EXCELLENCE IN SINGING

multilevel learning and multilevel teaching

VOLUME 2: Mastering the fundamentals

CELUMBRA
Redmond, WA

By wanting to make a change in any one of the categories, she changes the parts that control her vocal tract—quickly and often outside of her awareness. For instance, if your student wants to change an [i] (ee) to an [o] (oh) vowel, her tongue arch slides rapidly from the front of her mouth to the back, her jaw drops, her lips round, and so on—simply by her wanting to produce an [o]. Along the same lines, she can make complex changes in her vocal tract by wanting to change her tone quality or to change her kinesthetic sensations. For instance, she might want to change from imitating a country singer to imitating an opera singer or from feeling a vibration in her chest to feeling a vibration on her lips. Though she might focus on different aspects of her experience of singing, she stimulates complex changes in her vocal tract.

Multiple Levels of Teaching Resonance

Because resonance gives immediate feedback about the sound to the student, exploring resonance is at the heart of most approaches to teaching and learning singing. Teachers request differences in resonance with a wide range of expressions. For instance, a teacher might say "Place the tone more forward in the cheeks," or "Brighten the vowel," or "Relax the jaw," and he is guiding the student's attention to changing the sensations and images associated with resonance. An expression such as "Lift the soft palate" can seem far removed from "Brighten the tone," "Round the vowel," or "Feel a sense of spaciousness," but all of these can stimulate your student to make a difference in her resonance.

With the rich heritage and language for teaching differences in resonance, there are many approaches to helping your student become more aware of resonance. This text has been organized into those approaches that focus on the physical parts of the vocal tract, vowels or consonants, tone qualities, and kinesthetic sensa-

tions. These differ only in which aspect of resonance you want your student to pay attention to.

Changing the Shape of the Vocal Tract

Regardless of your approach, teaching resonance boils down to helping your student make differences in the shape of her vocal tract. You can successfully stimulate her to make the requisite changes by focusing her attention on any of the following:

- A part of the vocal tract (a physical description). You can have your student change the shape of her vocal tract by directing her attention to a physical part of the vocal tract, by saying things such as "Round your lips" or "Raise the arch of your tongue."
- A vowel or consonant (an aural description). You can have your student change the shape of her vocal tract by directing her attention to vowels and consonants. Being familiar, vowels and consonants give you and your student access to basic vocal tract shapes, which you can then use to modify toward the vocal tract shape your want her to achieve. To lead her to a particular vocal tract shape, for instance, you might tell her, "Sing that [o] (oh) a little more like [ɔ] (aw)" or "Sing 'mmmooo' and hear the buzziness of 'mmm' linger into the 'oo.'"
- A tone quality (an aural description). You can have your student change the shape of her vocal tract by directing her attention to a tone quality. Her intuition of the tone, for instance, governs her vocal tract shape when you ask her to "Brighten the tone" or "Begin that phrase with a warm, covered tone."
- A set of sensations (a kinesthetic description). You can have your student change the shape of her vocal tract by directing her

attention to her kinesthetic sensations at one place or another in her body, by saying things such as "Feel the vibration on your lips" or "Feel a sense of relaxation and openness in your throat."

When you ask your student to move a part of her vocal tract, change a vowel or consonant, change a tone quality, or feel a sensation, you are asking her to manipulate her resonance. Each aspect offers a different "handle" for teaching her to manipulate resonance.

Teachers commonly ask students to change the parts of the vocal tract, vowels and consonants, tone qualities, and kinesthetic sensations in order to change the resonance. However, you can also direct your student's attention to other, less-common areas for changing her vocal tract's shape:

- A sound to imitate (a metaphorical aural description). You can have your student change her vocal tract's shape by asking her to imitate a sound, as in "Sing that tone with the soft hoot of an owl."
- An emotion (a visceral description). You can have your student change her vocal tract's shape by directing her attention to an emotion, as in "Sing that tone with a happy sound."
- A resonance pattern resulting from the source wave and the filter (an intellectual description). You can have your student change her vocal tract's shape by directing her attention to a resonance pattern, as in "Tune the formant to the first partial." (See the heading "Source-Filter Theory," in v. 1, ch. 6.)
- A spectrum of partials with formants (a visual description). You can have your student change her vocal tract's shape by directing

her attention to a spectrum of partials with formants, as in "Move the formant peak to the right or left."

Some approaches are more literal than others. Asking your student to move her tongue forward is more concrete than asking her to move the sound forward. Asking her to move the formant peak as she sings into a real-time voice analyzer is even more literal. But each approach offers something the others don't.

Use whatever stimulates your student. She may respond to "Change the vowel" more instinctively than to "Change the vocal tract shape," or she may be able to "Change the place she feels a buzzy sensation" more easily than she can "Change the tone quality." If your student doesn't adjust her resonance as you intend, simply use another approach.

Resonance and The Stochastic Process

The sounds you and your student choose to produce and the flexibility she needs to produce those chosen sounds are two different levels. You and your student choose sounds according to the teaching equation, but you teach her to produce those sounds by helping her develop flexibility, which you can teach through the stochastic process. (For a full description of these concepts, see the headings "The Teaching Equation" and "Stochastic Processes," in v. 3, ch. 11.)

With flexibility in resonance, your student progresses when she can shape her vocal tract with many distinctions rather than with a few. If she can shape her vocal tract only from speech habits, she will be much more limited than if she can shape it at will, adjusting the contours of the air column with fine discrimination. If she learns to make many distinctions in all aspects of influencing her resonance, she will acquire more flexibility, which will

lead to more efficiency, allowing her to achieve her artistic goals with increasingly more resolution. We discuss this topic fully in ch. 11, "Flexibility in teaching and learning," in v. 3.

