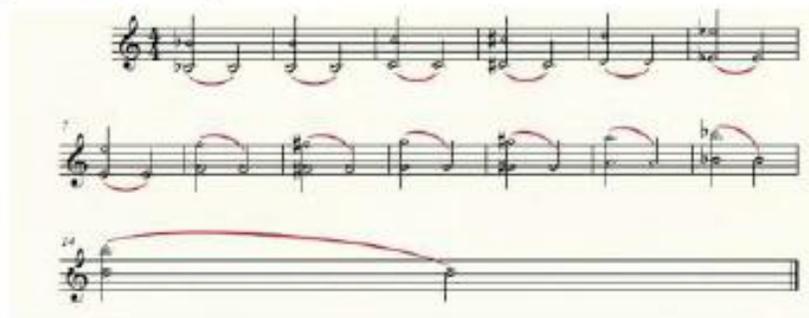
Thank you so much for you time today. When I have the information from your interview in my paper I will send you a copy to review, so you can change things if needed. Again thank you so much.

APPENDIX B

SUPPLEMENTAL EXERCISES

Overtone

Overtone Exercise #1



Musical notation for Overtone Exercise #1, consisting of three staves. The first staff is in treble clef with a key signature of one flat (B-flat) and a 4/4 time signature. It contains six measures of music, each with a half note and a dotted half note. The notes are: B-flat (half), D (dotted half), E-flat (half), G (dotted half), A-flat (half), and B-flat (dotted half). The second staff is in treble clef with a key signature of one flat and a 4/4 time signature. It contains six measures of music, each with a half note and a dotted half note. The notes are: B-flat (half), D (dotted half), E-flat (half), G (dotted half), A-flat (half), and B-flat (dotted half). The third staff is in treble clef with a key signature of one flat and a 4/4 time signature. It contains one measure of music with a half note and a dotted half note. The notes are: B-flat (half), D (dotted half), E-flat (half), G (dotted half), A-flat (half), and B-flat (dotted half). A red slur is drawn over the notes in the third staff.

Overtone Exercise #2



Musical notation for Overtone Exercise #2, consisting of three staves. The first staff is in treble clef with a key signature of one flat (B-flat) and a 4/4 time signature. It contains six measures of music, each with a half note and a dotted half note. The notes are: B-flat (half), D (dotted half), E-flat (half), G (dotted half), A-flat (half), and B-flat (dotted half). The second staff is in treble clef with a key signature of one flat and a 4/4 time signature. It contains six measures of music, each with a half note and a dotted half note. The notes are: B-flat (half), D (dotted half), E-flat (half), G (dotted half), A-flat (half), and B-flat (dotted half). The third staff is in treble clef with a key signature of one flat and a 4/4 time signature. It contains one measure of music with a half note and a dotted half note. The notes are: B-flat (half), D (dotted half), E-flat (half), G (dotted half), A-flat (half), and B-flat (dotted half). A red slur is drawn over the notes in the third staff.

Overtone (cont.)

Overtone Exercise #3



Musical score for Overtone Exercise #3, consisting of three staves. The first two staves are in 4/4 time and feature a sequence of chords with moving bass lines. The third staff shows a long, sweeping red slur over a single note, indicating a sustained overtone.

Overtone Exercise #4



Musical score for Overtone Exercise #4, consisting of five staves. The first four staves are in 4/4 time and feature a sequence of chords with moving bass lines. The fifth staff shows a long, sweeping red slur over a single note, indicating a sustained overtone.

OVERTONE MATCHING EXERCISES

Dr. Jeffery Kyle Hutchins
Virginia Tech Saxophone Studio

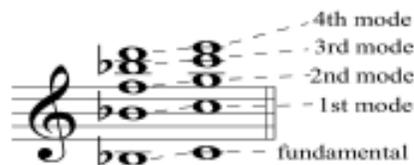
Voicing is defined as the position of the tongue and manipulation of the oral cavity. Although you do not actually use your voice to play the saxophone, vocal configurations (shape of the muscles) play a vital role in setting the pitch and achieving a quality tone. Try sitting at a piano and matching any random note with your voice. Play another and try to match that. The different pitches require your muscles to be shaped in a different way; just like on saxophone, you must “voice” the notes you play.

