

*Exploring the Value of Aural and
Kinaesthetic Feedback using Speech
Quality as a Catalyst for Vocal
Development in the Training of
Tertiary Voice Students*

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STATEMENT OF ORIGINALITY:

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to this copy of my thesis, when deposited in the University Library, being made available for loan and photocopying subject to the provisions of the Copyright Act 1968.

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Abstract

There are a number of challenges faced by the developing singer as they move from an adolescent to a more mature vocal sound. The acquisition of technique is just one of the aspects of learning to sing; there are also the challenges of accurate self-perception and self-monitoring that need to be considered.

This thesis is based on the premise that today's singing teacher has the opportunity to absorb advances in the area of vocal science which have been made in the last thirty years. These advances, documented in a review of recent literature on vocal pedagogy, have given the singing teacher a wider range of tools with which to work in order to facilitate the developing singer's journey. One such advance in the 1990s was the work of American pedagogue Jo Estill. Her research into the voice, and especially into the various vocal qualities found in many genres of singing from contemporary to operatic, has provided a useful position from which to explore the possibilities of using Speech Quality, which Estill defines as the quality 'that is heard in everyday educated society' (Estill, 1997a, 11).

It is argued that the concept of Speech Quality enables the teacher to initiate advantageous postures in the vocal apparatus in order to discover the core of the singer's sound. The value of this approach to vocal instruction is explored, particularly bearing in mind the limited time available for student-teacher contact within today's tertiary education environment. The use of Speech Quality is discussed and illustrated as a catalyst for promoting the coordinated style of phonation required by classical singing and for promoting vocal development from the characteristic adolescent use of the voice to the maturing singer's sound.

This thesis begins with a review of recent literature to gauge the current trends in vocal teaching. Three major areas of vocal technique are identified, followed by an analytical discussion of how the application of Speech Quality, through exercises and understanding, will impact on vocal development. The thesis goes on to examine the challenges facing the developing singer during the learning process, especially with regard to the area of self-perception, and offers suggestions towards the effective self-monitoring of the voice. A recent survey of current vocal students in the Bachelor of Music program at the University of Newcastle (NSW) highlights the student's perceptions of singing, and how those perceptions relate to the self-monitoring process outlined in the thesis. The final chapter relates the findings of research into voice production to the studio-teaching situation.

Glossary of Terms used within the Thesis

Abdominal breathing: Breathing using the lower abdominal muscles

Abduction: The process of moving apart. For example, the vocal folds abduct to allow breath through the larynx into the lungs.

Adduction: Drawing together towards a medial line.

Appoggio: Breath management system. The term is derived from the Italian word *appoggiare* meaning ‘to lean’. According to Miller, ‘the establishment of dynamic balance between inspiratory, phonatory, and resonatory systems in singing (Miller, 1996, 311)

Articulation: the process by which the joint product of the vibrator and the resonators is shaped into recognizable speech sound through the muscular adjustments and movements of the speech organs. These adjustments and movements of the articulators result in verbal communication and thus form the essential difference between the human voice and other musical instruments. Singing without understandable words limits the voice to nonverbal communication. (McKinney, 1994, 27)

Aryepiglottic sphincter: a term defined by Jo Estill to describe the drawing together of the tissues in the pharynx situated above the epiglottis. It is not a sphincter in the true sense, but rather the word ‘sphincter’ describes the action of drawing together which is in the manner of a sphincter. According to Miller, the aryepiglottic muscles are those that form the sides of the collar of the larynx, extending from the arytenoids to the sides of the epiglottis. (Miller, 1996, 301)

Breath Support: A term for the breath management system used in classical singing. Involves the muscles of forced respiration.

Breathy tone: see Onset (aspirated).

Chest register: Low register in the voice, according to Estill found below E4

Clavicular breathing: Breathing high in the body using the muscles around the upper chest as opposed to abdominal breathing in which the lower abdominal muscles are used to expel air.

Constriction: a term to describe the strained sound that is produced when muscles in the pharynx are activated around the larynx. The result is a poor and often interrupted vibration of the vocal folds. Some forms of constriction, however, such as aryepiglottic constriction, may be found to assist in the production of the high ringing sound found in classical singing.

dB : Decibels, a measure of loudness

Declamation: the act of uttering or delivering words or a speech “in a rhetorical or impassioned way, as if to an audience.” *Oxford American Dictionaries*.

Dysphonia: Vocal function interruption caused by vocal apparatus abuse, disease or as a result of surgery.

Falsetto Quality: as defined by Estill the quality exhibits a stiff and thin posture of the vocal folds which are also higher posteriorly. There is normally more air passing across the folds and the quality is flute-like. There are very few formants above the first. (Estill, 1997b, 17-18)

Formant energy: see Singer's Formant.

Formants: 'partials of a vocal tone that determine the characteristic quality of a vowel; partial tones originated by action of the breath on the resonance chambers that have regions of prominent energy distribution.' (Miller, 1996, 304)

Fundamental: the basic tone of the complex musical tone formed by the combination of the fundamental and its partials.

Glottis: specifically refers to the space between the vocal folds found in the larynx.

Hard Glottal onset: see Onset

Heavy mechanism of the voice: see *Voce di petto*

Heightened speech: in the context of this thesis, it is taken to mean declaimed speech that is projected in nature and contains a range of vocal colours illustrating the emotional context of the text.

Hertz (Hz): the unit of measurement of cycles per second (as in 440 Hz) named for the physicist Gustav Hertz. (Miller, 1996, 304)

Hyoid bone: the free-floating bone in the neck attached at the top to the root of the tongue and at the bottom to the larynx.

Hyper nasality: Nasal quality caused by the passage of air through the nasal cavity. A sign of an open, or partially open, soft palate.

Imposto: (*impostazione della voce*): placement of the voice. (Miller, 1996, 312)

IPA: The vowel and consonant sounds noted in the thesis within slant lines (/) are those used in the International Phonetic Alphabet.

