

FROM THE DIRECTOR'S DESK

This issue will give you wonderful information about **VOCOLGY** and how its study makes better voice teachers. The article discusses ways of vocalizing and the use of technology in the studio and a stimulating suggested reading list.

The Canadian Voice Care Foundation (CVCF) wishes to thank **RON SAKAMOTO** for his support and commitment. He has put vocal health in Canada to the forefront by assisting us in successful fundraising opportunities by artists presented by Gold & Gold Productions such as Shania Twain.

CVCF had an excellent response to the spring session workshop called the **"BIG VOICE WORKSHOP" BY ELAINE OVERHOLT** from Toronto (www.ElaineOverholt.com), Canada's most leading vocal coach to the stars. The classes were held in Calgary at the Cantos Music Foundation with

great interest. One could be a participant or remain an observer. We will try to hold this workshop again in the fall, perhaps October.

Elaine Overholt has a great way to get the source of vocal energization, for singers and speakers. Her empathy, sincere interest and passion in voice production plus her kind interpersonal skills make for a wonderful intense presenter.

CVCF gave several workshops again in vocal fitness at the University of Calgary's (U of C) Continuing Education program. Similar sessions were presented to students of the Webber Academy, to instructors at the Southern Alberta Institute of Technology (SAIT), as well as for inspiring young singers for the Calgary Stampede Talent Search. These courses can be set up by contacting CVCF throughout the year.

We are now into discussions to get the 5th International Care of the Professional and Occupational Voice Symposium to be held in Banff as part of the Banff Centre's programme. Wish us luck. Have a great summer.



Big Voice Workshop From left to right: Donna Kay, Katherine Ardo, Elaine Overholt, & YouRee Rho

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How Vocology Study Makes Better Voice Teachers

John Nix

Last summer, I was asked by Scott McCoy, director of workshops for the National Association of Teachers of Singing (NATS), to participate as the "clean-up" or final speaker in a national-level workshop on vocology. Scott gave me a topic to speak on, which was "How Vocology Study Makes Better Voice Teachers." As I told the attendees, the more obvious title for the presentation I did was "Well, this has been a great workshop, and I think I have really learned a lot, but how on earth will I apply this to my teaching?" Hopefully this article will also serve a similar purpose – to open your eyes as a reader to the potential vocology study has to enhance your teaching of singing.

Let's begin with a few definitions:

Vocology: "The science and practice of vocal habilitation and treatment of voice disorders" (Titze, Principles of Voice Production). This definition emphasizes the interdisciplinary nature of the field of vocology. Vocologists include those who explore how to best enable a person vocally - why one approach works better than another, for example (voice scientists and medical doctors) as well as those who take this knowledge base and apply it in the training of voices (speech pathologists, acting voice coaches, singing voice teachers). For vocologists who specialize in the singing voice, our job is to find a way to implement the most up-to-date, scientifically-based knowledge on voice training, which has been gathered from all voice disciplines as well as from the fields of psychology and medicine, in the training of an artistic endeavor. The science informs our methodology.

Habilitate: To equip or make fit. (Random House College Dictionary). So in habilitating our students as vocologist-singing teachers, we are equipping and enabling them with the skills they need to sing in an artistic fashion.

How does studying as a vocologist make one a better singing teacher? I see several aspects of teaching that benefit from vocology study:

- (1) *Vocalizing, by including the incorporation of non-singing strategies and exercises from other disciplines, such as laryngeal massage, using vocal fry, humming, lip buzzes, raspberries, chanting, etc.;*
- (2) *Organizing teaching methods and practicing strategies based on motor learning theories;*
- (3) *Using technology from the speech sciences to assist with initial assessments of students, to enhance the teaching studio environment and to track progress objectively;*
- (4) *Choosing repertoire;*
- (5) *Pedagogy teaching (drawing from all voice disciplines for resources; using technology to enhance learning pedagogical principles);*
- (6) *How one listens (functionally as well as artistically – this can be learned in part with the assistance of technology);*
- (7) *Collaborative relationships between teachers of singing, teachers of acting voice, medical doctors, speech-language pathologists, voice scientists, which aid all parties in understanding the relationship teaching singing has with other voice disciplines.*

What follows is a discussion of each of these aspects, with examples drawn from the author's experience.

