

VOICEPrints

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NOVEMBER-DECEMBER 2014



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HOLIDAY EVENT with WINE RECEPTION!

Applying Classical Pedagogy to a True American Art Form: Barbershop

Sarah Clay with "Sirens of Gotham" and "Voices of Gotham"

December 8, 2014, Monday, 7:30-9:00 PM EST. *Wine Reception to follow.*
National Opera Center, 330 Seventh Ave, between 28th & 29th Sts., NYC.
Free to NYSTA members, their students & guests. Donations welcome.

Whether or not you currently train singers who are involved in barbershop singing, you will be delighted and rewarded by joining us at the National Opera Center for the skilled and fabulous "Sirens of Gotham" and "Voices of Gotham" with Sarah Clay. The vibrant international community of competitive barbershop singing is one of the most under-recognized arenas where singers strive for high-level vocal performance, and those who engage in it are in need of skilled training to meet the goals of the art form with healthy vocal function. Barbershop is also a style of music with different acoustic concerns than classical, musical theatre, pop, or rock; as a result, it offers exciting performance opportunities to many singers whose voices may not be as "at home" in other genres. If, as trainers of singers, we neglect knowledge of this, we neglect the interests and needs of many students who may cross our path. With a presentation that will include an informative talk covering musical, artistic, and timbre expectations of the genre, those in attendance will also have a chance to step into the style themselves, being led in the learning of a "tag" in the barbershop tradition. Of course, we will also be entertained for a few numbers as the singers "strut their stuff" in their own dynamic, engaging way.



Sarah Clay is a music educator, vocalist, and choral conductor dedicated to sharing the gift of music through creative education and innovative performance. In addition to directing Sirens of Gotham, Sarah manages a private voice studio, where she teaches voice to students of all ages, promotes a sound method of vocal technique, prepares students for performance and auditions, and helps students to explore a wide variety of musical genres.

FALL VIDEO CHAT:

Practical Tools for Singing Teachers— The Voice Range Profile with Dr. Daniel McCabe

November 9, 2014 – 6:00 PM to 8:00 PM EST Live Online

REGISTER NOW!

Please note: Due to unavoidable circumstances, this event has been moved to Sunday, NOVEMBER 9, at 6 PM. If you've registered already, you do not need to register again. All other event details will remain the same.



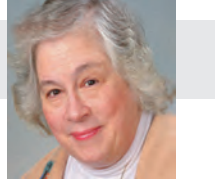
Dr. Daniel McCabe

The Voice Range Profile is a tool that can help you improve your student's voice progress. The more you can hear in your student's voice, the more you can add to the information you put in the VRP. As you use this tool more, you will learn what works and what doesn't for helping your students make the progress they need.

Technology assists us in its ability to monitor and describe the voice we are hearing. As we gain experience with more voices we can see how certain vocal deficits are mirrored in the measurements we are making, and we can track changes in those measures over time as the voice develops and changes with learning and practice. As you learn more about the cause and effect of vocal production, you can start to integrate these tools into your ability to target specific deficits with specific types of vocalizes, literature choices, etc.

This webinar will introduce you to the Voice Range Profile, its use, limitations, how to measure a singer's voice range, and how to make use of the information they contain. Some knowledge of voice anatomy is recommended, and we will start with a brief review of the contribution of tissues, technique, and emotion play to vocal performance.

MESSAGE FROM THE *President*



November 2014

It's autumn and at this time of the year my thoughts always turn to my former teacher, Margaret Hoswell, a NYSTA member of long standing, faculty member at Manhattan School of Music from 1972 until her demise, and before that at New England Conservatory from 1968–1973. It was October of 1975 when I had my first lesson with Margaret and it was October of 1987 when she left us far too soon. She was the seventh voice teacher of my life and, I swore, the last. If I didn't learn how to sing from her, I was giving up altogether.

I would hope there are still some NYSTA members and/or former students of Margaret's reading this who remember her. She was a supporter of all things NYSTA, as I remember, and particularly of the Debut Recital Prize that NYSTA used to sponsor years ago. What a wonderful idea that was! It gave the winner a full recital in what is now Weill Hall with the distinct possibility of a New York Times review—priceless, once-in-a-lifetime opportunities. Margaret felt that NYSTA really served studio voice teachers well by giving them outlets for their students to sing. That is still true and something we intend to expand upon in the coming years.

Margaret seemed to have oodles of famous or nearly famous students, all of whom I not-so-secretly admired while sitting in her waiting room listening to them vocalize. Lessons sometimes ran hours late, so you quickly learned to devote a full half-day to travel and your own lesson! But even the waiting was worth it, as you listened to the efforts of others and gobbled up the exercises and repertoire you could use for yourself or pass on to your students.

The qualities I remember most about Margaret were her kindness, her discipline, her patience and her incredibly keen ear. If your vibrato was a tiny bit wide, she would note it. If you were a bit flat or sharp, she let you know.