Interarytenoids: Between the arytenoid cartilages of the larynx. The arytenoid cartilages are the paired cartilages that draw the vocal folds together.

Italianate vowels: pure vowels (without diphthong) as those found in the Italian language.

Kinaesthetic: awareness of the position and movement of the parts of the body by means of sensory organs (proprioceptors) in the muscles and joints. *Oxford American Dictionaries*.

Laryngoscope: an instrument for the viewing the larynx made of reflective mirrors. Said to have been developed by Manuel Garcia the Younger (1805-1906).

Larynx: the cartilaginous structure that houses the vocal folds. Made of two major sections, the thyroid cartilage (larger) that houses the folds and the cricoid cartilage which joins to the trachea.

Legato: Smoothly, or literally ‘bound’. In classical singing the term indicates a smooth transition from one musical pitch to another.

Lower and upper *passaggio*: Literally ‘the passage’. The transition points in the voice between registers. The lower one may be said to be around the pitch where the heavier mechanism of the voice finishes (around b4 in females.) The upper *passaggio* is considered to be the transition to the upper register of the voice (around F – F#5 in females).

Mandible: Lower jaw.

Modal voice: see Speech Quality.

Monotone: one pitch. May be ‘un-pitched’ i.e. without a designated tone, or placed on a single, designated pitch.

Mucosa: Mucous membrane.

Mucosal wave: The wave-form exhibited by the vocal folds. The wave begins at the lower edge of the folds, the wave-like motion then travels upward through the mass of the folds (Sundberg, 1987, 62).

Muscle memory: Refers to the practiced movements of muscles, such as may be found in the repetition of movements.

Mutational chink: The posterior chink in the vocal folds often found in pubescent girls. The chink will often cause the voice to sound weak and breathy (Vennard, 1967, 68)

Nasopharynx: that part of the pharynx which encompasses the nose.

Neutral larynx position: the larynx is neither excessively lowered nor raised in the pharynx.

Onset: the manner in which phonation begins. There are three different types of onset: aspirated (air before sound), glottal (hard click caused by the sudden closure of the vocal folds, sound follows the click) and simultaneous (air flow and sound are coordinated). (Chapman, 2006, 60)

Open throat: A general feeling of space in the throat caused by widening the pharynx and lifting the soft palate. The result is usually a lowering of the position of the larynx within the throat.

Optimal vocal level: This is the level best suited for resonance with the least physical effort. (Aronson cited in Shewell 2009, 187).

Oropharynx: The passage from the mouth to the pharynx (throat). (Miller, 1996, 306)

Overtones: An upper harmonic partial. Together with the fundamental, the partials make up the complex musical tone. (Miller, 1996, 306)

Partial: a component of the complex musical tone (see Overtone).

Pharyngeal wall: Wall of the throat.

Pharynx: Throat

Phonation: ‘is the process of producing vocal sound by the vibration of the vocal cords. It takes place in the larynx (voice box) when the vocal cords are brought together (approximated) and breath pressure is applied to them in such a way that vibration ensues.’ (McKinney, 1994, 27)

Placement: the notion of feeling the resonance of the voice in a particular part of the skull or vocal tract.

Pre-yawn: the feeling of distension in the throat as the yawn manoeuvre begins.

Proprioceptive: relating to stimuli that are produced and perceived within an organism, especially those connected with the position and movement of the body. *Oxford American Dictionaries*.

Psyche: defined as “the human soul, mind or spirit”. *Oxford American Dictionaries*.

Resonance /Resonation: the process by which the basic product phonation is enhanced in timbre and/or intensity by the air-filled cavities through which it pass on its way to the outside air. Various definitions of resonator, resonance, and resonation include such terms as simplification, enrichment, enlargement, improvement, intensification, and prolongation; all of these terms seems to indicate that the end result of resonation is, or should be, a better sound. (McKinney, 1994, 27)

Respiration: ‘the process of moving air in and out of the body – inhalation and exhalation. Breathing for singing and speaking is a more controlled process than is the ordinary breathing used for sustaining life. The controls applied to exhalation are particularly important.’ (McKinney, 1994, 27)

Retraction of false vocal folds: The term defined by still to indicate the lateral retraction of the false folds as felt when laughing. (Estill, 1997c, 58-59)

Rhetoric: defined by Roman rhetorician Quintilian as: the science of speaking well...the science of correct expression’ (Tarling, 2004, 1), or ‘the art of verbal discourse and argument (*Grove Music On Line* accessed 31/3/2010).

Singer's formant: 'a desirable alignment and use of the vocal resonating areas resulting in a "supercharger" effect, a bonus of resonance (which equates to loudness) over and about that which would normally be predicted for a given vowel.' (Chapman, 2006, 89)

Soft palate: Piece of muscular tissue which is able to open or close the passage of air to the nose. (Also known as the velar-laryngeal port).
Sonic conditions (p117)

Squillo: term used by early Italian voice teachers to describe the 'ring' in the trained voice (Chapman, 2006, 90-91)

Sub-glottic pressure: Air pressure from the lungs, i.e. below the glottis.

Thyroid cartilage: larger of the two cartilages that make up the larynx. So called because the thyroid gland wraps partially around the cartilage.

Tidal breathing: Quiet, normal breathing (Miller, 1996, 310)

Timbre: The individual characteristics of a sound that allows it to be distinguished from other sounds which have the same pitch and loudness. (<http://hyperphysics.phy-astr.gsu.edu/hbase/sound/timbre.html> accessed 23/5/10)

Twang: As defined by Estill: 'a quality common to those who speak in a noisy environment, or who must be heard at great distances. The aryepiglottic sphincter is constricted forming a laryngeal tube that acts as a separate resonator in the vocal tract. The sound is penetrating, bright, brassy, twangy. It has high partials in the 2 – 4kHz range.' (Estill, 1997b, 29) Estill identifies two forms of 'twang- nasal and oral.

