On the Voice

Vocal Technique and the Choral Warmup: First Steps

by Sean McCarther

Over the past few years, I have served as the applied voice instructor to several graduate choral conducting majors. Hoping to bridge the gap between their voice lessons and their choir rehearsals, I often ask them what warm-ups they use with their choirs. They frequently offer exercises and cues such as "lip trills," "dropping the jaw," and "bringing the sound forward." However, when asked why they use those specific exercises, their answers rarely extend beyond "that's what my choir director always did." While there is certainly merit in building upon the wisdom of our mentors, we must also evaluate the purpose of those tried-and-true methods to make sure they truly serve our present needs.

A key component of my current pedagogical approach to voice teaching is the understanding that any cue, image, metaphor, or exercise will cause a functional change, whether that change is intended or not. Moreover, because of the complicated and interrelated nature of the vocal mechanism, a single cue will often cause cascading effects in multiple systems—again, whether intended or not. It is imperative that teachers provide students with exercises that are both intentional and specific regarding their functional effect. Lip trills, dropping one's jaw, and bringing the sound forward are wonderful exercises, if applied intentionally to elicit a specific functional behavior.

Unfortunately, knowing which function to address first can be challenging. Listening to a complex sound, diagnosing its functional cause, and prescribing exercises that will influence positive change in that voice is imprecise at best, and downright exasperating at worst. Over the past few years, I have developed a basic diagnostic process that has often helped me determine where to begin. The five steps are:

1) Listen passively and assess the sound

2) Use diagnostic exercises to explore symptoms

3) Diagnose functionality

4) Prescribe specific and targeted vocal exercises

5) Reassess

Though no process is infallible, these five steps have helped me organize my thoughts on voice instruction and my teaching in the studio. I offer them here as a method for organizing voice instruction in the choral environment. This article will explore several key ideas from the fields of motor learning and expertise acquisition that have direct impact on effecting functional

change in singers. We will then expand upon each of the five steps in this diagnostic process.

A Little Bit about Learning

Before diving into the process, it is important to discuss a few of the key elements of learning. There are two types of learning: declarative and procedural. Declarative learning can be summarized as "know that" learning as in, "I know that Abraham Lincoln was the sixteenth president of the United States." It is knowledge that can be declared to another person. In fact, this is how one assesses whether declarative learning has taken place, often in the form of tests, papers, and oral reports. Conversely, procedural learning can be summarized as "know how" learning, as in "I know how to ride a bike." This type of learning can only be assessed by witnessing the task. Simply describing the steps of riding a bike (declarative) does not mean one can actually get on a bike and ride (procedural); it must be observed.[1]

The branch of psychology dedicated to the study of procedural learning is called motor learning. Motor learning, as defined by Richard Schmidt and Timothy Lee, is "a set of processes associated with practice or experience leading to relatively permanent changes in the capacity for skilled movement."[2] There are a few key components to this definition. First, motor learning is a set of processes. It is a series of events or sequences that occurs in the brain that produces a behavior. Second, this new behavior can only be learned via deliberate practice. Third, changes in motor behavior (either positive or negative) due to this kind of practice typically stick (i.e., encode firmly into long-term memory). Practice may not make perfect, but it often does make permanent.

The goal, then, of a practice session should be to set up the conditions such that the brain can learn a new, more efficient series of processes. How one goes about learning those processes and the order in which they are learned plays a significant role in the efficiency of motor learning. The same is true for the choral rehearsal and warm-up. How and when a choir director introduces a new technical concept can have a significant impact on how well the choir does or does not habituate that concept. There are a couple of guidelines that govern how efficiently one habituates new motor behaviors.

Effort in Skills Acquisition

When students first learn a new skill, it is considered a controlled process. Controlled processes require conscious and intentional effort to produce successfully.[3] The important word in that sentence is "effort." Learning is not easy. In fact, the literature indicates that the more effortful the learning process, the more "sticky" it is.[4] Our goal as teachers is to guide students toward productive effort that leads to deep behavioral change. The challenge of the task must be difficult enough that it requires all of a student's focus, but easy enough that they have immediate success. This "challenge/skill ratio" is a key component to optimal performance as described by the psychological concept of "flow."[5]

After repeated successful attempts of this new behavior, the brain becomes more efficient at that particular task and begins to automate the process. With time, the once-effortful skill functions more or less unconsciously, reducing cognitive effort.[6] The skill has become habituated.