You want your student to stay open to learning about exploring her resonance rather than trying to achieve a "correct" resonance. Whatever you can do or say to stimulate a change is potentially useful because your student needs to contrast sensations to build flexibility. In other words, she needs to produce strident or shrill sounds as part of learning to produce smooth, delicate, desirable sounds.

Each aspect of resonance—the position of the articulators, kinesthetic sensations, vowels, tone colors—falls along a continuum. Once your student has established the extremes of each continuum, she improves by exploring the distinctions from one end to the other. For example, she could establish the extremes of bright and dark tone qualities and then improve by exploring the sounds between them.

The goal here is to help your student create the distinctions of resonance—this vocal tract shape is different from that one, this kinesthetic sensation is different from that one, this tone quality is different from that one—in order to build the underlying flexibility required for manipulating resonance. (To decide which sounds you and your student should cultivate, see ch. 3, "Flexibility at Multiple Levels," in v. 1, where we discuss how to set a standard of excellence.)

Your student must ultimately learn to feel the effects of resonance, regardless of where her attention was when she produced the resonance. With your feedback, she can learn to correlate her kinesthetic sensations with her actual vocal sounds; she can then develop her own internal feedback system. She can learn what to adjust to produce a desired kinesthetic sensation and, hence, a

desired vocal sound. Eventually, your student will intelligently explore her resonance to achieve the sounds she wants.

- Some teachers insist on using "real instructions" that express how the voice works according to scientific descriptions. Such teachers would never say, "Move the tone more forward in your mouth," because this instruction has no basis in fact; these teachers feel that such colorful instructions can be misleading. However, factually describing the voice is not the same as stimulating a student to learn. If an accurate description of the voice were all that was needed to stimulate a student properly, then anyone could learn how to sing merely by reading a correct description of how the voice works.

  An accurate description of the voice is certainly important, but your student may need to be prodded, cajoled, induced, or inspired by many other expressions in order to learn to sing—and you want to have the flexibility to use whatever works.

Resonance and the Rest of the Voice

Resonance is enmeshed in the other functions of the voice. It depends on breath and phonation for its existence. Variations in breath and phonation influence resonance, and variations in resonance influence phonation and breath. For instance, the first formant (a resonance at a particular frequency) can cause a ripple in the glottal wave (phonation) if the first formant has enough amplitude. (For details, see ch. 6, "The sound: The interplay between the body and air," in v. 1.)

Consequently, the language of teaching resonance actually refers to adjusting other functions of the voice as well. For example, to brighten the tone requires your student to adjust more than the shape of her vocal tract. She also needs to adjust her phonation so that her vocal folds close rapidly enough to raise the amplitudes of the higher partials (the overtones), which depend on precisely adjusted breath flow as well. We touch on the dynamic relationship of your student's resonance to the pitch she is singing in this chapter under the heading "Flexibility with Modifying Vowels," on page 211, and we address this issue thoroughly in ch. 12, "Teaching and learning a smooth vocal line," in v. 3.

Although voice teachers usually refer only to resonance above the vocal folds, keep in mind that resonance occurs whenever the air is disturbed in any air space in the vocal system, whether it is below the vocal folds (in the trachea), between the vocal folds (in the glottis), or above the vocal folds (in the vocal tract). Consider resonance in all of these air spaces. Doing so can help you think about teaching and learning singing as a matter of manipulating the natural springiness of the air to produce sounds, which is a direct path to efficient, effortless, and beautiful singing. (See the heading "The Springiness of Air," in v. 1, ch. 5.)

When you focus on the air, you can reduce your teaching to a simplified concept: you help your student compress the air in her lungs (for exhalation) and create the spaces for the air to do what it does naturally. While your student is exhaling, teach her to adjust the appropriate space below her vocal folds by raising or lowering her larynx; adjust the ever-changing space between her vocal folds with phonation exercises; and adjust the spaces above her vocal folds with resonance exercises. All this takes little effort—though lots of skill!—so that the air, responding in its own way, creates the desired sound.

Orienting to this high-level idea, your student learns to use her body with minimum effort. You teach her to respond to the air with the strategy of a martial artist—guide the energy in the motion around her rather than expend her own energy. This simplified concept can help you lead your student away from labored singing and toward singing with efficiency, freedom, poise, and maximum expressiveness—all qualities of advanced singing.

Flexibility in the Parts of the Vocal Tract

Every vocal sound is created with a corresponding vocal tract shape, which is formed with the jaw, tongue, cheeks, lips, larynx, soft palate, throat, and head position. Because these parts line the vocal tract, moving any one of them changes the shape of the vocal tract.

These parts can move in a wide range of combinations: the front of the tongue can rise as the jaw drops, the soft palate can lift as the head tilts, the lips can spread as the cheeks lift. The parts can move all at once or one at a time, subtly or dramatically. The combinations are limitless.

But your students arrive in your studio with varying abilities to move these parts. A beginning student, for example, might not be aware of how she uses her tongue; most of your students will not be conscious of their soft palates or head tilts. Their speech habits feel and sound normal to them, even when the corresponding vocal tract shapes pose vocal problems. Students need to learn to discriminate between sounds they think they're singing and sounds they're really singing—and to monitor the underlying movements of the parts of their vocal tracts.

For the first level of teaching resonance, you need to help your student develop flexibility in the parts of the vocal tract so that the