

The Science of Belting Workshop Study Guide

Part 1: Voice Science Basics

1. How the Voice Works

- a. Elements of vocal production:
 - i. Larynx- affects pitch, includes the vocal folds, impacts registration.
 - ii. Breath- air vacuum, diaphragm descends, 360 buoyancy, air flows through the glottis.
 - iii. Brain- pitch, memorizing notes and rhythms, auditory reflection, acting, habitual movement.
 - iv. Body- resonance, alignment, stability.
 - v. Articulators- tongue, hard and soft palate, jaw, lips, teeth, vowels & consonants.
 - vi. Vocal tract (more on this later)...
- b. Differentiating Sound: Vocal versatility & healthy sound production is the goal!
(Scott McCoy, *Your Voice: An Inside View*)
 - i. Bright–Dark- (chiaroscuro) Brightness in the sound provides brilliance and carrying power; darkness provides warmth and fullness. These qualities are impacted by overtones. Bright sounds have stronger high-pitched overtones, dark sounds have stronger low-pitched overtones.
 - ii. Twang–Loft- these are qualities of vocal resonance. Twang resonance results from narrowing of the vocal tract to produce a brassy, edgy timbre, which may be accompanied by nasality. Loft resonance is the direct opposite, created by relaxing and enlarging the pharynx and lifting the soft palate (think Kristin Chenoweth v. Audra McDonald).
 - iii. Forward–back- are indications of perceived tone placement. Back tones are somewhat dark in tonal color and give the impression of being caught in the back of the throat or mouth (frequently the result of excess tongue root tension). Forward tones are described as resonating in the cheekbones or “in the mask” and tend to be brighter. These first three qualities tend to go together (Bright, Twang, Forward v. Dark, Loft, Back), but the ultimate goal is to have a balance of these qualities and an awareness of when which is called for based on the style and storytelling needs of the piece.
 - iv. Clear–Breathy- the clarity or breathiness of a tone is directly related to the amount of air that escapes with sound. Physiologically, breathiness is the result of incomplete closure of the space between the vocal folds.

- v. Clean–Raspy- the continuum from clean to raspy reflects the amount of extraneous noise in the vocal sound (can be caused by voice disorders, but there is a difference between raspiness for artistic reasons vs. physiological reasons).
 - vi. Free–Forced- free versus forced production can be subjective. As a general guideline, the amount of force should be appropriate to the desired vocal quality. Forced sounds give the impression of being taxing on the singer, whereas free tones give the impression of ease.
- c. Anatomy
- i. Big Ideas
 1. Laryngeal control is a motor skill you develop, not a talent issue.
 2. Motor skills (built from vocal function exercises) coordinate the vocal folds to respond to your mind's intent.
 3. Your vocal folds are a slippery cover of the thyroarytenoid muscle.
 - ii. Intrinsic Muscles of the Larynx
 1. **Thyroarytenoid (TA)**- starts at the thyroid cartilage, to the arytenoids, bulks up the vocal folds and gives a fuller sound.
 2. **Cricothyroid (CT)**- tilts and elongates the vocal folds. (TA and CT pull in opposite directions and are both engaged in all registered).
 3. Lateral Cricoarytenoid (LCA)- set of muscles that influence how pressed together the vocal folds are.
 4. Posterior Cricoarytenoid (PCA)- opens the vocal folds so air can pass through the glottis
 5. Transverse Arytenoid- pulls the vocal folds together.
- d. Acoustics
- i. Your voice is composed of a series of pitches called **harmonics**. The pitch you hear most prominently is called the **fundamental frequency**.
 - ii. Your windpipe/supralaryngeal airway/vocal tract is the tube that connects your larynx and your mouth.
 - iii. Everyone's vocal tract is shaped differently, and it serves as an acoustic filter & amplifier (guitar example).
 - iv. Your vocal tract amplifies certain harmonics in the series based on the choices you make, primarily vowel modification (F1 & F2)
 - v. Formants: an elusive term... resonances of the vocal tract (wind example: formants are the wind, harmonics are the leaves).
 - vi. Formants and harmonics interact in many ways. You don't need to know all of the acoustic science, but it's important to be aware of how you shape your mouth & vocal tract can impact your voice through your register changes.

Part 2: Registration Basics

Anatomy and acoustics work together during registration shifts! The TA and CT are coordinating, and your vowel modification/shaping of the oral cavity (raising/lowering soft palate, closing or opening nasal port, spreading the front or feeling space in the back of your mouth).

1. Mode 1/Chest Voice/TA Dominant Sound
2. Mode 2/Head Voice/CT Dominant Sound
3. “Mix” incorporates strategies from both registers for a balanced sound

Part 3: Application of Belt Development

Disclaimer: This is a series of steps pulled from the work of voice pedagogues Matthew Edwards (Shenandoah Conservatory) and Lynn Holding (University of Southern California). If this does not resonate with you, do not avail! There are lots of methods to learn to belt & sing in general and if anyone ever tells you their method is the only method they probably just want your money.