Overtone Overview:

The following is a basic view of overtones. Every one of these notes can be played using the fundamental fingering, in this case low Bb.



For the purposes of this book, we will refer to the lowest notes on the saxophone the “Fundamental” and each note above that is a “Mode.” The first note above the fundamental will be the 1st mode; the second note above the fundamental will be the 2nd mode and so on.



Matching 1: *Intro to Mode 1*

This exercise is intended to introduce the first overtone to the student by use of the octave key as assistance.

- Start on 4th line D with the octave key
- Remove the octave key, but maintain the pitch of 4th line D
 - o Engage the muscles and increase air speed
- Slur down to low D
 - o Relax the muscles but maintain air speed



- This exercise should be relatively easy to achieve, even for the beginning student. The reason we start on fourth line D is because many younger students can not yet play the lower notes of the horn comfortably (Bb, B, C, C#).
- Once this exercise can be produced correctly, continue chromatically Eb, E, F, F#, etc... until the limit is reached. Continue working daily to increase range build the muscles so that this exercise becomes easier and easier.

Matching 2: Use of Mode 1

This exercise is designed to fully demonstrate the ability to play the first overtone.

2A:

- Play low D
- Finger low D, but sound an octave higher
- Back to low D
- Do NOT slur: put space between each note



- Continue this exercise upwards chromatically into the palm keys

- After each pitch can be produced with ease, put this exercise with a metronome. Start with quarter note = 60. The exercise will look like this:

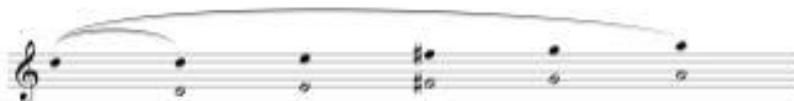


2B: Slurring exercise upwards

- Start on D and slur up the tetra chord to A



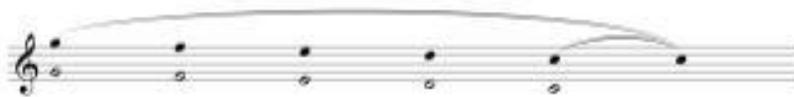
- To help get started, try using the octave key from Matching 1 like so:



- Continue this pattern playing the tetra chords for Eb, E, F, F#, and G

2C: Slurring exercise downwards

- Now, introduce the low notes



- Slur down to low C, then lift fingers to regular C and work on matching the pitch and timbre between the overtone and the fundamental
- Repeat for fundamental notes: C#, B, and Bb

2D:



- Slur all of this – the first part is just like Matching 1 and should be no problem
- Practice making the connection back up the octave without tonguing
- Then continue down to the lower notes:



- After you can slur the low notes, try doing Matching 2A on the lower notes
- Remember, it is harder to get the first overtone on the lower notes. If you get a higher pitch, it is not wrong; it is just not the goal of this exercise! Just think of yourself as ahead of the game!

Matching 3: Intro to Mode 2 using Mode 1

Before starting these exercises, the student must be fully competent at Matching 1 and Matching 2. The remainder of these exercises use the skills learned in Matching 1 and 2 to introduce new techniques.

3A:



- Slur up the C tetra chord to G, hold the note out and finger low C again while maintaining the pitch of the G

- o Remember to keep your air speed consistent and to put down all the fingers at the same time or this will not happen
- After you succeed getting the pitch to sound, try going from the 2nd mode while fingering C to fingering G with the octave key and work on matching the two notes
- Repeat this exercise on Bb, B, C, C#, D, and Eb if you can.
 - o Beyond that is very difficult. See if you can do it!

3B:



- Repeat the exercise again, but this time, try to slur down to mode 1 and the fundamental.

Matching 4: *Use of Mode 2*

- Do Not Slur!