She constantly worked for a free sound that was beautiful without being pressured—her finger under my tongue muscle let me know I hadn't yet conquered the pressure I normally exerted when I sang the "ah" vowel. She worked from a long list of exercises that began with laryngeal flexibility (I later figured out) and continued through every type

of technical demand a classical voice might have to meet. She used the Lütgen, Panofka and Marchesi exercise books, and probably others I did not know about, and taught me to stick with an exercise no matter how frustrating it might be, until it yielded the results she knew it would. One day we worked on *one note* for about twenty minutes (it seemed like two hours) until she said, "That's a bit better." This was Margaret-speak for "You haven't changed anything, really, but we'll keep at it until you do." Margaret taught me persistence—when technical ideas would not gel at first, I came to realize they would down the road.

At one point Margaret had been asked to edit archival materials from Mathilde Marchesi's studio, that had come down to the latter's great-great-grandson (I'm doing this from memory, so there might be another "great" in grandson) and she incorporated those exercises in her daily workings. The publication she edited never saw the light of day because, if memory serves, the publisher could not figure out an audience for it—I would hope the same would not be true nowadays. I still have three truly embarrassingly old pieces of staff paper with those exercises on them and I use most of that material every day of the teaching week. (Hand sanitizer is required!)

The range in the Hoswell studio was amazing, from freshman tenors to graduate students (a young mezzo named Susan Graham) to Metropolitan and City Opera singers (Marvis Martin, Harolyn Blackwell, Maria Spacagna, e.g.), classical and musical theater genres. At one time or another, I heard sopranos Christine Ebersole and Christine Andreas take a lesson in her studio; there must have been others. Everyone was working on some version of those same exercises—they were good for all voices.

All of which brings me to my "find of the month" and the real reason for this message. Picking up my last box of NYSTA material, this time from former president Jeannette LoVetri, I learned from her of very special photocopies that she was anxious not be overlooked. They consist of four pages of handwritten exercises and notes by the late Maggie Teyte, the famous English soprano. They stem from her study in Paris with the world-famous tenor Jean de Reszke beginning in 1904—the year of the latter's retirement from performing. The final date on the photocopies is circa 1940, because the last digit is off the edge of the page and thus unknown. However, World Cat lists a book published by Austin Wilder in New York in 1947—*Letter from Maggie Teyte: Vocal Exercises of Jean de Reszke*. There are now reprints (as of 2006) of this information available in various libraries. These same exercises are also available in the appendix of *The Pursuit of Perfection: A Life of*

Maggie Teyte by Garry O'Connor, published in 1979, which can be found at www.abebooks.com. (I thank editorial board member Daniel James Shigo for his help with this information.)

Teyte taught in later years, after her final performance in 1956, so she had personal knowledge of the exercises for both herself and her students. These documents came into NYSTA's possession via longtime NYSTA member Helen Trezlie, who considers herself a "vocal granddaughter" of Jean de Reszke because she studied at age fifteen with mezzo-soprano Burton Leslie. Leslie, in turn, studied with de Reszke and it was she who passed the exercises to Helen. The photocopies, along with an appended personal note from Trezlie, dated 1989, went to former NYSTA President Tom Rexdale, who passed them to LoVetri and thence to me. These documents have not seen the light of day in this handwritten form for the past quarter century, so I felt very lucky to be in temporary possession of them and grateful to Jeanie for bringing them to my attention. Looking at the exercises, I knew immediately they'd be useful in any voice studio and I have already passed some on to my students.

As exciting as "new" teaching material is, the more important principle is the passing on of historical knowledge. These exercises, which go back to at least 1904 and probably much further, remind me yet again of the need to investigate both the old and the new. Using them is a continuation of tradition; passing them on is a furthering of the knowledge base for future singers and their teachers. Margaret Hoswell had a standing order with a local antiquarian bookstore: anything about singing in any language, she wanted to be notified. More often than not, it wound up in her collection and then, when she has digested the contents, along would come some "new" exercises.

Teaching is the passing on of knowledge from one generation to another and we all are fortunate to do it on a one-to-one basis. Teaching makes a difference. Teaching endures and the results of teaching endure far beyond the time of the teacher; Teyte's notes so vividly illustrate this. It is the personal, verbal, and experiential contact that is sent into the future, in the form of anecdotes, memories, exercises, books, recordings, photographs, and just plain instructions.

So it is that we pass on all that we know to our students, every minute of every lesson. From the sessions at the annual Voice Symposium and NATS conferences to articles in the *Journal of Singing* and *VOICEPrints* and elsewhere, to interviews we have seen and books we have read, master classes and performances we have attended, and so much more. NYSTA is positioned to help you be a better teacher, no matter the genre. Investigate our offerings and our website—then pass it along.

May your pharynx always be moist.

Judith Nicosia

Judith Nicosia, President
president@nysta.org



Margaret Hoswell (1930-1987) Maggie Teyte (1888-1976)

MESSAGE FROM THE *Editor*



Dear Colleagues,

Although it is barely November, the season is already upon us—happy holidays from all of us at NYSTA! In this issue, you will find many opportunities that abound over the course of the next eight weeks, including our annual Holiday Event and Wine Reception on December 8. This year's featured guest will be Sarah Clay, who will discuss ways to apply classical pedagogy to a distinctly American art form: barbershop music.