Velar Laryngeal Port: Soft Palate

Vibrato: '...a phenomenon of the schooled singing voice; a pitch variant produced as a result of neurological impulses that occur when proper coordination exists between the breath mechanism and the phonatory mechanism; a natural result of the dynamic balancing of airflow and vocal-fold approximation.' (Miller, 1996, 312)

Vibrator: In this instance, relating to the vibrations initiated by the vocal folds.

Vocal folds: flaps of tissue found in the larynx which, when set in motion, produce the raw sound of the voice. Sometimes called vocal cords.

Vocal fry: considered by some as a register of the male voice; it resembles a 'frying' sound; considered by others to be a prolonged, inefficient vocal onset. (Miller, 1996, 313)

Vocal mechanism: The larynx, pharynx and articulators involved in the production of sound and in the production of resonance.

Vocal processes: the organs and tissues involved in phonation.

Vocal registers: a series of consecutive voice tones of equal or similar timbre, which can be distinguished from adjoining series of tones. (Miller, 1996, 312)

Vocal tract: The organs of the voice and the articulators. Usually described as the area from the larynx up and forward to the lips.

Voce di petto: vocal timbre largely produced by the vocalis activity of the vocal folds: the ‘heavy mechanism’. (Miller, 1996, 313)

Voce di testa: the “head voice” of the classic schools. (Miller, 1996, 313)

Voce mista: a descriptive term that refers to the vocal timbre in the *zona intermedia* (*zona di passaggio*) where elements of *voce di testa* (head voice) greatly modify action of the heavy mechanism. (Miller, 1996, 313)

Voice source: the vibratory folds found in the larynx.

Vowel frequencies: see Formants.

Pitch Designation System

Throughout the thesis pitches have been designated using the system known as *Scientific Pitch Notation* (Grove Music Online) within which Middle C is represented as C4. Other pitches are worked out from this point. Therefore one octave below Middle C is designated C3, one octave above is C5. Notes between octaves take their letter name and number from the C below. Therefore A (440 Hz – modern concert pitch) six notes above Middle C (C4) is designated A4 and so on.

INTRODUCTION

The arrival each year of a competitive intake of vocal students into music schools is testament to the fact that many young people show a strong desire to become professional classical singers. Given that, certainly in Australia, the potential for professional places as a performer is limited, one wonders why there is such a widespread demand for classical vocal training? I believe that this is because singing is an intrinsically human art and people want to be involved in the act of singing for a number of reasons. Classical singing is enticing to the student, not only for the thrill of being involved in the act of reproducing great music and, in the case of opera, the wonderful theatrical experience, but also because it is an art form which involves the whole body and mind. It can expose the soul, transport us to another place and make us feel happy or sad. A good singer (of any genre) has the power to move us, to galvanize public reaction and to be the embodiment of our feelings: consider, for example, the ritual singing of the national anthem before sporting matches, or the engagement of opera singers to sing at the opening of major functions such as the Olympics.

The powerful and beautiful voice of the classically trained singer, rich in overtones and vibrant in timbre, is a marvellous vehicle for transmitting emotional energy to an audience. We respond on a number of levels to the singing that we hear in many ways and contexts. It may be to delight in the thrill of hearing a great singer; it may be to marvel at the musicianship; to revel in the rich sound and the extraordinary and powerful high notes that they may produce. Whatever the response, there is an unconscious link between the vocal effects of the singer and the emotional responses in the listener's brain. Recent research into the manner in which the brain responds to music further illustrates the intertwined relationship between music and emotion and our responses to both (musician and neuroscientist Daniel Levitin's book *This Is Your Brain On Music* (2006) provides interesting insights into the relationship between music and the brain).

To arrive at the point of being able to move an audience, however, a singer must go through a learning process in order for them to attain the technique required to manage all of the aspects of singing, from the powerful sound, to confident musicianship,

imaginative performance and all points beyond. The learning process must therefore accomplish a great deal. The classical singer is required to learn a technique that will survive the rehearsal process, fill a hall without amplification and enable them to deliver an emotive and expressive performance. This technique simply takes time to develop and to become reliable.

The link between artistic expression and its foundation in technique has been expressed in many ways, among them the following:

‘The object of art is expression. The essence of expression is imagination. The control of imagination is form. The “medium” for all three is technique.’ (Singer Herbert Witherspoon cited in Doscher, 1994, xii).

This thesis will look at a particular part of the training process related to the establishment of a technique for a classically trained voice in the tradition of the Western European style developed from the Italian *bel canto* techniques. Furthermore, the thesis aims particularly to articulate and address the challenges that face a young, developing singer who is aged from around 17-18 upon entry to a tertiary music course in the Australian context. It will focus on an area of concern for many of those (mainly female) singers: an aspirated onset and resultant aspirated tone and Falsetto Quality that is produced. The transition from Falsetto Quality to ‘full’ voice will be aided by simple exercises based on speech mode as defined by Estill in her *Compulsory Figures for Voice* (1995). While not designed to advocate for Estill’s system, this thesis does acknowledge the work of that author and researcher, as well as drawing on discussion of speech mode from other notable authors and voice researchers. The thesis also aims to present some useful tools for the developing singer in the semblance of a self-monitoring ‘checklist’ for use when things appear to go wrong and the developing singer needs to know how to rectify difficulties. It will also offer some suggestions of practice techniques to make the most of limited rehearsal time.

Singing teachers in the twenty-first century are required to have a thorough knowledge of their craft. This is a basic and obvious fact. What may not be as obvious to an onlooker is that the twenty-first century vocal teacher needs to be adept in a greater range of knowledge than that required in previous decades. The teacher needs a thorough knowledge of anatomy and a comprehensive knowledge of teaching styles; the

teacher needs to be aware that there is a strong field of research into many aspects of vocal science ranging from research into how the voice actually produces sound to the acoustical properties of the voice (Sundberg 1987, Titze 1994, *et al*). Additionally the documented results of many voice science experiments prove beneficial to teaching singing, driving evidence based practice in this field. Authors such as White (1989), McKinney (1994), Brown (1996), Estill (1997), Bunch (1997), Miller (1997), Stark (1999), Callaghan (2000) and Chapman (2006) have incorporated the findings of voice science into their books on vocal pedagogy. I will draw on the information from both historical sources and recent publications, and define the basic building blocks of the classical singing voice. It will then be shown how these may be incorporated for use in the voice studio, in the practice room, and ultimately in performance.