VOCALIZING

Here is a sample dialog between a vocologist/singing teacher and a new student. Note the types of questions the teacher asks:

Teacher: What's your favorite vocalise? Can you sing it for me?

Student: OK. [Sings 1-3-5-8-5-3-1 arpeggio on /i/]

Teacher: Ok. Nice sound! But how do you use it?

Student: What do you mean?

Teacher: In what range?

Student: Well, I generally start at the bottom and work my way up.

Teacher: Ok, that helps me understand what you do. [Taking notes]. Do you always use the same vowel?

Student: Well, I start with /i/, then try other vowels.

Teacher: Do you ever use consonants with it – like using a consonant to start the exercise, or one at the top of the arpeggio?

Student: Oh, sometimes I will – other times I just do vowels.

Teacher: Ok. When do you use it? Do you use it early in your vocalizing?

Student: Fairly early. Usually I do some sighs first, then this exercise.

Teacher: Ok, that's good for me to know. How long do you stay with this one exercise?

Student: Oh, I go through different vowels and so forth, then move on to something else.

Teacher: OK. Why do you like it? What does it do for you?

Student: Oh, it helps me feel like I have my voice focused on the way up.

From here, the teacher can examine how this student's favorite vocalise works: the vowels, the consonants, the pattern, the range the student uses it in, when he or she does it, and what it is doing physiologically. Then the teacher might be able to suggest ways in which the student might make it more effective.

Here's another sample dialog between a vocologist/singing teacher and a new student.

Teacher: Tell me how you vocalize...you know, what do you do first, second, third, etc.

Student: Oh, well, I generally stretch some, then do some lip buzzes on descending patterns, then maybe some descending scales [sings 8-7-6-5-4-3-2-1 on /u/], then some shorter ascending patterns, like [sings 1-2-1-3-1-4-1-5-1 on /va-i-a-i-a-i-a-i-a/]. After that, I might do a down-up-down pattern, like [sings 8-5-3-1-3-5-8-5-3-1 on /e/], then maybe some long scales or some phrases from pieces I am working on.

Teacher: How long do you spend vocalizing at one time?

Student: Oh, about 25 minutes.

Teacher: How much time do you spend with each exercise?

Student: Depends on how I feel that day, I guess.

Teacher: How many vocalises do you do in one session? You mentioned four before you started working on repertoire.

Student: Yeah, that sounds about right.

Teacher: How many times a day do you vocalize? Do you do several sessions per day, or just one?

Student: Well, if I have a rehearsal with my pianist or an opera rehearsal, I might practice more than once in a day.

Teacher: Did you devise these exercises yourself? Did you get them from your former teacher, or from a book?

Student: From all of the above – some I had heard other singers doing, and tried them and liked them; others are from my old teacher...

Teacher: Do you vary your vocalizing when you are warming up to perform?

Student: No, typically I just do the same stuff I always do.

Teacher: Why do you do what you do? Why in that order?

This type of initial dialog can give the teacher a great deal of insight into the student's practice habits and how they have gotten to where they are technically. From this short interview, the teacher can begin to help the student shape their practicing in more effective ways.

Let's talk now about some of the organizing principles of vocalization, in light of current research in vocal physiology, aerodynamics, biomechanics, acoustics and motor skill acquisition. We might call this "What Impact Does Vocology Study Have On Making and Using Vocalises."

Why do we warm up? Why vocalize? Are they the same thing? What goes on in a warm up?