Focus and Attention

The brain has a limited amount of conscious mental capacity; experts in attention and focus debate the specific limits of this capacity, but most agree that it is finite.[7] Because of this, where one chooses to place this limited resource is vitally important.[8] As many teachers may have witnessed, students will find their own focal point if not given a specific focal point. With inexperienced students, their self-chosen locus of attention likely will not be conducive to learning. Teachers should guide students to focus all of the brain's resources on one specific task at a time. I typically accomplish this by drawing students' attention to specific sensory feedback.

Feedback

Research indicates that the best kind of feedback for procedural learning is perceptual.[9] Students need to perceive changes with their five senses (sight, sound, feel, taste, and smell). Taste and smell are less accessible for singers, but the more students can engage these five senses in the learning process, the faster and "stickier" the learning. Further, research on attention in motor tasks, most notably the work of Gabriele Wulf and her Con-

strained Action Hypothesis, suggests that an external locus of attention promotes more success and retention than an internal locus.[10] In other words, rather than focusing on the mechanism itself (raising the soft palate, expanding the ribs), students should be guided to focus on the *results* of the mechanism. For singers, this could be as simple as asking students to place their fingers on their face and feel for any buzzy sensations rather than asking them to "place" the sound in the mask. Focusing internally on the mechanism itself may stimulate old motor habits, inhibiting the ability to wire new synaptic pathways.[11]

To recap, learning to sing is procedural, not declarative. Talking about what should occur does not mean that it actually will occur. Learning to sing is a process that requires deliberate, focused practice over a long period of time to habituate. Students need to learn how to focus all of their mental capacity on a specific set of perceptual feedback that will encourage a desired behavioral change. When possible, this feedback should focus externally, not internally. With this information as a foundation, we now move into an exploration of a five-step diagnostic process that can help teachers determine which functional change to address.

Five-Step Diagnostic Process

One: Listen Passively and Assess the Sound

At the beginning of a lesson, it is tempting for teachers to pounce on the first faulty sound produced by their students, immediately diagnosing and prescribing corrective procedures. This often leads to a lesson of rapid-fire, teacher-driven feedback and constant, in-the-moment adjustments from the student. While these kinds of lessons tend to "feel good" (the teacher feels they have taught and the student feels they have learned), they often create what some pedagogues refer to as performance shifts. Performance shifts refer to behaviors that are observed in the moment, but do not stick.[12] I am less interested in my students sounding good during their lessons and more interested in them sounding good later when they walk out on stage.

One way to counter the impulse to provide immediate corrective feedback is to provide students with two to three minutes of uninterrupted singing time at the start of every lesson. This serves two purposes. First, it allows the student time to transition into a mental state conducive to learning. As pedagogue Cornelius Reid states:

> singing involves the whole person, with all of the usual conflicts and seeming contradictions. The entity which emerges as 'voice' is thus a composite of many influences: physical coordination, mental concepts, temperament, and psychological attitudes.[13]

One cannot separate the mind from the body, and voice teachers need to acknowledge that we work with humans who sing, not machines.

Singers have lives outside of the studio and the choral rehearsal space. They bring those experiences with them when they come to rehearsals and lessons, and not all of those experiences are conducive to learning. It is important for teachers to help students transition into a mental and physical state that will allow them to do their best work. Providing students with two to three minutes of space to transition can make a world of difference in the learning environment.

Second, providing students with a few minutes of uninterrupted singing time allows the teacher to collect information about the student and their singing passively, relying on empathy and intuition to guide our initial diagnosis. James McKinney describes empathy as "one of the quickest and most valuable methods of identifying the cause of a fault" in a singer's tone.[14] Though it is tempting to rush this process, I constantly remind myself of the words of voice teacher Jeanie LoVetri: "Wait on the bus."[15] This brief moment of transition for both the student and myself has become an integral part of my process in establishing an environment conducive to learning.