There is a growing realization among general academic circles that empirical knowledge¹ gained from years of experience in practical situations, such as individual singing lessons, may form a useful basis within the research process. As such there is a vastly expanded amount of information available for the tertiary vocal teacher to synthesize, having grown steadily over the last twenty years of my professional singing and teaching career. Knowledge, skills and experience from teachers I had as a student, from attending masterclasses, performing in, and watching performances of, opera and concert works, and observing singers close-up as well as my own acquired further performance experience have all been synthesized into my everyday work. As a teacher, my information comes from my studio practice, from reading widely and many discussions with colleagues on the details of teaching and the best advice to offer a student. My studies in vocal pedagogy and associated aspects of voice work include many concepts adopted into my practice from colleagues from allied professions such as Speech Pathology. In addition I have attended many professional development courses on voice production that have expanded my base of knowledge. All of these have been shaped by virtue of the day-to-day teaching of the greatest cohort of teachers: my students.

¹ Defined as: 'derived from or guided by experience or experiment: depending upon experience or observation alone: without using scientific method or theory, esp. as in medicine: provable or verifiable by experience or experiment. <http://dictionary.reference.com> accessed 2/5/2010

During the last twenty years therefore, I have learned and experimented with many techniques to encourage resonance, breath management techniques, other body support mechanisms, methods to modify the vowels, and indeed, methods for almost any purpose, all derived from the wealth of experience and the demands of a busy vocal studio. As a result I have established and utilize an extensive repertoire of techniques on which I draw in my teaching studio and in performance. Many techniques that were new to me I have tried myself before using them with students. Some worked wonderfully for me, while others left me feeling vocally abused. I have therefore attempted over the years to find those that work best for me, but have not necessarily discarded those that were not effective, mindful that they could work for someone else. Every student is an individual and comes with their own intellectual, emotional and physical differences and range of experiences. It is my job, as their facilitator, to be able to offer them a range of techniques to assist them to find their own sound. As we are all individuals and have different learning styles, one size will definitely not fit all.

An important starting point for the dialogue with a student is to state at the outset that I will endeavour to answer all questions and to find a way to explain a technique in a manner in which he or she is able to receive the information. This approach is designed to encourage dialogue with the student so that we both come to speak the same pedagogical language. In this way the student learns to trust me, and perhaps more importantly, begins a journey of reflective learning finding ways that make vocal differences for them. A survey of the literature on vocal pedagogy shows that a strong, trusting relationship between teacher and student is vital, something that is widely accepted in the voice teaching fraternity. It must exist in order for the student to progress. This trust, more importantly, must be founded on mutual respect. The teacher must respect the student's strengths, weaknesses and experiences and learning style; in that way the student will learn to respect the teacher for their considerate approach to teaching, as well as for the knowledge they possess.

The young, developing student needs a technique upon which they can build as they grow in maturity and that will provide the flexibility to allow them to work with the repertoire for which they are most suited and which, for them, is the most interesting and inspiring. My research has served to convince me that the time-tested empirical method is still the best way for the developing singer to progress. It is by the application

of trial and error that the singer learns to experiment with vocal sounds and to reliably reproduce the components of the classical sound. It is hoped that with the use of material from voice science and modern teaching techniques, it will be possible to equip present-day students with the building blocks of the voice with greater clarity than in the past. The research that scientists have carried out into the voice, which presents new information into understanding vocal function and output, provides the teacher with extra layers of knowledge with which to assist the student.

I aim to demonstrate through the approach outlined in this thesis, that voice science does not *replace* the traditional methods of voice production, but *adds* to the repertoire of material on which the teacher may draw to aid the student to learn and progress. Indeed, scientists who research the voice and its mechanism are finding still better descriptions of the functions of the vocal apparatus. There is now accessible knowledge on the acoustic factors involved in producing the classical vocal sound through the work of authors such as Sundberg and Titze, and many others available in recently published journals such as *The Journal of Voice* or *The Journal of the National Association of Teachers of Singing* (U.S). To complement these facts, some music schools (e.g. Griffith University in Brisbane, Queensland) have voice labs where students are taught to use software to give them a clear picture of the spread of overtones and partials in the voice. Additionally, with respect to the increased awareness of the value of a balanced body and its effect on singing, some music schools (e.g. Victorian College of the Arts, Melbourne, Victoria) offer participatory training in anatomy and effective physical methods such as Alexander Technique and the Feldenkrais Method.

One of the challenges for teachers and students alike is that there is no standard language for the subjective terms that are applied to the components of voice teaching. Thus we find a range of terms to express the same concept. It may be that the mainstream usage of the results of voice science and nomenclature that engenders brings about, in time, a standardization of terms. Certainly the widespread use, at least in Australia, of Estill's work has provided some standardized terminology that has become generalized amongst the group of singing teachers who have been exposed to the *Compulsory Figures* techniques.

Singing, however, is more than just the acquisition of technique. The considerations of

musical styles, of clear communication and imaginative performance, are factors with which all singers will grapple during their formative years. The various vocal exercises described in Chapter 6 of this thesis are intended to benefit developing singers in both an artistic and a technical sense. The use of Speech Quality, or modal voice as it is called by some authors, is advocated not only because, in my experience, it assists a wide range of students to find a clearer and richer vocal sound, but also for its potential to help them find a palette of vocal colours which will be useful in the performance process, communicating much more to an audience than a bland and dull sound. While not advocating that the use of Speech Quality will be the ‘fix-all’ of the challenges that face a developing singer, I believe that it has a strong use in developing the classical sound and will aim to demonstrate aspects of its use throughout this thesis.