Our featured article—on the important topic of motor learning principles—is written by Dr. Patrick Walden, a speech-language pathologist and associate professor at St John's University in Queens. I first met Dr. Walden at the Summer Vocology Institute at the National Center for Voice and Speech in Salt Lake City in the summer of 2013, where we lived together and spent many

late nights (and early mornings) studying for Dr. Ingo Titze's intense "Principles of Voice Production" graduate class. I am grateful that he has contributed his expertise to VOICEPrints by agreeing to write an article for NYSTA. Josephine Mongiardo's article on SongFest rounds out this issue.

As always, VOICEPrints is YOUR publication, so please send questions, comments, and suggestions for future articles to me at voiceprints@nyst.org.

Sincerely,

Matthew Hoch

Editor-in-Chief, VOICEPrints

NYSTACalendar 2015

WINTER 2015 ONLINE EVENT

"The Empirical Voice" with Dr. Rachael Gates PRESENTATION AND Q & A

February 22, 2015 Monday 8:00 PM–10:00 PM EST

Available worldwide via WebEx Video Classroom. **Free to NYSTA members, their students, and guests. Donations welcome.**

Singing Health Specialist Dr. Rachael Gates covers topics from her new book *The Owner's Manual to the Voice: A Guide for Singers and Other Professional Voice Users* in this practical presentation on vocal health. Learn what is actually happening when you "lose your voice," hear vocal myths debunked, explore diet and lifestyle choices to improve performance, and discover precautions to take before undergoing surgery and general anesthesia.

Rachael Gates has sung in Germany, Russia, Italy, and throughout the United States. She pioneered what is now a Singing Health Specialization in vocal health at The Ohio State University Medical Center with laryngologist L. Arick Forrest, MD and Kerrie Obert CCC-SLP. Dr. Gates holds degrees in music from Carnegie Mellon University, University of Cincinnati College-Conservatory of Music, and Ohio State University. Her book, *The Owner's Manual to the Voice: A Guide for Singers and Other Professional Voice Users* was released in August 2013 with Oxford University Press and is available on Amazon.com and at The Metropolitan Opera Shop.



"I highly recommend The Owner's Manual to the Voice as a very well-organized and well thought-out resource for any professional singer or person relying heavily on the voice. Rachael Gates approaches the instrument scientifically, yet accessibly, through her own voice as a singer and offers invaluable information." Sherrill Milnes, Metropolitan Opera baritone, three-time Grammy Award Winner
"Just plain excellent! One of the most comprehensive books written for the curious singer and others in the professional voice community." Joan Lader, Voice teacher and therapist to world-famous performers in Broadway, pop/rock, jazz and opera.

SPRING 2015 EVENT

A Concert Tribute to Richard Pearson Thomas

April 19, 2015, Sunday 2:00 PM–4:00 PM EDT. Reception to follow

National Opera Center, 330 Seventh Avenue between 28th and 29th Streets, NYC. **Free to NYSTA members, their students and guests. Donations welcome.**

NYSTA is delighted to honor composer and pianist Richard Pearson Thomas, a long-time collaborator with NYSTA, by presenting a full-length concert of his vocal works, chosen by the composer himself and assisted by singers from the New York Metropolitan Area.

Composer and pianist **Richard Pearson Thomas** has had works performed by the Boston Pops, Covent Garden Festival, Houston Grand Opera, Manhattan Chamber Orchestra, Chautauqua Opera, Eugene O'Neill Theater Center, Banff Centre, Portland Opera, Skylight Opera Theater, and Riverside Philharmonic Orchestra and Choir. His songs have been sung in Carnegie Hall, Lincoln Center, Kennedy Center, Merkin Concert Hall, Wigmore Hall, Joe's Pub, Le Poisson Rouge, and before the U.S. Congress by artists such as Audra McDonald, Sanford Sylvan, Lauren Flanagan and Kurt Ollmann. He is a frequent collaborator with The Mirror Visions Ensemble which has performed his works in the United States and Europe and has concertized with singers worldwide.

He is a recipient of an American Composers' Forum *Continental Harmony* commission for the Alabama Tri-State Orchestra as well as commissions from the Great Falls Symphony Orchestra, the Empire State Youth Orchestra, and the Riverside Philharmonic Orchestra. His work *Race for the Sky*, which was commissioned as a commemoration of the events of 9/11, has been performed by the Westchester Philharmonic Orchestra and in recitals nationwide. Chamber music by Mr. Thomas has been performed by Sybarite 5, Five Boroughs Music Festival, Music of the Spheres Society, South Country Concerts, at the Metropolitan Museum of Art, and recorded by violinist Stephanie Chase at the National Arts Club for broadcast on NPR's Performance Today.



Mr. Thomas' commissioned comic opera, *A Wake or a Wedding*, was premiered by the California State University at Fullerton Opera Theater and produced by Encompass New Opera Theatre in New York City. His opera *Parallel Lives* was produced Off-Off Broadway by the Riverside Opera Ensemble, as was *Ladies in a Maze*, produced by Encompass Music Theater. Original music for *In Thinking of America: Songs of the Civil War* has been heard in more than 150 cities nationwide.