Two: Use Diagnostic Exercises to Explore Symptoms

After two or three minutes of singing, a teacher's attention will often gravitate to a few particular sounds or vocal qualities that indicate the functional behaviors that need to be modified. Again, the tendency will be to dive in and resolve the issue directly. Instead, I advocate that teachers lead students through a few more vocalises to

explore how these symptoms manifest in different situations. Sometimes simply changing the order of consonants and vowels or the overall direction of the exercise can cause radical changes (positive and negative) in the sound.

Additionally, this can be a good time to remind the student of previously learned technical behaviors, providing them the opportunity to solve their own problems without the instructor's intervention. Katherine Verdolini offers her "Skills Acquisition Package" as a strategy to help students process perceptual feedback effectively, relying on teacher instruction only when necessary. The steps in her process are:

1) Direct the student's attention to the body in general

2) Direct the student's attention to the specific body part of interest

3) Model the behavior for the student

4) Manipulate the student's body

5) Tell the student what to do[16]

Note that she only advises teachers to verbally instruct students after first guiding them toward making change more or less on their own. Depending on the issue, it is not uncommon for students to resolve their own vocal issues without my intervention. If they cannot, then I have a clearer understanding of their technical deficiencies and can target my instruction appropriately.

Three: Diagnose Anatomical and Physiological Function

This is where the proverbial rubber meets the road. The first two steps help teachers amass all the information necessary to make a correct diagnosis. In the third step, teachers use their understanding of anatomy and physiology to match the symptoms heard in the sound with the most foundational underlying functional cause. Note the use of the phrase "most foundational functional cause." It is very easy to focus one's instruction on superficial symptoms. These are often easy to correct in the short-term and provide immediate, observable change. They do not, however, often provide the deep, long-term behavioral change necessary for efficient learning. Instead, I advocate for teachers to create a hierarchy of technical skills, orienting their teaching to address the skills that will have the most impact on the entire system. For me, this order is: 1) alignment, 2) inhalation, 3) positioning of the resonators, 4) support, and 5) registration, resonance, and articulation in varying order. [17]

Unfortunately, this implies that the vocal system functions in a linear or step-by-step capacity; it does not. It is far more complicated and interrelated than this simple order indicates. Additionally, each teacher will have a different hierarchy, born out of their personal experience and pedagogical approach. Regardless, it is important to remember that all sound is a result of a functional cause and no single system functions in isolation. An issue with one system will positively and negatively affect every other system in the mechanism. Our work as teachers is to target one system or behavior that will have the most positive cascading effect on the rest of the mechanism.

Four: Prescribe Specific and Targeted Vocal Exercises

After teachers identify the specific function that needs to be changed, they need to design specific and targeted exercises to effect positive change in their singers. Any cue or exercise a teacher gives to a student will cause a change in the vocal mechanism. If teachers are not intentional with their instruction—focusing it on very specific behavioral changes—learning will be haphazard and accidental if it occurs at all. This is the problem I encountered with my graduate students. Lip trills are a fantastic exercise, but it is important to understand their specific impact on the various vocal subsystems and, as important, the negative effects they can have on singers. Unfortunately, there is no universal panacea. Every exercise has both positive and negative impacts. When providing students with corrective protocols, teachers need to work to focus their instruction and their students' attention such that they highlight the benefits of the exercise and mitigate the complications. Future articles in this series will explore the positive and negative impacts of several ubiquitous vocal exercises and best practices for incorporating those exercises into instruction.

Five: Reassess

It might seem obvious, but it deserves mentioning that voice teachers should constantly reassess whether a particular exercise is working. A key component of learning is repeated successful attempts at an exercise. The vocal task teachers assign to their students should strike a balance between the challenge of the exercise and the student's current skill level, pushing them just past their current ability. The task should be difficult, but able to be produced successfully and repeatedly. If, after a few repetitions, students are unable to produce the desired behavioral shift successfully or at least make progress toward that shift, I move on to another exercise to address the same behavior. It is very easy to get stuck on a particular exercise that simply is not working for the student. The behavioral shift should be placed at the center of our pedagogy, not a particular exercise.