Plan of the Thesis

The following chapters will firstly chronicle my own development as a vocal teacher that has led to the approach outlined in this thesis and proceed to examine some of the major trends in vocal teaching during the twentieth century and discuss contemporary vocal teaching practice. In doing so, I aim to contribute some insights into the changing trends of vocal tuition in Australia. There follows an account of Speech Quality and the reasons that it may be used as a catalyst for desirable vocal function in classical voice training.

The use of Speech Quality is discussed in the promotion of three main areas of vocal technique: resonance, open throat and breath management. In keeping with the discussion on the training of the developing singer Chapter 6 addresses the challenges associated with accurate self-perception in the area of vocal function. The findings of a questionnaire completed by students of voice at the University of Newcastle and designed to gain insight into their self-perception whilst performing is discussed and the major trends noted. In the final chapter, the process of integrating research into studio practice is discussed and illustrated with an outline of exercises and procedures that I have developed over the years to incorporate the use of speech mode in vocal training.

CHAPTER 1

From Vocal Tuition to Voice Science – a Personal Journey.

Like most teachers of the singing voice, I began my journey as a voice educator teaching in the way that I myself was taught. One difference, perhaps, was that I had made a conscious decision, based on my experiences as an undergraduate, that no student would leave a lesson without achieving something positive and, perhaps more importantly, that they would not leave with unanswered questions. This was brought about as a result of my first experience with a teacher when I arrived at the Conservatorium in Newcastle, N.S.W. as a tertiary student – originally as a piano major. Having been assessed in my audition as having some vocal potential, I was assigned to a male teacher who was an excellent natural singer, but one who had little idea of how the voice worked – his simply did. He was an extremely accomplished singer of lieder and had no apparent technical issues moving throughout the registers in his voice. Therefore, for someone like myself with a good natural voice but with problems accessing the upper part of my range, he proved unable to give me the advice to surmount that particular issue. During my time with him it was decided that I would major in both piano and singing, so the study of voice became more important to me (in my post-graduate work I was to leave piano study and concentrate on voice alone). Although I found my teacher's vocal instruction did not address my own vocal challenges, his performances led me to begin a strong interest in Lied and other art song forms that still informs my current teaching.

After two years I was able to move to my next teacher, a very fine soprano who had sung for many years at Sadlers Wells in London as a *Prima Donna*. She was inspiring, but when she announced one hot mid-summer day as I took off my sandals: 'don't take your shoes off, they're wonderful resonators', I was perplexed to say the least. My own understanding of resonance was, at the time, shaky to say the least. To suggest that shoes played a part in the process of obtaining and maintaining resonance caused me a great deal of consternation. Similarly, on occasions when this particular teacher stated that I was 'resonating wonderfully today', I had no framework from which to manage that comment. How was I 'resonating wonderfully'? What was the difference today from any other day? How could I recapture this wonderful resonance? These things remained a mystery for some time. I'm certain that her comment was intended as

encouragement but no explanation was ever given as to my ability to ‘capture’ such resonance, or how to maintain it.

At that time, and in that place of learning, the general idea of singing teaching was to learn songs and, it seemed to me, hope that vocal technique would arise out of experience. There was little in the way of technical instruction, other than, as I recall, some work on breathing and some vague talk of ‘placement’. There was certainly no discussion of the vocal apparatus, how it worked and what one could expect from the manipulation of various organs of the vocal anatomy. Indeed, when I enquired one day into the difference between head and chest voice, my first teacher read a paragraph from a book that endeavoured to explain these phenomena. What did not happen then, however, was a practical demonstration of those phenomena nor did I receive any information on how they pertained to my own voice and how I could begin to explore the reasons why I consistently managed to ‘crack’ around middle C (C4) and therefore look for a way to overcome that vocal problem.

These experiences led me to try and be very clear in my communication with my own students and began a quest to find succinct methods of imparting information- always bearing in mind that each student has his or her own individual needs and challenges.

I was appointed to the staff of the University of Newcastle in 1995 after performing and teaching privately for many years. At first, I continued to sing as a soloist and recitalist, perform with Opera Australia as a chorister and understudy, and to sing, record and broadcast with one of the country’s few professional vocal ensembles – *The Song Company*. After a few years I was offered a full time position at the University of Newcastle, where my tertiary teaching has been based up to the present. The voice students at the University of Newcastle remain the basis for the development of the teaching ideas discussed in this thesis.

At first my teaching, as stated, was much in the manner in which I was taught, with experiences from a variety of subsequent teachers both in Australia and during some study time in England (I had worked with the late John Carol Case and baritone Nigel Wickens (then tutor at Kings College, Cambridge) for some months in the late 1980s). In 1996, however, the National Voice Centre - an initiative of Sydney University -

announced that Jo Estill, the American teacher and developer of *Voicecraft* would be visiting Sydney for a series of workshops. Estill's *Voicecraft* was a style of pedagogy unknown to me at that time and, encouraged by a voice teaching colleague, I attended a week-long workshop. Thus I spent a week with Estill and a marvellous array of participants ranging from Opera Australia principals, prestigious jazz and cabaret singers, to other voice teachers and interested students.

The week was a revelation for me. I had not seen video presentations of the larynx in action, something that seemed new to most of the workshop participants as we were all initially reticent to engage with the video images. Within one or two days, however, we were asking for the videos to be replayed, frozen and rewound in order to more clearly understand what we were being shown. The outcome of the workshops was that I was able to more clearly understand the way in which the voice functioned, and I felt that I was much more confident to be able to diagnose vocal faults and had a clearer way forward to assist my students to overcome those faults. An additional benefit to the workshops was that following the day's sessions, there was an optional evening session where participants were encouraged to perform and those that attended were invited to give feedback, described in terms of Estill's work. I found this very interesting as it allowed a direct relationship between what could be described as the daily 'theoretical' sessions and the diagnosis of vocal issues in live performance. The performance sessions were supervised by Estill herself.