Richard Pearson Thomas is currently on faculty at Teachers College/Columbia University. He has taught at Yale and the University of Central Florida. He is a graduate of the Eastman School of Music and the University of Southern California, and is a native of Montana.



Professional Development Program Calendar 2014–2015

DATE—TIME EVENT TYPE TITLE—LOCATION

2014

- November 9, 6 PM** VIDEO CHAT **Practical Tools for Singing Teachers: The Voice Range Profile** with Dr. Daniel McCabe, DMA, CCC-SLP—Online
- November 12** ON-DEMAND Featured On-Demand Course: **Vocal Acoustics and Resonance**
- December 3** ON-DEMAND **Exploring the World of Repertoire: Finland**

2015

- January 14** ON-DEMAND Featured On-Demand Course: **Vocal Health for Voice Professionals**
- January 25, 6 PM** VIDEO CHAT **Whole Lotta Shakin' Going On: Vibrato and the Singing Voice** with John Nix, MM, Certificate in Vocology—Online
- March 11** ON-DEMAND Featured On-Demand Course: **Singers' Developmental Repertoire**
- March 29, 6 PM** VIDEO CHAT **Mindful Voice: Singing with the Brain in Mind** with Lynn Holding, MM—Online
- May 13** ON-DEMAND Featured On-Demand Course: **Comparative Pedagogy 2015**

SONGFEST—A Rich Resource

by NYSTA President Emeritus Josephine Mongiardo

My acquaintance with SongFest began three years ago. The previous year, I had tracked down my old friend Roger Vignoles there in an effort to get him to do a master class for NYSTA. At the time the program was located in Malibu at Pepperdine University; it has since relocated to the fabulous facilities of the Colburn Conservatory in downtown Los Angeles. My emissary to Roger Vignoles raved about the quality of the music making and I became convinced that I should make the trip to California to see and hear for myself. Having a student participating in the program was an added incentive.

I arrived late one evening and immediately went to the Martin Katz master class on Russian song. Let me explain that SongFest focuses on singers and collaborative pianists. It is not directed solely to the singer (nor the pianist), but rather to the incredible partnership that must be present for great music making. At the master class, I was awestruck by the incredibly high level of discourse between the master teacher and the participants and the joy and sense of humor with which this was handled. Central to the work was the attention paid to specific knowledge and intention of the text and the composer's expression of that in both the vocal line and piano part. Needless to say, one has to be ready for this level of instruction. During my brief stay I was able to attend classes with William Bolcom and Joan Morris, Margo Garrett and again, Martin Katz. It was a short visit, but one that made me crave seconds.

This summer I was able to return, again for a very brief time, but I took in everything I could—some-times literally from dawn until dusk. My menu this year included Rudolf Piernay on German Lieder and twentieth-century French repertoire, Alan Smith on songs from España, Sanford Sylvan

on John Harbison's *Flashes and Illuminations* (written for him), and Libby Larsen on *My Antonia*.

One does not often have the opportunity to observe a composer coaching his or her own works. On my first visit I attended two sessions with William Bolcom and Joan Morris. The *Cabaret Songs* were written with Joan Morris in mind and her insightful contributions to these classes were illuminating. It is so important for young singers to experience these pieces not just as 20th century art songs but the jazzy, unleashed expressions of a cabaret setting. This year, Libby Larsen was equally engaging on *My Antonia*. It is rare for a composer to admit to a mistaken choice in public, but her concentrated presence in the moment gave her the opportunity to rethink some places in the pieces. At one point she burst out with "Bad composer!" I found this to be truly remarkable.

The number of classes I was able to attend was dwarfed by the number I missed: Sanford Sylvan on *Die schöne Müllerin* and the Bach *Passions*, Jake Heggie on his songs, the songs of John Musto, Lucy Shelton on the works of Elliot Carter, and many more. If you have noticed a preponderance of American composers, you have hit on one of the important missions of SongFest: the promotion of American contemporary song with the direct involvement of living composers. For a young singer to be able to work with the source of their repertoire is uniquely invaluable and inspiring. Remarkably, these classes are open to the public for a modest fee either for individual classes or entire days—a real bargain!

SongFest would not exist without Rosemary Hyler Ritter, whose brainchild this was and remains. She inspires and is inspired by this great wealth of vocal literature. She has been the

driving force, working sometimes single-handedly to keep the program going and growing. The recent addition of Matthew Morris and Lisa Stepanova as Associate Artistic Directors is a sign of the growth and increased national and international visibility of SongFest.

David and Nancy Adams have always had a love for this musical genre and NYSTA's support for young singers through the David and Nancy Adams Fellowship to SongFest is a fitting tribute.

Josephine Mongiardo

has been featured in New York stage premieres of several eighteenth-century operas, including Handel's Acis and Galatea, Esther and Susanna, as well as Lully's Acis et Galatée. Her appearances have taken her throughout the United States, Europe, and South America, and her festival appearances include Santa Fe, Waterloo, Chamber Music Northwest, and Mohawk Trail Concerts. Orchestral performances include Mahler's Fourth Symphony, Berlioz' Les nuits d'été and Strauss' Brentano Lieder as well as premieres by Seymour Barab and Wendy Chambers. She has also been featured as the narrator in Walton's Façade, the Devil in Stravinsky's L'histoire du soldat, and works by Caplet, Adolphe, and Douglas Moore.