Moving Forward

The process described above is in no way infallible. While my students and I find such a clearly delineated, step-by-step process to be useful, it cannot account for the complexity inherent in the vocal system and the cognitive processes required to learn. Our pedagogy must be flexible enough to respond to the specific demands of the student in front of us, yet still retain enough structure that it is easy to implement. I offer this process as a place to begin the work of codifying and organizing our pedagogical approach. CJ

NOTES

[1] Lynn Helding, *The Musician's Mind: Teaching, Learning, and Performance in the Age of Brain Science* (Lanham, MD: Rowman and Littlefield, 2020), 74.

[2] Richard A. Schmidt et al., *Motor Learning and Control: A Behavioral Emphasis* (Champaign, IL: Human Kinetics. 2019), 283.

[3] Robert J. Sternberg and Karin Sternberg, *Cognitive Psychology*, 7th ed. (Australia: Cengage Learning, 2017), 143.

[4] Peter C Brown, Henry L. Roediger III, Mark A. McDaniel, *Make it Stick: The Science of Successful Learning* (Cambridge: Belknap Press, 2014), 79.

[5] For a review of the literature on "flow," please consult: Sean McCarther, "Getting in the Zone: Finding a State of Peak Performance Part I," *Journal of Singing* 74 no. 3 (Jan-Feb 2018), 329-334; Sean McCarther, "Getting in the Zone: Finding a State of Peak Performance Part II," *Journal of Singing* 74 no. 4 (Mar-Apr 2018), 443-447.

[6] McCarther, "Getting in the Zone, Part II," 443.

[7] Mihaly Csikszentmihalyi, "Attention and the Holistic Approach to Behavior," in Mihaly Csikszentmihalyi, ed., *Flow and the Foundations of Positive Psychology: The Collected Works of Mihaly Csikszentmihalyi* (Dordrecht: Springer, 2014); Sternberg and Sternberg, 119.

[8] Mihaly Csikszentmihalyi, "Toward a Psychology of Optimal Experience," in *Flow and the Foundations of Positive Psychology*, 209.

[9] Katherine Verdolini, "Principles of Skills Acquisition Applied to Voice Training," in *The Vocal Wisdom: Views on Voice* (New York: Applause, 1992), 75.

[10] Schmidt et al, 123; Gabriele Wulf and Rebecca Lewthwaite, "Optimizing Performance Through Intrinsic Motivation and Attention for Learning: The OPTIMAL Theory of Motor Learning," *Psychonomic Bulletin & Review, 23* (2016), 1396; Robert A Duke, Carla Davis Cash, and Sarah E Allen, "Focus of Attention Affects Performance of Motor Skills in Music," *Journal of Research in Music Education* 59 no. 1 (Apr 2011), 44-55; Gabriele Wulf, Nancy McNevin, and Charles H. Shea, "The Automaticity of Complex Motor Skill Learning as a Function of Attentional Focus," *The Quarterly Journal of Experimental Psychology*, 54A no. 4 (2001), 1143–1154.

[11] Ibid.

[12] Helding, 103.

[13] Cornelius L. Reid, *Voice: Psyche and Soma* (New York: Music House, 1975), 1.

[14] James C. McKinney, *Diagnosis and Correction of Vocal Faults: A Manual for Teacher of Singing and for Choir Directors* (Nashville, Genevox: 1994), 18.

[15] Jeani LoVetri, "Somatic VoiceWorks" (workshop, Shenandoah University, Winchester, VA, July, 2015).

[16] Verdolini, Vocal Wisdom, 77.

[17] Sean McCarther and Christopher Arneson, Forthcoming "Reorganizing the Pillars of Voice Pedagogy: A Tiered Approach to Teaching Voice," *Journal of Singing.*