After the first few weeks of excitement, however, it became very clear that even though I felt I had gained a great deal of knowledge, it would not be enough to teach simply using Estill's techniques. First of all, my students had not had the experience of the *Voicecraft* workshops, and perhaps more importantly for me, even though I felt I had personally gained an enormous amount of knowledge, I did not feel that the sorts of sounds that were typically produced by the students when following Estill's ideas strictly were the sorts of sounds that were acceptable to my ears in terms of the development of the classical singer. In the years that followed I realized that the 'Estill sounds' were very useful for some genres – perhaps musical theatre principally - but not for what the majority of teachers would consider a 'classical' sound.

The major impetus from my experience, however, was that I was now very interested in

the findings of voice science and the impact those investigations might have on my studio teaching. The workshop experience had also given the participants the beginning of a common language that could be used both between teaching colleagues and with students. In the intervening years between that workshop course (1996) and now, that commonality of language has become an extremely useful tool. As well as using it with other singers, it has allowed me some commonality of language to use with other types of voice practitioners such as speech pathologists particularly those who were aware of the Estill techniques and had applied them to the rehabilitation of damaged voices. In my studio in the late 1990s I had gathered a number of private students who were either doctors or allied health professionals (mostly speech pathologists) who were interested in Estill's work and encouraged my continuing investigation into the field of voice research. These students also assisted in my development as a teacher as their own knowledge and feedback allowed the voice lessons to become a two-way operation in knowledge transfer.

Around the time of the Estill workshops I was also reading publications by the American pedagogue Richard Miller and in 1997 attended a week-long course given by him when he visited Sydney as a guest of the Australian National Association of Teachers of Singing (ANATS). There were many useful techniques that Miller was able to impart and which added a counterbalance to what I had come to feel as the rather rigid set of techniques espoused by Estill. As a result of these experiences, I gradually developed a teaching pedagogy aiming to combine the best of the ideas that I had already experienced with those of Estill and Miller. The works of other authors and experiences with voice teacher colleagues also added to the knowledge base that informed my emerging pedagogy. In addition I began to be involved with groups such as the Voice Interest Group at the local teaching hospital² that further exposed me to other disciplines not exclusively engaged with singing. The practitioners of other disciplines often tended to work with voices that need rehabilitation due to illness, injury or abuse, and so may be considered to be at the other end of the spectrum to the work of the normal singing teacher. Their approaches, however, have often proved very valuable when attempting to offer students with vocal challenges another range of options to overcome problems. As well, exposure to various aspects of vocal

² The *John Hunter Hospital* operated by the Hunter New England Health Service, N.S.W.

rehabilitation has further informed my general teaching, giving me a greater awareness of effective and ineffective vocal function.

One of the greatest issues that I had never felt I had accomplished as a singer was to be very secure in my breath support. I had always had a very comfortable ability to sing long phrases – and indeed had been praised by many colleagues for the same – but I was essentially unhappy with the tension that I felt and heard in my own sound. This led me to search for alternative methods of breath management and support to the one that I had been taught as a student. The technique I had been given was one of ‘belly out’ on the in-breath and to hold the ribs out continually while exhaling. In my experience this led to a lot of effort in the epigastric area in the region of the xiphoid process (at the base of the sternum). I was having some trouble with reflux and a colleague who had performed for many years in Europe mentioned that she knew of singers who had excessive reflux problems and hiatus hernia after many years of using a similar technique. Therefore I resolved to change my breath management, both to alleviate a possible medical problem and, perhaps more realistically and importantly, to look for a way to lose tension in my own sound.

I first tried Miller’s *appoggio* method as outlined in his *The Structures of Singing* (1996) and felt some benefit from that – attending his workshops in 1997 helped with the utilization of this method but I still found a residual problem of holding tension on the in-breath due to many years of holding the rib cage immobile. I had some lessons in 2000 and 2001 with the London-based Australian vocal coach David Harper when he was in Sydney giving coaching sessions for Opera Australia and, through him, became interested in the work of London-based vocal teacher Janice Chapman, whose information on the use of primal sounds to engage the muscles for supported phonation I had read about in an ANATS³ journal in early 2000. The more I thought about this and endeavoured to change my breath management, the more I thought that this idea had merit. I then read Oren Brown’s book *Discover Your Voice: how to develop healthy vocal habits* (1996) after discovering that he had postulated the idea of the primal sound prior to Chapman’s work.

³ Australian National Association of Teachers of Singing.

In 2003, when visiting Europe to hear my daughter's singing debut in Germany, I visited London to have some lessons with Janice Chapman and she introduced me to the concept of Accent Method breathing. The technique, which had been developed in Denmark in the 1960s to assist habitual stutterers, has now been appropriated by singers and is used in the vocal teaching studio. It teaches the student to allow the in-breath to initialize without holding tension in the abdominal muscles. This was the piece of the puzzle that I had been searching for to help me to rid my own sound of tension. I was now also aware of the consequences of tension in other parts of the body and the effect that such tension can have on the breath – both inward and outward. This aspect of whole body awareness has become a considerable area of interest to me and now plays a large part in my teaching method.

My interest in the technical aspects of singing also translated, as they must, into the complexities of expressive performance. In my private singing and performance I had been specializing in music from the early Baroque period up until around the time of Mozart. This, naturally, necessitated an understanding of recitative, and in my Master's program undertaken in the late 1990s I made a study of the use of recitative in the songs of Henry Purcell. Part of that research also included an investigation of the use of rhetoric and its influence on the delivery of recitative. This research informed my performance of works that included a large proportion of recitative.