She teaches applied voice and courses on repertoire and technique at Barnard College as well as applied voice at Columbia Teachers College. She maintains a private teaching practice in New York City. A Past President of NYSTA, she was a founder of the Oren Lathrop Brown Professional Development Program and is recognized as a NYSTA Distinguished Voice Professional. She holds the BA from Barnard College, the MA in musicology from Columbia University, and has completed a vocology internship at Mount Sinai Hospital under the supervision Dr. Peek Woo and Dr. Linda Carroll.



PRACTICE & FEEDBACK SCHEDULES: Lessons from Established Principles of Motor Learning by Patrick R. Walden, PhD, CCC-SLP

Vocal pedagogy has a long and varied history in terms of approach.¹ Each instructor of vocal performance has likely developed his or her own style of instruction as well as expectations for student practice schedules. Instructional styles may focus on providing the student performer with feedback based on imagery (“Sing the note more richly, like chocolate.”), through sensory explanations (“Sing from your diaphragm.”), or through mechanical explanation (“Abduct your vocal cords to sound more breathy.”).

Similarly, each instructor may suggest that students practice entire songs a given number of times in one single session each day for a certain number of days while other instructors may ask students to break up practice into smaller chunks over several sessions in the same day for a given number of days. The variability in teaching style may come from personal experience as a former student performer, may be based on common knowledge in the field, or may be informed by research specific to vocal pedagogy.

Vocal instructors who wish to have guidance on practice recommendations and feedback schedules may find conflicting information from colleagues and in the field in general. Yet, much research has been conducted in the area of motor learning as well as how one may enhance motor learning. While much of the research on motor learning has been conducted using movement of the limbs, there is little reason to doubt that the same principles that have been established with limbs would not translate to vocal behavior. The neurological system for communicating with the body’s muscles and structures allows control over these structures as well as sensory feedback from these structures. Given both a motor control and sensory feedback function for the muscles under voluntary control in the body, motor learning principles developed through observation and experimentation with large body parts will likely translate to the smaller structures of voice and diction. To fully appreciate this point, a short description of the nervous system is necessary.

Neurological Description of Movement

The central nervous system (CNS) and the peripheral nervous system (PNS) are the avenues through which humans learn to control movement. The CNS is, loosely described, made up of the brain and the spinal cord. The PNS, generally defined, consists of all the cranial and spinal nerves which arise from the CNS. Cranial and spinal nerves bring sensory information from the body to the brain through connections with the spinal cord and brainstem (afferent nervous system). Likewise, signals from the brain are sent to the organs and muscles of the body through these same pathways (efferent nervous system). The interplay between the afferent and efferent systems allows the human to command the body’s musculature to move in desired ways (efferent) as well as to monitor those movements through sensory feedback (afferent). For vocal activity, muscles of breathing, voicing, throat/tongue/jaw movement, as well as facial expression communicate with the CNS through the cranial nerves (part of the PNS). FIGURE 1 (top of Column 2) depicts this relationship in a simplistic manner.

Although there are twelve cranial nerves, only seven communicate with the structures that produce

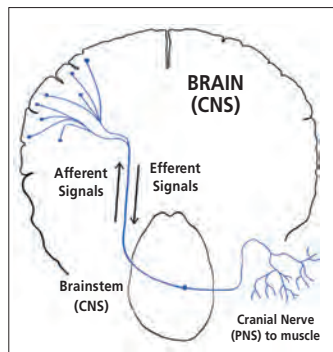


FIGURE 1: Simplified Image of Nervous System’s Communication With Muscles of Voluntary Control for Voice and Speech.

and support vocal behavior.² TABLE 1 (top of Column 3) outlines each of these and briefly describes the function of each. Some cranial nerves serve primarily to transmit motor commands from the CNS (efferent), others serve a sensory role (afferent), and still others serve both an efferent and afferent function. As can be observed in infants, motor control is poor, compared to adults. It is thought that babies gain more control over motor movements as they grow through active experimentation with motor movements (i.e., babbling) over time.

As the infant gains experience with motor movements, the CNS stores “programs” or patterns of neural control for specific and, often discreet, movements. These programs are built through the constant repetition of movement (efferent or motor system) and the sensation this movement creates (afferent or sensory system) being laid down in the brain as an established pattern. While part of the changes observed in motor control can be attributed to development of the child’s neurological, skeletal and muscular systems (development or maturation), it is likely that children learn the complex movement patterns necessary to produce speech and singing through motor learning, or the shaping of motor behavior through feedback (internal as well as environmental) above and beyond that which occurs naturally through maturation. For instance, studies of neglected children show little-to-no development of sophisticated vocal behavior without substantial experience interacting with others. Similarly, all adults who have developed typically (neurologically and physically) have the physical structures necessary to control the singing voice, yet motor patterns for a desired vocal output must be learned through repetition (thus, not every adult is a good singer despite having the anatomy to do so). Thus, the simple development of bodily structures does not fully account for how humans learn to control these structures to produce desired vocal behaviors.