(a) *A warm-up is a means to renew the mind/body relationship. It is coupling intent with action*

(b) *Physiologically, exercises used in a training session should (to paraphrase one of Ingo Titze's columns): stretch tendons, ligaments and muscles; move joints gently through their full range of motion; increase the blood flow to active areas; increase the precision of muscle action; foster stability or balance of function between antagonist pairs; encourage efficient and rapid transitions from one activity to another; and develop overall power.*

So what about warming up versus vocalizing? To a vocology-trained singing teacher, there is a difference:

- (a) *We warm-up to renew/review established skills and to "prime" ourselves for music making; we vocalize to learn new skills and to transfer those new skills to the performance of music. So maybe instead of vocalize, Titze's and Verdolini's term vocal skill acquisition might be more accurate.*
- (b) *When to warm up versus when to vocalize? If making music is the immediate focus (performance), then warming up is way to go. Pre-performance is a time for re-assurance of skills, not swimming in unfamiliar seas. But almost all other times, it is best to spend time vocalizing every day. The singer constantly challenging him or herself with learning new skills is the singer who will avoid falling into a "rut."*

But how do vocalises work - what are the variables that teachers have to work with? First, there's **direction**; is the pattern ascending versus descending? For further reading, I would recommend the writings of Oren Brown, Barbara Doscher and Ingo Titze.

Then, there's the **pattern**, or in musical terms, is the exercise about agility vs. fioratura; sostenuto vs. staccato; scalar vs. arpeggiated; conjunct vs. disjunct; etc.

There is also **length** – how long is the exercise? Then, what about the **vowels**? Vowels are a key variable in vocalises; learning how to adjust vowels in accordance with the location of formants is of particular importance to classical singers.

There are also **consonants** - for further reading, I would recommend Richard Miller's Structure of Singing, appendix five; Berton Coffin's article, "Articulation for opera, oratorio and recital," in the NATS Bulletin, Feb/Mar 1976; and Garyth Nair's recent book, Voice: Tradition and Technique.

Finally, let's not neglect to mention **tempo**, the length of the exercise's **note values**, the **number of repetitions** of the same exercise and the **dynamic level**.

Teachers should remember that there are no magic exercises that help all singers. Other factors to consider include **habituation** and **generalization**. As a behavior is repeated, it becomes more habituated (more automatic) and it can also become generalized (the behavior has an effect on other behaviors and situations). With respect

to singing, over time, the habitative effects of a vocalise may change or even become negative rather than positive. A wide variety of exercises which are constantly being re-evaluated and which are used in a rotating fashion seems most effective.

So what about designing your own exercises, rather than relying on vocalises in a book, or ones you've learned over the years? There are a number of factors to consider in designing and organizing exercises. In addition to the variables discussed above that are at work in each exercise, here are a few more physiological criteria that a vocology-trained singing teacher might consider:

- *Muscle activation level: for instance, how much thyroarytenoid muscle (TA) activity does the exercise encourage versus cricothyroid muscle (CT); and what about adductory activity? What kind of things will this exercise do for lateral cricoarytenoid muscle (LCA) and interarytenoid muscle (IA) versus posterior cricoarytenoid muscle (PCA); Will this exercise help develop a better balance of function in the extrinsic musculature?*
- *Tissue fatigue (i.e. the lamina propria of the vocal folds). Exercises that are high and loud are particularly taxing to the lamina propria because of the high frequency and high amplitude of vibration of the vocal folds.*
- *motor learning aspects (more on that below)*
- *psychological factors: in other words, balancing the need to succeed – the reassurance of skills - versus the uncertainty of learning new ones;*
- *Musical factors: the relevance of the exercise to musical applications - does it assist in the transfer of skills to a piece being sung by the student?*

ORGANIZING VOCALIZING

How does vocology study improve how we organize our teaching and our own practicing? Let's look at a few important points:

- (a) **% technical versus % musical:** *Richard Miller has written very eloquently about this; we must never forget that the technical skills acquired through carefully designed exercises are only a means to an end - that making beautiful music, not just beautiful sounds, is our goal. All of our singing should be done with an artistic goal in mind. At the same time, artistic expression*

demands having a full command of one's instrument. A Vocology-based, analytical approach to the teaching of singing does not prevent (or absolve) one from being an expressive musician! If anything, vocology study gives a teacher more tools with which to work towards artistic goals. Current research into motor learning indicates that transferring a skill (such as singing a rapid scale) to novel situations (such as singing a rapid scale in the context of a piece of music) must be built into one's planning of practice sessions from the very beginning.