What I noticed, when preparing such works, was that the quality and ease of my own sound improved and reports by observers had commented on the quality of my diction as well as the quality of the vocal sound. I had hitherto been praised for my diction when performing and considered that an important part of my performance profile, however I seemed to have improved my performance in general terms. I began to work more with my students on pronunciation and realized that speech could offer much more in terms of changing the focus of resonance and, in effect, bringing the voice seemingly 'forward' in presence. Students noted that their voices appeared to be 'lifted' in location within their own perception of resonance. Some work with speech pathologist colleagues allowed me to learn alternate techniques for shifting the focus of resonance and for encouraging optimal resonance in speech. Such techniques appeared to make the acquisition of the type of resonance demanded by classical singing more approachable for students. I was also now aware of the necessity for the singing and

speaking voices of my students to work in synchronicity. It had become clearly apparent to me that constrictive behaviour in the speaking voice must translate into similar behaviour in the singing voice and that the student should be encouraged to speak in the same manner as when using the voice to sing.

Working with a student group consisting mainly of young women, I was strongly aware that the majority of them presented with an aspirated (breathy) onset to the singing sound, even though they did not present an aspirated sound when speaking. Using the work of Estill as a base (and having already adapted and re-worked it myself) I developed a number of exercises that appeared to assist students to move from an aspirated onset to a more desirable simultaneous onset, one in which there is a balanced flow of voice and speech as opposed to aspirated onset which begins by using excessive air to initiate the sound (often heard as a preceding 'H' prior to the sound). This involved using speech as a starting point. Over a period of time I became aware that students were able to better cultivate a breath management system and, at the same time, could begin to colour their sound appropriately after maintaining the simultaneous onset. Once speech was used as a 'vocal initiator', I found that I was able to assist them more effectively to unify their vocal registers. There were also noticeable changes in the resonant qualities of the student's voices. Therefore, as a teacher, it seemed to me that I had found a viable method of initiating a classical vocal sound in a manner which the majority of students found straight forward and relatively easy to maintain. Students also seemed to be able to use the exercises to monitor their own work outside of the studio and they were able to make useful progress from week to week – something that all teachers are keen to invoke.

While introducing students to ideas about the use of speech to change vocal production it seemed important to me to impart knowledge of the vocal anatomy and the vocal mechanism – either through direct application of exercises (a la Estill's *Voicecraft* techniques) or through techniques such as visualization. Therefore I have introduced basic vocal and abdominal anatomy to students in order for them to understand how their instrument works and why they are being asked to execute a particular physical manoeuvre in order to produce a certain set of sounds. Such information allows the student to begin to build a framework with which to understand their instrument, one that they cannot see or observe in the same manner in which one can view an orchestral

instrument. Having taken a long time to build my own framework of understanding due to the style of the teaching I had received at an undergraduate age, I can see that my students now clearly benefit from being able to build that framework in a speedier fashion. Thus it is important that the student has a role in understanding the voice from a number of perspectives and that a partnership between the teacher and the student is established in order for the student's development to proceed effectively.

Indeed, the fact that the instrument *is* the body is undoubtedly a major challenge for a developing singer to understand from a number of perspectives. Not least of which is the fact that the singer is possibly the least favourable person to judge their own voice; a singer simply hears their own voice in a different and skewed manner in comparison to an outside listener. A playback of one's own recorded voice will quickly prove this. Our own voice sounds very different to us when we hear it as an outsider than when we are speaking or singing: a singer will always have a different idea of how their singing voice as opposed to a listener. Thus a major part of the teaching process is enabling a student to deal with this factor and assisting them to find a way of understanding the sound they are making. This involved using both the sensations one feels while singing and the aural perception of the sound that is being made.

Thus my journey as a voice teacher has moved forward due to a number of influences. There are some things, of course, that I have retained from my early days as a student. A few images that my first teachers gave me still seem to work with today's students, but in the main part, my current teaching method is one that aims to combine ideas from experience, from the results of investigations into the science of the voice and from the work of major pedagogues. What is very clear to me is that, in the field of voice teaching, a variety of approaches is required. Students need a variety of resources in order to make sense of the changes that the teacher is aiming to implement. Such is the nature of the teaching process: the teacher's role is to assist in eliminating some aspects of the student's vocal behaviour while reinforcing other aspects. If the student has a number of options then they are more able to understand how, for them, the voice works in the classical manner. In the current paradigm of the weekly lesson – a short period of exchange between student and teacher by the standards of former centuries - it is most important that the student is able to maintain the sounds that are most appropriate for the stage of their development.

Based on these thoughts my current goals as a teacher of developing students are:

- To equip the student with an understanding of the vocal instrument and its anatomy
- To facilitate the student's ability to be able to sing in a 'free' manner – and not to advocate for only one method of singing training to achieve that goal
- To impart to the student an understanding of the vocal techniques they will need to utilize in order to develop the voice
- To facilitate the student's abilities to generalize the vocal techniques away from the studio during private practice
- To always be mindful of vocal health in both my own students and in my own singing
- To aim that a student will always leave a lesson feeling positive, having had positive learning experiences during their time with me, whilst arming them with a realistic assessment of their singing.
- To aim for the student to depart with some knowledge (no matter how small) that they didn't have prior to entering the studio for a lesson

It seemed appropriate to me to undertake a closer investigation of the pedagogies that I had been researching, and so the process of this PhD dissertation began. I felt that a more thorough investigation could also serve to focus my thoughts about a number of seemingly conflicting pedagogies (e.g. various forms of breath management) and to clarify my thoughts about the important elements of a teaching pedagogy for today's tertiary students. Furthermore, such an investigation might also serve to make a contribution to vocal pedagogy in the context of the Australian learning experience, with a special reference to female vocal development at the age of the school-leaver tertiary student.

CHAPTER 2

Major Trends Evident in Literature on the Development of Singing Training from the Early Twentieth Century to the Present with Reference to the Role of the Modern-Day Singing Teacher.

Throughout the history of western classical singing there are treatises that attempt to explain the nature of singing and the process whereby one can learn to produce the sounds that are typical of this specialized genre. Universally, teachers and students of western classical singing strive for a voice which is unhampered throughout the range – that is, the various registers of the voice are unified; has a certain field of resonance which is reinforced to produce the desired ‘ringing’ tone and that highlights the individual timbre of the singer that may be heard unamplified in a concert hall or opera house. To this end there have been a number of various ‘schools’ of singing which have developed in northern hemisphere over the last 400 years. Miller (1997) notes that there are recognizable schools of singing found in Italy, France, Germany, England and America.

