

It is an honor to be here with so many brilliant and talented researchers, teachers, and performers. And let me say at the outset that I am just a little bit apprehensive about standing up here in front of some of the world's foremost voice researchers. I am a performer, not a scientist. Yet it was the research of Ingo Titze, Johann Sundberg, and Sten Ternström, as well as some correspondence that I had with them and others in this room, which contributed considerably to my research, so I am delighted to be here, and grateful.

At previous sessions, there has already been some discussion about perceived and actual differences between solo singing and choral singing, and between operatic and early music singing. We all know this is a hot topic. Therefore, thank you John Nix for scheduling my session fairly late in the conference so I have a better chance of getting out of Dodge – I mean Denver – relatively unscathed. First, I'd like the newly formed, never rehearsed, yet quite distinguished International Physiology and Acoustics of Singing Conference Chamber Choir – the IPASCCC, or just CCC for short – I'd like them to sing the first nine measures of Palestrina's O Bone Jesu.

PALESTRINA: mm. 1 – 8

Thank you. In graduate level music programs at universities and conservatories across this country, most voice students are trained to sing with a resonant operatic vocal technique. Yet they are required to sing in a choral ensemble that all too frequently demands from them a substantially different vocal sound. So many operatically trained students say they experience vocal fatigue in the choral rehearsal. So many operatically trained students say that when they try to blend their voices with the other voices in the choir, they become vocally tired. So many operatically trained students say that when they sing early music without vibrato, they become vocally tired. So many operatically trained students who are being asked to sing 4 to 5 hours a week in choir, plus 5 to 6 hours a week in an opera production, plus 1 hour a week in a voice lesson, plus 1 hour or more a week in a coaching session, plus perhaps 5 to 6 hours per week practicing (for a total of 16–19 hours a week) say they are vocally tired. And what if the singer is also singing in opera scenes class? Or singing in a song lit class? Or has a church job? No voice teacher, no vocal performer, no otolaryngologist, and no speech pathologist would ever dream of suggesting that 20-plus hours of singing a week is likely to be healthy. Yet, that is what our graduate level music programs routinely demand of our student singers. As a choral conductor with a lengthy solo performance resume, I often experienced this sort of vocal fatigue. I even got myself into some vocal difficulty a few times because of it. So I decided to try and find some answers to this pervasive vocal fatigue problem. This is what I found.

I found that previous studies had dealt with the problem in various ways. Hugh Douglas Slusher's 1991 study at Ohio State University showed that a conflict does indeed often exist between voice teachers, choral directors, and voice students. My own study at the University of Arizona in 2000 corroborated Slusher's results. Other studies, such as Carol Cook-Koenig's at Florida State University in 1995 specifically explored vocal fatigue in the choral rehearsal. BUT – no study had attempted to integrate contemporary voice research with vocal pedagogy in the choral idiom, so that is what I set out to do.

In 2001, I underwent successful voice rehabilitation with a speech pathologist. The primary method of treatment was Joseph Stemple's Vocal Function Exercises. As a so-called "operatically trained" singer who utilized the singer's formant at every opportunity, I initially resisted these Vocal Function Exercises because I was unwilling to sing them at the requisite soft volume without the acoustic reinforcement of the singer's formant. I, like many singers and voice teachers, was under the impression that the use of the singer's formant was the healthiest and most efficient kind of vocal production. As a matter of fact, this commonly held notion was presented by The Ohio State University as part of an Interest Session at the 2001 ACDA National Convention, even though to my knowledge, no research in voice physiology and function supports it.

When my persistent speech therapist, Dr. Julie Barkmeier at the University of Arizona, insisted that I perform these VFEs correctly, and as my vocal cord approximation as a result became more efficient, I was flabbergasted at how effortless my vocal emission became. True, these vocal emissions during the rehabilitation process were performed extremely softly - in fact they should be performed as softly as possible - but the point was that they felt effortless. I learned that I could sustain a vocal tone much softer than previously, much softer than I had thought was possible, and with much less perceived effort than when singing louder! To one who had always experienced difficulty singing softly, and difficulty singing softly in a choral ensemble, this was quite a revelation. It occurred to me that Vocal Function Exercises could provide common ground for the operatically trained singer, the studio voice teacher, and the choral conductor. Moreover, it occurred to me that the sounds produced while performing VFEs would be particularly well suited to the performance of early music because the exercises are performed at such an extremely soft dynamic level in order to facilitate efficient vocal fold vibration.

It is important to remember that 16th century cathedrals provided a vibrant acoustic that reinforced vocal resonance. In contrast, contemporary operatic singing is chiefly a product of 19th century vocal techniques that were developed to meet the acoustical demands of larger orchestras and concert halls. The sweet, flexible, and clear sound so often described by Renaissance writers, is frequently perceived as thin, straight, and lifeless by the operatic world, because today's operatically trained students learn to sing with a lowered laryngeal position and maximum acoustical boost. Well, if today's graduate level voice student is learning in the voice studio to produce a sound that is reinforced with the singer's formant, while being asked to sing without that reinforcement in the choral ensemble, perhaps it is this alternation of techniques that is contributing to so many students' vocal fatigue, along with those 20 plus hours of singing that the student is doing each week!