(b) From the general to the specific: How many readers play golf or tennis? What is the first thing you did when you first started playing golf? Did you go to a course and practice a back-spinning fade? No, you had a bucket of balls and you worked on the basics of your swing. Have you even seen how pros like Tiger Woods warm up before a tournament? They start with general skills on the driving range. They make sure the fundamental aspects of their swing are working before reviewing specific skills. The same should be true with how singers organize their practice sessions. We begin with gross motor control by using simple vocalise patterns, and then gradually work towards ever finer and finer elements of technique. Save the messa di voce on a note in the passaggio for later in the vocalizing session. This is the case with how we approach young singers as well. As teachers, we must establish gross motor control of "the big picture" items before expecting more refined sounds. This applies to vocalizing, repertoire selection, how we give feedback to a student, and so forth.

(c) blocked versus random practice: blocked practice is doing 10 reps of vocalise A, then 10 reps of vocalise B, then ten reps of vocalise C, and so forth. Random practice is doing one rep of vocalise A, then one of vocalise C, then one of vocalise D, then one of vocalise B, then one more of vocalise A, and so on. To borrow terms from the sports world, blocked practice is doing sets; random practice is doing circuit training. Let's also define two other types of practice, constant and variable. An example of constant practice would be always using major triads and scales in all vocalises. Variable practice would involve using major for exercise A, minor for exercise B, lydian mode for exercise C, a whole tone scale for exercise D, etc. So the difference between blocked and random practice is the order in which we repeat an exercise; the difference between constant and variable practice is how similar one iteration of a pattern is from another.

In an upcoming book by Titze and Verdolini on Vocology, the authors discuss the pros and cons of different types of practicing. If you want an immediate performance gain, blocked constant practicing is best; if, however, learning,

retention and transfer are your goals, random variable practice is best. That which enhances short term performance suppresses long term learning, and vice versa.

(d) Massed versus distributed practice: We've all done massed practice. If you have a university degree in music, you had hundreds of lessons in this format - where you went to your lesson and did all of your day's singing in one session.

The lesson was just you and your teacher - there were no distractions. On the other hand, if you have a university teaching position, you probably now do a lot of distributed practice, where you have ten minutes of time to vocalize in the morning, then you demonstrate here and there for students in lessons, have another 15 minutes of practice time after lunch, in between the phone ringing and students stopping by your studio, then you demonstrate at a studio class in the afternoon, then stop by your colleague's office at the end of the day to quickly run through a duet you are singing on a recital later that week.

Again, as was seen above with blocked versus random practice and constant versus variable practice, massed practice enhances immediate performance, but distributed practice enhances learning and transfer of skills.

An added benefit is that distributed practice is much less fatiguing to vocal fold tissue! It is interesting to note that Mathilde Marchesi set up her studio in such a way that her students worked on their voices in a distributed fashion throughout the day. She had some outstanding results. And if you are interested in how to apply such a distributed model to the university setting, then I would refer you to Robert Holden's article "A New Model for Training the Collegiate Voice Student," in *Journal of Singing (JOS)* March/April 2002, p.299-303. Without going into a heavy discussion of motor learning theory, he describes a practical means for re-making the college voice teaching wheel in a more learning friendly model.

(e) Pre-performance versus new music learning: It's quiz time: Immediately before a performance, what is recommended? Blocked, constant massed practicing of exercises, starting with general and moving to more specific aspects which are similar to the demands of the music (and/or excerpted phrases of the music itself) will give the best results. The goal is immediate performance of tasks that are already habituated.

If you are working on new music for a recital months in the future, random, variable distributed practice is the way to go - here learning is the focus, not immediate performance level.