4B:



4C:



4D:



- Upon completion of these exercises, put them with the Intonation Builder!
- Notice which mode is out of tune (1st mode)
- Repeat on Bb, B, and C#

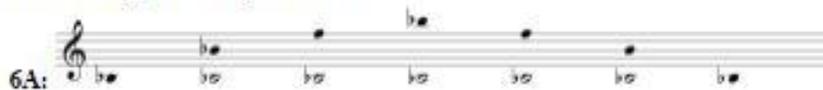
Matching 5: Intro to Mode 3 using Mode 1 and Mode 2

- Bb Major Two Octave Scale



- Once you can make it all the way to the third mode, remember: scales go down too!
- Start on B, C, and C# and play those respective two octave scales
- Try this in minor!

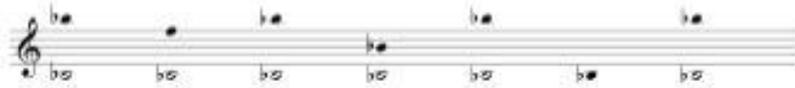
Matching 6: Use of Mode 3



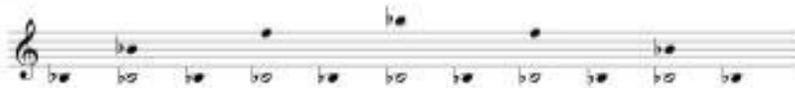
6C:



6D:



6E:



- Start on B, C#, and C
- Upon completion of these exercises, perform them all with the Intonation Builder!

Matching 7: *Intro to Mode 4*



- Start on the 2nd mode of C and slur up the G tetra chord to high D
- To help facilitate this, try playing Bb overtone scale, and extend the range to high D. The last half of the scale will look like this:



- This exercise will take some time. It requires consistent air speed and lots of patience. Do not get frustrated!

Matching 8: *Putting it Together*

- Shur back to low D.
 - o The goal of this exercise is flexibility; not to make a high quality tone. Don't become frustrated if achieving a characteristic tone is not accessible.

Tone Imagination:

- The goal of tone imagination is to hear the intervals before you sound them
- This requires some practice because you have to imagine the sound hard enough you can almost hear it
- You must shift your thinking as you change notes: hear the octave as you play the fundamental and as soon as you sound the octave, you have to hear the 5th
- Practice this coming down too

Matching 2A:



- Play the first note
- Sing the note ("Some" from "Somewhere Over the Rainbow")
- Imagine the octave ("where") *Do not sing!*
- Play the octave

Matching 4A:



- Play the first note
- Sing the note ("Some")

- Imagine the octave (“where”)
- Play the octave
- The octave becomes the root of “twinkle” from “Twinkle, Twinkle, Little Star”
- Imagine the 5th (“Twinkle, *Twinkle*”)
- Play the 5th

Matching 6A:



- Repeat all steps above from Matching 4A exercise
- The 5th becomes the root – sing the note (“Here” from “Here Comes the Bride”)
- Imagine the 4th (“Comes”)
- Play the 4th

As you go back down, the relationship of intervals and how you perceive them will change. Tone Imagination takes practice to develop, but is highly useful. Practice every day, even if it is just with a piano recognizing pitch intervals!

F Trick:

Option 1:

- Play front F
- Play front E
- Go back to F, and then voice down to E while fingering F
- Continue down chromatically down one octave

Option 2:

- Play front F

- Play front E
- Finger F again, but maintain the pitch of the E
- Continue chromatically down one octave

Option 3:

- Play front F
- Voice down to E, but do not change the F fingering
- From there, voice down to Eb, still on the F fingering
- Continue down chromatically one octave

Overtone Approaches - SO LA TI DO

(for overtone development & smoothness)

Play Slowly

$\text{♩} = 40-60$

The musical score consists of seven staves of music. The first six staves are in 4/4 time and feature a melodic line in the treble clef with a slur over it, and a bass line with chords and fingerings. The seventh staff is a shorter melodic line in the treble clef, also with a slur and fingerings. The key signature has one sharp (F#) and the time signature is 4/4.