Three Stages of Motor Learning (Marci Rosenberg & Inigo Tize first applied these stages to vocal development)

1. Verbal/Cognitive stage- early stage of learning, establishing the feel of movement, need more cuing & make more errors. Exploratory stage to build neurological connections.
2. Motor stage- longest stage, focus is on refining skills. Move from blocked practice to random practice, jumping between vocal qualities. Start to rely on intrinsic feedback.
3. Automatic stage- fast processing, significantly reduced errors, longer program sequences.

e. Sing how you speak (Canta come si parla)

- i. Plainly speak the phrase of the song
- ii. Speak with an elevated inflection (customer service voice, announcer)
- iii. Speak the pitch contour of the song.
- iv. Speak on the exact pitches of the song without trying to be musical

f. Coordinate and develop chest register

- i. Isolate the chest voice: you will feel the sympathetic vibrations.
- ii. Imitate a brass instrument or think of a “call”.
- iii. Start on vocal fry and move towards a pitch on /a/
- iv. Begin around A3 for SA voices & D3 for TB voices & try a 121 interval on /a/ in your chest voice. (you can increase the interval as you get more comfortable).
- v. Things to watch/listen for- tongue or jaw tension, respiratory systems tension, physical tension.

g. Coordinate and develop head register

- i. This elongates the vocal folds, gets the body comfortable with letting the CT take over, and coordinates the body to increase flow.
- ii. Imitate a flute or owl and do some sighs from the top of your range.
- iii. All voice types start at E5 & descend 54321 with a flowing open throat (freedom is the goal). /ni/
- iv. Watch/listen for any negative compensatory actions (tension & alignment).

h. Find mix

- i. “Mix is a speech-like quality that is microphone dependent and comes in many shades”
- ii. Mix is a physiological & acoustic concept! Your muscles & the shape of your vocal tract (vowel modification) work together to coordinate balanced sound.
- iii. C4-C5 for any gender identity is the area where most of this work will be focused.
- iv. Strategies- messa di voce & reverse messa di voce throughout the range.
- v. 5-1 glides navigating between head & chest register.
- vi. During this stage, place more attention on exploration than immediate results.

i. Develop mix

- i. Moving into the motor stage— move to random practice.
- ii. Goal is every possible variation: whole exercise in head or chest & transitioning freely back and forth.

j. Coordinate belt

- i. “Belt is a speech-like quality that is intensified and driven by a high energy emotional state of being”. Chest voice does not equal belt.
- ii. Belt can have many different qualities- speech-like, warm, bright, twangy, metallic, & more!
- iii. You will never need to belt an entire song- storytelling drives the voice.
- iv. Chest/full belt- thick folds, more like high-intensity calling.
- v. Mix-belt- speech-like but doesn’t have the same level of thick fold production.
- vi. Many stumble upon their belt, but it often requires specific attention. You can find it from calling with open vowels, unpitched “taxi”, “hey mom”, etc. you can make up your own based on the needs of the song you’re working on!
- vii. Everyone has physiological limits— if you get to a point that hurts or feels overly worked, move back down to a pitch that feels free and observe what that feels like.

- viii. Nasality- can be used as a stepping stone to get you used to singing with a raised soft palate & with a brighter sound. Try transitioning between vowel qualities on a single pitch (nasal-hooty).

k. Increase stamina

- i. Practice sustaining pitches.
- ii. Maintain ribcage expansion & abdominal wall engagement while singing (breath work).
- iii. “I said stay away” “I said go away” “I love you” “I hate you” (or pick text from the piece you’re working on!) 1-3-5-3-1 sustaining the top note.
- iv. 9 tone scale up and down range.
- v. Listen for signs of fatigue- loss of upper most notes, less “ring”, loss of volume, tickle cough, cracking. When you reach a point of fatigue, bring the head voice down, SOVTEs, & take a break.

l. Shaping & Finesse

- i. Shaping sustained belt notes- explore all vowel qualities, volume levels, & variations of flow.
- ii. Add shaping in songs- dynamic variance, straight tone and vibrato.
- iii. Belt at volumes other than 10.
- iv. Train agility & flexibility with different registration strategies.

m. Integrate Story, Mood, & Groove

- i. Tie in your vocal choices with your storytelling! When are you belting & why?
- ii. Spatial awareness- are you singing in a small audition room or in Bardo? How does that impact your registration choices?
- iii. Incorporating gesture & physical movement

Final thoughts: This was a LOT of information. The moral of the story is having an awareness of how your voice works will help your ability to self-diagnose & navigate any issues you’re having post-graduation. Please keep this study guide as a resource for you, & here are some books I recommend-

Your Voice: An Inside View by Scott McCoy- a dense science-y text. I only recommend this if you’re interested in voice pedagogy.

A Systematic Approach to Voice by Kari Ragan- this book provides accessible explanations of voice function & exercises. She’s very into SOVTEs if that’s something that works for you.

So You Want to Sing series edited by Matthew Hoch- a useful series if you’re exploring a new genre like jazz or rock. Focuses on stylistic differences between genres and how to tackle them vocally.

Cross-Training in the Voice Studio: A Balancing Act by Mary Saunders-Barton & Norman Spivey- embraces training in both classical and contemporary styles & is an excellent resource for building versatility.

The Vocal Athlete by Wendy Leborgne & Marci Rosenberg- Dominic worked with one of the authors of this book and it's great for learning more about the science of singing CCM (contemporary commercial music).