USING TECHNOLOGY IN THE STUDIO

You've probably seen presentations about technology at workshops. There are lots of books you can read which do a great job of explaining how programs work. What follows here instead are a few "big picture" comments I want to share with you about using technology in teaching singing.

Science and medicine are revolutionizing sports training and competition. Why can't we also use similar methods to revolutionize the training of artists, especially artists whose instrument is their body, artists who must tune and play their instrument at the same time?

The American sprinter Michael Johnson was wearing shoes with a micro-chip inside during the 1996 Olympics. From the chip in Johnson's shoes, his coaches were able to gather and store data (such as impact force, stride length, stride frequency per minute, etc.) from every single step he ran in every race. The data was captured, stored, analyzed and compared against visual images collected from the many cameras set up around the stadium. This type of enhanced feedback was, of course, after the fact - Johnson's chip could not tell him he was in third place and needed to go faster! But it helped him and his coaches evaluate his performance and make adjustments for subsequent races.

Six years later, in the voice world, we now have a number of relatively inexpensive means for providing both teacher and student with real-time, instant feedback. Depending on how much money you want to spend, you could use **Gram, Voce Vista**, or a **Kay Elemetrics system** and an **EGG machine**. My personal favorite (and I am not getting an endorsement payment for this statement!) is Voce Vista (information available through Donald G. Miller - d.g.miller@med.rug.nl).

Having one's artistic training informed by science and other non-artistic disciplines does not in itself mean such training will make one a less spontaneous or less artistic singer; quite the contrary - the more one is technically enabled or habilitated, the freer one can be to be expressive.

You may be sitting there saying, "I don't want to turn my students into techno-robots. How do I incorporate

technology into teaching without tying my students up into knots, or distracting them from being creative?" Realize the following somewhat contradictory ideas:

- (a) *Don't underestimate how tech savvy some of your students are. College undergrads have grown up always having computers in their lives.*
- (b) *Every student is different; some like the objective visual feedback a voice analysis program gives.*
- (c) *Always, always link objective information that you provide or that a program provides with a kinesthetic experience - or it is of no value at all to a student (who must perform on stage without you and the computer at their side).*
- (d) *Teach the student according to their needs at that lesson. Just because you have voice technology in your studio doesn't mean it is right thing to use for every student all the time. The equipment is your slave; you are not a slave to it.*
- (e) *The motor learning literature talks about implicit versus explicit learning. Our students learn motor skills more efficiently when we don't take a lot of time talking about muscle function via mechanical instructions. My recommendation to you today is that voice analysis programs are fabulous for visual feedback, but save detailed explanations about muscle action and the heavy duty talk about formants and partials for pedagogy class.*

In a lesson situation, helping your students experience technical mastery kinesthetically (not intellectually) is the most important thing you can do. Barbara Doscher used to say to me, quoting Berton Coffin, "**Speak to a person's muscles, not their brain.**" Barbara Honn said much the same thing at the NATS Intern Program: students need to be singing and feeling during a lesson, not listening to an explanation of something.

What this means is the teacher benefits from having a vocology knowledge base under his or her belt so that he or she designs exercises and pick repertoire and listens in an informed fashion, but students sing better when they are not overwhelmed with lots of technical information. The goal for a lesson is to help them experience what you as the teacher knows they need for their technical development rather than talking about it!

REPERTOIRE

No matter how talented and knowledgeable we are in assisting a student to establish a technical foundation through vocalises, we can retard our students' development or even tear down the technique we helped our students acquire by assigning inappropriate literature. It is our task as teachers to carefully choose repertoire that insures success and progress while challenging (but not defeating) the student.

Many criteria must be considered when choosing repertoire for singers. These criteria fall into four broad categories: the physical limitations of the singer, the voice classification of the singer, expressive/emotional factors, and musicianship skills. Depending on the type of student—beginning, intermediate, advanced, or professional—these criteria take on differing levels of importance. For the beginning singer, physical limitations and voice classification issues are paramount; for intermediate, advanced or professional singers, emotional factors and musicianship skills also become important.

Vocology study is an excellent way to enhance one's knowledge base in the first two categories, physical limitations and voice classification issues.