Just how infants (and adults) monitor vocal behavior in terms of correctness (similarity to desired vocal output) is not completely understood. Several theories attempt to explain how movement is monitored in terms of correctness and how this information is used to create a “program” which is stored in the CNS for later use. Without debating the pros and cons of differing theories, Motor Schema Theory^{3, 4} appears to account for many of the questions researchers have raised in terms of how humans learn movement patterns.

TABLE 1: Summary of Cranial Nerves Involved in Vocal Activity

Cranial Nerve Name (and Number) and Function

TRIGEMINAL NERVE (V)
AFFERENT: Sensory information (pain and touch) from face as well as movement feedback from the jaw
EFFERENT: Motor control of chewing muscles as well as tensing of the velum (soft palate)

FACIAL NERVE (VII)
AFFERENT: Sensory information for taste
EFFERENT: Motor control of muscles of facial expression

VESTIBULOCOCHLEAR NERVE (VIII)
AFFERENT: Sensory information for hearing (to monitor acoustic feedback)
EFFERENT: No efferent function

GLOSSOPHARYNGEAL NERVE (IX)
AFFERENT: Sensory information from palate, back of tongue, and middle of throat (pharynx) and taste for back of tongue
EFFERENT: No efferent function for movement (but has role in oral secretions)

VAGUS NERVE (X)
AFFERENT: Sensory information from throat (pharynx), the larynx, chest area (thorax) and abdomen
EFFERENT: Motor control of throat (pharynx), larynx, and soft palate

SPINAL ACCESSORY NERVE (XI)
AFFERENT: None for speech/singing
EFFERENT: Motor control of some head and shoulder movement

HYPGLOSSAL NERVE (XII)
AFFERENT: None for speech/singing
EFFERENT: Motor control of tongue (for articulation/diction)

Note: Data in this table from Bhatnagar,¹ Fuller, Pimentel, & Peregoy,⁵ and Gertz⁶

Motor Schema Theory

While the nervous system’s interaction with the various muscles of the body make up the basics of how the body’s muscles are controlled and monitored, an understanding of the process through which motor learning occurs requires further explanation. Schmidt^{3, 4} developed a theory of motor learning that attempted to explain how discreet movement patterns are learned. He labeled the theory Motor Schema Theory. In Schmidt’s theory, the brain stores a general blueprint for performing a task that is termed general motor program (GMP). The general motor program is developed through practice and feedback. Each GMP is, as the name implies, general, meaning that it is the basic pattern for performing a discreet motor event (such as hitting a specific note). Yet, use of the GMP can vary in timing as well as the force used in the movement (these are termed parameters) as a result of varying contexts (i.e., hitting a specific note on a specific vowel in a specific phonetic context). In vocal activity, timing and force may be changed individually or both simultaneously. For example, movement from one sung note to another may be performed more quickly (or slowly) at a constant force, performed at a constant rate yet with more (or less) muscular force, or at variable rate (timing) and force at once. So, although the relative relationship between the timing and force required to produce a desired movement is

stored as a pattern in the brain (the GMP), this relationship can change based on the desired movement outcome.

Given that a GMP's parameters may be changed, a lifetime of practice and experience performing a given movement gives way to a schema—the cognitive rule that describes the outcomes from performing the GMP as they relate to the parameters used to achieve those outcomes. While the basic GMP will stay the same for a given movement, different movement outcomes based on parameter changes results in a schema that details how changing the parameter will likely change the movement outcome. It may be helpful to think of GMPs as the most basic set of rules to perform a task and the *schema* are the rules for achieving the outcome while changing parameters (timing and force).

There are, according to Schmidt's theory, two types of *schema* required to perform a learned motor movement as well as to evaluate the outcome of that movement. The *recall schema* is thought to be the mental representation (memory) of the relationship between the parameters of a motor program and the achieved outcome based on those parameters. The *recognition schema* is the sensory component to motor learning, meaning that it is the mental representation (memory) of the sensory consequences of running a particular *recall schema* compared to the outcome achieved from the *recall schema*. So, essentially, a motor program (GMP) is a general mental representation of a particular movement while the *recall schema* are the rules developed over a lifetime of performance of this movement with varying timing and force and the *recognition schema* are the sensory memories of performing a particular *recall schema* as well as the result of the movement. Inasmuch, Motor Schema Theory provides a general explanation of how humans learn to perform specific movements to achieve a desired outcome. The current description of Schmidt's theory is brief and simplified and the interested reader is urged to consult Schmidt's original work^{3,4} for a much more detailed description of Motor Schema Theory.

Principles of Motor Learning: Practice and Feedback

Given that Motor Schema Theory describes the process through which humans learn to produce specific movements to achieve a desired outcome, a more complete understanding of principles of motor learning is necessary to more fully appreciate how motor learning can be enhanced through practice and feedback mechanisms. Principles of motor learning have received much attention in the sports/kinesiology literature and most of what is known about how to enhance motor learning has been learned through research with limbs. However, researchers in vocal behavior have begun to apply principles of motor learning to vocal activity and much of what has been learned from the sports science literature is likely to be applicable to both speech and singing.