Because more than a few choral conductors prefer a choral blend comprised of no identifiable individual vocal colors, and because each singer differs with regard to laryngeal and vocal tract dimensions, and vocal fold length and thickness, I suspect the uninformed singer all too often produces the desired choral blend by statically holding positions of vowels, resonance, and adductions. This most likely causes undue tension in the cricothyroid and thyroarytenoid muscles and contributes to vocal fatigue. (7 minutes)

Many of you are probably familiar with Vocal Function Exercises. But in case some of you are not, I would like us to experience them now. Since these exercises are, according to Stemple, designed to strengthen the laryngeal musculature and to facilitate efficient vocal fold vibration, they should be performed at the softest possible dynamic level.

1. Sustain /i/ as long as possible on a comfortable pitch.
2. Glide from lowest comfortable pitch to the highest comfortable pitch, using /o/.
3. Glide from the highest comfortable pitch to the lowest comfortable pitch, using /o/.
4. Sustain the pitches c1, d1, e1, f1, and g1 (one octave lower for males) for as long as possible, using /o/. Also do a, b, and c.

I am not an SLP but I doubt these particular pitches would be optimal for each singer. Indeed, they may not be optimal for any of these singers. And because of the individual nature of these exercises, ideally you should be much further apart from each other than you are now so that you could easily hear yourselves. Be sure to use correct body alignment but remember - always at the softest possible volume without the acoustical boost provided by the singer's formant.

In my 2001 study at the University of Arizona, Dr. Bruce Chamberlain, the Director of Choral Activities there, generously gave me eleven 50-minute rehearsals to teach these exercises to the Arizona Choir which is comprised of graduate level singers, many of whom are vocal performance majors. Most of the singers were

able to learn the exercises in a short time and could perform them easily. Some, however, had difficulty with the glides. Individual instruction with these singers revealed that they were singing the glides either too loudly or too quickly.

Once these singers could easily perform Stemple's exercises, I added the messa di voce exercise to the instruction process. As I'm sure all of you know, the messa di voce exercise involves crescendo-ing and decrescendo-ing on a single pitch. Ingo Titze has written about the value of messa di voce exercises several times in the NATS Journal, so I won't go into any great detail here. Suffice to say that when the sustained pitch begins with the softest possible tone (voce finta), then crescendos, and then decrescendos back to that softest tone, the adductory and abductory processes get quite a workout, and the laryngeal-respiratory coordination greatly improves.

When I introduced messa di voce exercises to the University of Arizona singers, I instructed them to begin and end each exercise with the same volume used for Stemple's exercises. Predictably, most singer's found these vocalizes easy to perform at low and mid-range pitches, but more difficult in their upper range. I'd like us to try some messa di voce exercises on some comfortable pitches. Please make sure that you begin and end them at the same volume used for Stemple's exercises. Perhaps, try one in your mid-range, and then try one at a higher pitch.

MESSA DI VOCE EXERCISES

Next, I would like us to apply these exercises to the Palestrina. Please sing the first four measures of the piece using exactly the same tone, vowel, and volume that you used on the VFE glides.

PALESTRINA: mm. 1 – 4

Next, I'd like to attempt the same thing with the next 5 measures.

PALESTRINA: mm. 5 – 8

In my 2001 study, only five of the eleven rehearsals were devoted exclusively to teaching both the Vocal Function Exercises and the messa di voce exercise. The remaining six rehearsals began with those exercises but then the exercises were applied to the selected repertoire. (And we're trying to do this in just a few minutes here!) First, I asked the Arizona Choir to sing the music with the same vowel sound and at the same dynamic level used in Stemple's glides, just as you have already done. Immediately afterwards, some vocal performance majors remarked that they found the music easier to sing. One soprano said, "I actually had a couple of moments where the sound I made was clear though quiet, and I couldn't even feel that I was singing. It felt like my mouth was just open. I liked the feeling of being able to use my voice with no effort at all . . . a very new concept for me." Next, I asked them to sing the music with text. I told them to make whatever vowel and volume adjustments were necessary so that their vocalism would feel the same as during the glides. Many Arizona Choir members discovered they were able to sing these phrases at a softer dynamic level without feeling strain or fatigue. Although the music they sang contained more challenging tessituras, I would like our distinguished CCC to also perform the next step. So, I ask you to please sing the Palestrina with text, but try to do it in such a way so that your voice feels the same as it did during the exercises. Now, if we had more time, I would next ask the tenors to incorporate a subtle messa di voce in mm. 3 – 4, and I would ask the altos to incorporate a subtle messa di voce in mm. 7 – 8.

I'd like to thank the distinguished members of the newly formed, never rehearsed, and soon to be disbanded IPASCCC. I appreciate your willingness to explore this uncharted territory. This presentation is not

intended as a be-all and end-all. This is simply a highly debatable suggestion of a possible way to find common and healthy ground between the voice studio and the choral rehearsal.

Based on my empirical experience with this sort of choral application, I believe that these kinds of exercises can help operatically trained singers participate more comfortably and healthfully in the graduate level collegiate choral rehearsal. Certainly, much more formal experimentation is needed to more objectively assess the effectiveness of this method. Given that the concept of vocal fatigue is, to my knowledge, not clearly measurable (researchers are dealing with symptoms and not causes), and given the individual natures of each singer's physiology, the individual nature of studio instruction, and the subjectivity of choral music interpretation, further research may be difficult.

What Bonnie Raphael said in 1983 is as true today as it was then: "When physicians and scientists can relate the research to everyday needs... and when teachers and performers can base their practice solidly on fact and research... then our knowledge and understanding of the performer's voice could be vastly enhanced...." I'm sure you all agree with that statement or you wouldn't be here. By working together, voice researchers, speech pathologists, singers, and choral conductors, can find common ground and make the graduate level collegiate choral experience a healthy one for all participants.

Questions?