In order to better understand how vocology study can make a difference in selecting repertoire, look at a familiar piece that one of your students may be singing through a set of vocology glasses. Look at the piece with the following points in mind:

- (a) Age of the student.** *Age is important in understanding what state the singer's instrument is in developmentally. Is he or she physically mature enough for the demands of the piece?*
- (b) Length of time the student has been studying.** *How long has this singer been training his or her muscles and mind for the act of singing? How established are certain technical habits? How long has he or she been studying with the same teacher?*
- (c) Individual technical problems.** *Do they have difficulties with a register bridge? Are certain vowels or consonants especially easy or troublesome? Is the student capable of managing his or her breath skillfully throughout a long phrase? Is the student in transition from a lower voice classification to higher one?*
- (d) Voice classification, including the following considerations:** *the pitch location of register bridges*

in the singer's voice, the tessitura of the voice, the timbre of the voice, and its range. Location of register bridges and tessitura are widely considered to be the most accurate ones to use in determining voice classification, although all factors deserve consideration. It is essential that a teacher have accurate information about the location of each student's register bridges when selecting repertoire.

- (e) Vocal timbre.** *Timbre is the result of several factors, including vocal tract length, the amount of vocal fold adduction used during singing, the thickness of the vocal fold mucosa, prior training, and personal preference. Timbre is often very important in determining sub-classifications within a voice category. The timbre must match the style of the music and the text.*
- (f) Range.** *Not only the obvious extremes, but also the context of the notes: How are the extremes of the piece approached? By leap or by step? Are they part of a scale pattern or rolled-over in an arpeggio? How long are the critical notes? Are they staccato or are they whole notes? Is the high or low note isolated, or are there several high notes in quick succession? What vowels are set on the crucial notes? What consonants are paired with those vowels on the high and low notes? Are the phrases ascending, descending, or is there a good balance between the two. Is the text set in a syllabic or melismatic fashion in the passaggio and at the extremes?*

PEDAGOGY TEACHING

I would like to refer you to my recent article in the Journal of Singing about the acquisition of observational and listening skills - it is listed in the suggested readings list; rather than taking a lot of time and space here, this article states my feelings about using a vocology approach, including technology, to teach pedagogy. I also strongly recommend Garyth Nair's book, *Voice: Tradition and Technology*. It is a nice how-to book for using spectrographic analysis software in the studio. In the near future, look for Titze and Verdolini's text, tentatively titled *VOCOLGY* and to be published by the National Center for Voice and Speech.

EXAMPLES OF VCOLOGIST/SINGING TEACHERS

I have had people ask me before, "Who are examples of vocologist/teachers?" Without a doubt, I would say Richard Miller, William Vennard, Berton Coffin, Oren Brown and many others are or have been vocologists/singing

teachers. These are people who have collaborated with professionals across voice disciplines. Their teaching and writing has benefited from these collaborations. While they did not have the benefit of academic courses of study in vocology, as young teachers now can take advantage of, they did take it upon themselves to find peers in other fields to mentor with.

COLLABORATIONS BETWEEN SINGING TEACHERS AND OTHER VOICE PROFESSIONALS

In my current position at the National Center for Voice and Speech, I have had the pleasure of working with colleagues from all areas of voice study – voice scientists, speech pathologists, acting voice teachers, medical doctors and other singing teachers. Here are but a few examples of the types of relationships that can grow out of voice training grounded in vocology:

My colleagues Kate Emerich (singing voice specialist and speech-language pathologist) and Mona Abaza (laryngologist) and I have shared a common client for some years now. I am the client's singing voice teacher. Kate is her speech pathologist, and Mona is her laryngologist. I first recommended my student to Kate and Mona for a voice evaluation when she had a severe cold and lost any access to the upper part of her soprano range. As it turned out, she had severe reflux and had suffered paresis of the superior laryngeal nerve on one side. She began voice therapy with Kate in addition to lessons with me. She has continued to have regular check-ups with Mona, and Kate and I compare notes on what is working well in therapy/lessons. I have also viewed stroboscopic exams of this client with Mona and Kate's guidance.