A group of researchers in speech disorders⁷ reviewed the literature on principles of motor learning and described how the structure of practice as well as the nature of feedback provided to the learner may enhance motor learning. Practice is a well-established route to learning new motor behaviors and/or to change existing behaviors (modifying undesired behaviors) in vocal pedagogy. University music programs often have designated practice rooms for performers and each student performer likely has a regular, rigorous practice schedule. Yet, according to what is known about how humans learn new motor behaviors, how

practice is planned and executed can enhance, or be a barrier to, learning new vocal behaviors.

Maas, et al.⁷ reported on practice conditions that, according to their literature review, appear to enhance motor learning. Specifically, they reported that a large amount of practice (high number of trials or practice sessions) as well as variable practice (practice of different targets versus the same target over and over) appear to enhance motor learning. Further, the practice should be distributed over a longer period of time (practice the given number of trials over several sessions rather than a large number in one single session). What should be practiced also appears to matter. Maas, et al. reported that a random practice schedule (different practice targets in one session versus focusing on only one target per session) may also enhance motor learning. Further, the practice target should be complex rather than simple (difficult material rather than simple material). Last, the learner's focus should be external rather than internal (attention to the acoustic output versus mechanical or attention to specific moveable structures).

In addition to practice structure considerations, the type and timing of feedback appear to have an effect on motor learning. Mass, et al. reported that feedback is most likely helpful to motor learning when it focuses on the learner's knowledge of results (overall correctness). This is in contrast to mechanical feedback in which feedback is based on a physical description of how a movement should be accomplished. The feedback should be provided with a relatively low frequency (not every trial, although there is some evidence that high frequency feedback enhances motor learning when the skill is brand new) and should be somewhat delayed (greater than five seconds after completion of the trial).

It is important to note that these recommendations for practice and feedback were not developed specifically for learning vocal behavior. Although some evidence exists that adhering to some of these principles will likely enhance learning of speech-related tasks⁷, it is not yet known whether they enhance motor learning to the same extent for vocal performance. However, Titze and Verdolini Abbott discussed the principles of motor learning specific to the practice of *vocology* and similar recommendations were made for working with vocal performers with the addition of part-whole practice.⁸ They reported that practicing a part of a whole (passages from a long song) may enhance motor learning if the desired outcome is performance of each piece serially. Yet, if a parallel task must be performed (singing and dancing or acting simultaneously), each part (or component) of the whole should be practiced while performing the parallel task (dancing/singing).

To summarize, it is likely that practice schedules that include a large amount of practice distributed over time, that is variable in nature and includes random parts of the whole that are complex, and that requires the learner to focus on external (acoustic) feedback may enhance the learning of new vocal behavior. Further, feedback which is based on a knowledge of the results of a movement (not how the movement should be performed) and that is provided with low frequency (unless the behavior is brand new) with at least a five second delay after completion of the movement is likely to further enhance motor learning for new vocal behavior.

Conclusion

The nervous system provides the mechanisms through which motor learning occurs, but our

understanding of this system at a purely anatomical and physiological level does not provide for a complete theory of how humans learn to make use of the neurological system to acquire and perform motor behaviors. Schmidt's Motor Schema Theory provides an explanation of the process of learning and, from this process, motor learning principles may be gleaned. Rigorous research from the sports sciences has empirically tested various aspects of motor learning enhancement. From this research, recommendations for the scheduling of practice as well as augmented feedback may be made in order to make better use of practice time as well as instruction in vocal performance.

ENDNOTES

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Patrick R. Walden is Associate Professor and Undergraduate Program Coordinator in the Department of Communication Sciences and Disorders at St John's University in Queens, New York. He received the BA in speech-language pathology and audiology from Florida State University (1999), the MA in education with a specialization in communication disorders (emphasis in bilingual speech-language pathology) from New Mexico State University (2001), and the EdS (2006) in addition to the PhD (2008) in adult education at Florida Atlantic University. He is a nationally certified Speech-Language Pathologist with developing research interests in voice production in non-disordered populations.

His previous research has focused on speech and language professionals' learning in medical workplaces as well as education in speech science and acoustics.

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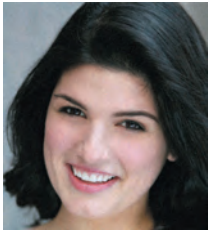


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Justin Stoney, the Founder of New York Vocal Coaching, is one of the leading voice teachers in today's music industry. He has appeared on NBC's Today Show, Fox News, Fox 5 NY, and *Huffington Post Live's* interviews of celebrity singers. His teaching has been featured in *Esquire*, *Newsweek*, *Backstage*, *NME*, *Discovery News*, and *Fox News Magazine*. Mr. Stoney's private students hail from over fifty countries. Pop, rock, and R&B clients have reached #1 on *Billboard Charts*, have had international radio airplay, and have signed with major record labels including Universal, Sony, EMI, and Disney Records. They have appeared on *The Voice*, *American Idol*, and *X-Factor*. Justin's theater clients include Tony-nominated artists and have appeared in nearly every Broadway musical in the last decade. Justin has trained not only singers, but also voice teachers from all over the world through the NYVC Voice Teacher Training and Certification program, "Make a Joyful Noise!"