Music engraving by LilyPond 2.18.2—www.lilypond.org

APPENDIX C

IRB DETERMINATION AND CONSENT FORMS

 **IRB** <ori@uncg.edu>
to E.J.LOBODA, cifarrío, irbcorre, SCSTUSEK ▾

12/7/16 ☆  

To: Emily Loboda
Music Performance
[REDACTED] Greensboro, NC [REDACTED]

From: UNCG IRB

Date: 12/07/2016

RE: Determination that Research or Research-Like Activity does not require IRB Approval
Study #: 16-0418
Study Title: A DESCRIPTIVE ANALYSIS OF OVERTONE PRODUCTION TECHNIQUES IN SAXOPHONE TEACHING METHODS

This submission was reviewed by the above-referenced IRB. The IRB has determined that this submission does not constitute human subjects research as defined under federal regulations [45 CFR 46.102 (d or f)] and does not require IRB approval.

Study Description:

The primary goal of this project is to discover the prevalent methods which exist for teaching overtone production techniques on the saxophone. This research will identify different approaches to teaching overtone production compiled from method books and in university studio instruction. To analyze the different teaching methods on the production of overtones on the saxophone, opinions of saxophone studio teachers will be determined via interview techniques. Descriptive research techniques will be used to accomplish the purpose of the proposed study.

If your study protocol changes in such a way that this determination will no longer apply, you should contact the above IRB before making the changes.
CC:
Steven Stusek, Music Performance

Informed Consent:

A DESCRIPTIVE ANALYSIS OF OVERTONE PRODUCTION TECHNIQUES IN SAXOPHONE TEACHING METHODS

Project Description:

The purpose of this project is to collect data for use in the dissertation, *A Descriptive Analysis of Overtone Production Techniques in Saxophone Teaching Methods*. This study is about discovering the different teaching methods used to produce overtones. I am interested in learning what types of overtone production teaching methods are used among university saxophone professors, which ones are used most commonly, and which seem to be the most effective. During the interview you will be asked if you teach overtones, what benefits you think come from overtone production, and for an explanation of your overtone production teaching method. The results from this interview study will help with compiling different overtone production teaching techniques, and eventually will help in developing an experimental study to determine the most effective way to teach saxophonist to produce overtones.

Procedure and Risks:

You have the choice of completing the interview over the telephone or typing your response and sending it by email.

If you choose the phone interview, I would like to record the interview, if you are willing, and use the tapes to write my materials. I will record the interview only with your written consent, and will ask that no personal identifiers be used during the interview, to ensure your anonymity. Unless you give consent to use your identity. Please feel free to say as much or as little as you want. You can decide not to answer any question, or to stop the interview any time you want. The tapes and transcripts will become the property of project.

If you so choose, the recordings and recording-transcripts (or copy of notes taken) will be kept anonymous, without any reference to your identity, and your identity will be concealed in any reports written from the interviews.

There are no known risks associated with participation in the study.

Benefits:

I. It is hoped that the results of this study will lead to a clear understanding and approach to the production of overtones on the saxophone.

Cost Compensation:

Participation in this study will involve no costs or payments to you.

Confidentiality:

All information collected during the study period will be kept strictly confidential until such time as you sign a release waiver. No publications or reports from this project will include identifying information on any participant without your signed permission, and after your review of the materials. If you agree to join this study, please sign your name on the following page

INFORMED CONSENT FOR INTERVIEWS
A DESCRIPTIVE ANALYSIS OF OVERTONE PRODUCTION TECHNIQUES
IN SAXOPHONE TEACHING METHODS

I, _____, agree to be interviewed for the project A DESCRIPTIVE ANALYSIS OF OVERTONE PRODUCTION TECHNIQUES IN SAXOPHONE TEACHING METHODS which is being produced by Emily J. Loboda of University of North Carolina at Greensboro.

I certify that I have been told of the confidentiality of information collected for this project and the anonymity of my participation; that I have been given satisfactory answers to my inquiries concerning project procedures and other matters; and that I have been advised that I am free to withdraw my consent and to discontinue participation in the project or activity at any time without prejudice.

I agree to participate in one or more electronically recorded or written response interviews for this project. I understand that such interviews and related materials will be kept completely anonymous, and that the results of this study may be published in an academic journal or book.

I agree that any information obtained from this research may be used in any way thought best for this study.

_____ Date _____
Signature of Interviewee