Kate and I have also worked as a team with a professional singer in my studio who had suffered a vocal injury due to heavy coughing. Again, the student continued singing lessons with me and began voice therapy with Kate. Kate and I had regular meetings about the client's progress, viewed strobe exams together and discussed various strategies for addressing the problems at hand. I retained my role as the singer's career counselor when it came to canceling or postponing performing engagements during the recovery period.

I have also had the opportunity to be involved in voice research. Jan Svec, voice scientist, Donald Miller, singer/teacher and voice scientist and I developed a research protocol for a study of the whistle register in sopranos. We used software that Don is expert with (Voce Vista). In our lab sessions, we captured electroglottogram signals, acoustical data and perceptual information from the four singers; we will also have a group of expert listeners who will evaluate the recorded samples. The EGG and acoustical data we collected gave me some more insight into how two sopranos with similar training backgrounds but very different voices sing their high notes.

SEEING PARALLELS BETWEEN FIELDS

As my journey in vocology has continued, I have begun to see a number of parallels between my field of teaching singing and other voice fields. For instance, my singing teaching mentor, the late Barbara Doscher, was famous among her students for saying "for God's sake, don't peep!" She did not want her students undersinging. She understood that gross motor control (remember the discussion above about the general before the specific?) had to happen before any fine tuning could occur. It was her conviction that students need to EXPERIENCE their breathing/phonation/resonation system working at a decent dynamic level first. From a psychological standpoint, she also knew that young students need to do some reprogramming mentally as far as their conception of a big sound is concerned. Doscher knew that speech level energy output would not be sufficient for a singer's voice to be heard in a large hall. Now compare this "Don't Peep!" admonition with "Think Loud," the mantra of my NCVS colleague Lorraine Ramig, one of the world's experts on voice and neurological disorders, particularly Parkinson Disease. The hypofunctional Parkinson's patient needs to "overdo" to return the system to equilibrium. Ramig's research has shown that this simple command helps the breathing/phonation/resonation/articulation chain to "hook up" again. And her research has shown that Parkinson's clients need to "rewire" their perception of effort to vocal output.

CONCLUSION

As voice teachers, we are charged with the care and development (both physically and artistically) of part of another person's body. We owe it to our students and our art to stay on top of our field and to provide our students with the best, most individualized, most efficient training available. To paraphrase what the late Oren Brown said to our students at the Summer Vocology Institute in 2001, "you must always know what is happening physiologically and acoustically when you ask a student to do something in a lesson." And, judging from the literature in the motor learning field, you must also know how to structure what you ask your students to do and how much information you give them in order to optimize their long term learning of vocal skills.

Traditional demonstration and imitation (i.e. modeling and trial and error approximations) will always have an important place in teaching singing. However, we have many more tools available now to enhance and accelerate the learning process in addition to the older traditions. As teachers, we must be open to using any combination of motor learning strategies, modeling, body mapping, informed imagery, movement work, mirrors, video cameras, and voice analysis technology to assist in helping the student learn. Vocology study is all about this synergy of approaches.

Suggested reading:

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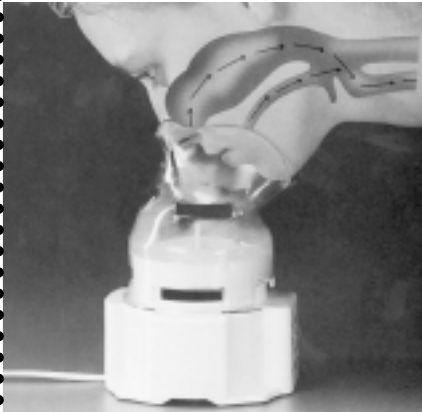
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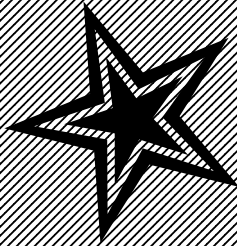
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