Soprano **Kathleen Roland-Silverstein** (Events Coordinator) is a highly regarded concert soloist, well known for her interpretation of the music of the 20th and 21st century. She has been a featured singer with many music festivals, including the Santa Fe Chamber Music Festival, the Britten-Pears Institute, and the Tanglewood Music Festival, and has performed Cambodian-born composer Chinary Ung's *Aura* in Los Angeles, New York, San Diego, Cambodia, and Vietnam. She is a Senior Fulbright scholar, and an American-Scandinavian Foundation grantee. Her anthology of Swedish art song, *Romanser: 25 Swedish Songs with Guide to Lyric Swedish Diction* was published by Gehrmans Musikförlag in January 2014. She holds the DMA in vocal performance from the University of Southern California and serves on the board of the National Opera Association. In 2012, Dr. Roland joined the Setnor School of Music at Syracuse University, where she teaches voice, vocal literature, diction, and vocal pedagogy.



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Molly Dunn is an opera singer, musical theater performer, voice teacher, and repertoire coach. She recently received the MM in vocal performance from NYU Steinhardt. Ms. Dunn has over six years experience teaching singing. She has worked with students of all levels from ages 4 to 65. Her students have performed at the Papermill Playhouse and in national commercials, cabarets in New York City, and given many voice recitals. In addition, her students have earned scholarships to the top musical theater programs in the county. This past summer, Molly sang the role of the First Lady in Mozart's *Die Zauberflöte* at the Miami Summer Music Festival. This fall, the soprano played Amalia Balash in *She Loves Me* at 4th Wall Theatre in Bloomfield, New Jersey. Ms. Dunn enjoys living her dream of singing both opera and musical theater while helping the next generation of singers pursue their dreams. molly-dunn.com and singingwithmolly.com



Donald George is professor of voice at the Crane School of Music, SUNY Potsdam, is Guest Artist at West Virginia University, and an honored professor at Shenyang Conservatory. He has sung over 80 roles at major venues throughout the world, including The Kennedy Center, Salzburg Festival, La Scala Milan, London Proms, the Opera Bastille of Paris, the Perth Festival in Australia, New Israeli Opera and Shin Kokuritsu Gekijō in Tokyo, and the state operas of Vienna, Berlin, and Hamburg. Mr. George has made over 20 recordings with conductors such as Leonard Bernstein, Kurt Masur, and Zubin Mehta. His two-volume recording of Margret Ruthven Lang's songs were in the first rounds of the Grammy nominations. His book of interviews with current stars of the opera world *Master Singers: Advice from the Stage* was published by Oxford University Press in 2014. Mr. George's students appear in leading opera roles at Crane and professionally and have won at NATS, MTNA, and other national and international venues.



Sharon Harris has recently moved back to New York City after living in Switzerland. There she taught voice at the Jazz School Basel for eight years and in 2009 founded a private vocal performance school at which three teachers trained as many as sixty students weekly. Through her teaching, she designs careers in a way that individualizes and explores the natural talent of a person or organization, exploring current trends in music and media. Ms. Harris holds a master's degree in ethnomusicology, a bachelor's degree in music and German, a training certification for project management for informatics.



Richard Leech is one of the most celebrated American lyric tenors of his generation. For nearly thirty years he has sung well-known roles of the Italian and French repertoire both on disc and on the stages of the world's leading opera houses including the Met, Vienna, La Scala, Paris, Covent Garden, Chicago, San Francisco, LA, and San Diego, and appeared with the Vienna, Prague, New York and LA Philharmonic Orchestras, the National and Montréal Symphonies. Since his debut in 1989, he has sung nearly 200 Met performances in more than a dozen leading roles. Mr. Leech is on the voice faculty of Rutgers University Mason Gross School of the Arts, Rutgers Opera Institute, and the Castleton Festival's C.A.T.S. Young Artist Training Seminar. He teaches privately at the studios of the Opera America National Opera Center in New York and often presents master classes. He was the winner of the 1988 prestigious Richard Tucker Award, and in 2000 the Voice Foundation's Voice Education Research and Awareness (VERA) Award. He attended Eastman School of Music and Binghamton University and credits his success to the long-term mentorship of Carmen Savoca and Peyton Hibbitt at Tri-Cities Opera in Binghamton. Mr. Leech is featured on more than twenty recordings in many of the works for which he is well known.



Jenna Morris is a professional singer, actress, and teaching artist. She earned the BA in music and theater from the College of William and Mary. A member of the Actors' Equity Association, Ms. Morris has performed in plays and musicals and was most recently seen as a featured performer at The Growing Stage, the official children's theater of New Jersey. She has also been a voiceover artist for Pokémon and has been featured in various television commercials. In NYC, Ms. Morris has performed in multiple genres from cabaret to opera and currently serves as soprano soloist at the Church of St. Joseph in Greenwich Village, the oldest Catholic Church in the City. In addition to performing, she enjoys being a teaching artist and conducts private singing, music, and acting lessons for children and teens as well as teaching group children's music classes.

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