Singing has been, by its very nature, an empirical pursuit relying on trial and error as the student moves toward a more advanced state of preparedness and proficiency. Inevitably, some of the information published by singers who have themselves studied in an empirical fashion tends to be specific to the writer’s personality and context and the attempts to document information on proprioceptive or kinaesthetic feedback have been centered mainly on the author’s sense of what it is like to sing from their own experience. Later, especially in the latter part of the twentieth century, authors have attempted to bypass the empirical style of teaching and learning and have sought instead to scientifically investigate the physical and acoustical processes that, in their view, combine to produce a classical sound. By adopting a scientific method they seek to demystify the art of singing and provide the singer with strategic tools to control the voice. Thus it is possible to see that the increase in scientific research into the human voice has precipitated a change in the style of instruction book that is produced by and for singing teachers. Research has always been an integral part of academic life and with the amalgamation of conservatories in Australia and elsewhere into Universities, hitherto practice based practitioners have ventured into research, sometimes with the stimulus of the opportunity to collaborate with other practitioners of relevant disciplines. Furthermore groups such as the British and Australian Voice Association,

and the Associations of Teachers of Singing in the US and Australia have also facilitated and encouraged singing teachers to undertake research into various aspects of singing from a scientific perspective. There is now a proliferation of material from the medical, scientific and practitioner's perspective that has changed the landscape of writing on singing.

The following survey will highlight some of the trends in writing about the singing voice from the early twentieth century to the present day.

The Early Twentieth Century

Author and singer John Potter notes in his book *Vocal Authority – Singing Style and Ideology* that the turn of the twentieth century sees the inclusion of scientific, anatomical or at least quasi-scientific work into most books about singing (Potter, 1998). In addition, at this time books were released which were not by singers or voice teachers. Singer and author Brent Monahan is quoted by Potter:

In contrast to the pre-nineteenth-century tradition of treatises written by singers, 'by the year 1891, almost every new major work [on singing] included sections on anatomy and physiology and various theories of breath, phonatory and resonatory controls. The most important works of the period, it seems, were penned by physicians and scientists' (Monahan, 1978, p. 226). (Potter, 1998, 193)

It would seem to be consistent with the general movement in the western world towards a scientific basis for explanation of facts at the end of the nineteenth century that authors of singing texts would also adopt this approach. When one thinks of the advances in medicine, such as the use of anaesthetics, the exploration of the human psyche by Sigmund Freud, the scientific discoveries of scientists such as Marie and Pierre Curie and the invention and use of the telephone (to name but one invention in a time of many inventions), it is conceivable that the arts would also be seen as having a factual basis that could be explained scientifically.

Many famous singers of the time were also called upon to write down the secrets of their success. Two notable performers who wrote instructional books in the early part of the century were the tenor Enrico Caruso and the lyric soprano Luisa Tetrazzini. Caruso was one of the world's first recording artists and his recordings brought the

classical voice to a new audience. In 1909 Caruso and Tetrizzini jointly published a book that is essentially a conversation between an unidentified interviewer and each of the singers. The interview with Tetrizzini yields some information on what she understood about her own singing and how a developing singer should go about learning to sing. The interview with Caruso is slightly disappointing in this regard with little information or insight given, however it is interesting to note his observations on his own ability and talent. (Indeed, René Fleming makes the observation that it was Caruso and his early recordings that raised the profile of the opera singer to that of ‘rock-star’ status at the beginning of the twentieth century [Fleming, 2004]).

In 1923 Luisa Tetrizzini published another book entitled *How To Sing*, which is filled with interesting observations and exhortations to young singers about learning correctly, but is rather scant on actual information of how to produce sound. Once again, it is a very interesting revelation of a great singer’s thoughts and description of her art. Other famous singers such as Mathilde Marchesi were encouraged to write down their thoughts on singing, and indeed Marchesi produced a book of exercises, which may be considered a ‘method’ in 1901. Marchesi is also noted as one of the successful pupils of Manuel Garcia II and, in turn produced many famous singers, not least of whom was Dame Nellie Melba⁴.

As the century moves on we find an increasing number of instruction books published in the 1940s and 50s written by distinguished singers and teachers. It is commonplace by this time to include anatomical diagrams and to ask the reader to understand the physical way in which the voice works as well as to talk about a technique to develop the voice. The 1957 book by singer and teacher Arthur Cranmer (teacher, incidentally of Thomas Hemsley whose 1987 book *Imagination and Singing* will be discussed later) concerns itself with some anatomy, but perhaps more importantly with reflections on a

⁴ It is worth noting that many of the ideas of such singers and teachers as Marchesi, Garcia and others are still being aurally transmitted within an individual lesson, despite the fact that they may be diluted with the passage of time and further interpretation. Books and other publications provide a convenient record of the thoughts of the authors, but often the oral and aural traditions passed from teacher to student are a more vital method of passing on the information of previous generations. Indeed, many current voice teachers will still use vocalises by historical teachers such as Vaccai and Concone as a means of developing the voice. Such works are still found on the exam syllabi of practical examination bodies e.g. the Australian Music Examinations Board (AMEB).

career as a singer and teacher. The tone of the book is inevitably ‘old fashioned’ when viewed from the perspective of the present day in that it suggests that a singer must learn in an exacting manner from a teacher and must be sure to do only as instructed. This is very much in the master/apprentice style of learning that has typified singing training of the previous centuries. Cranmer offers many insights into the best ways he considers a student should approach the study of singing and writes conclusively of the benefits of using speech as an aid to producing a quality result. He believes that speech is the basis for good singing:

‘...singing is sustained elocution. The more perfect the phonetics the more lovely the sound. The only difference between speech and singing is that one prolongs the vowel sound to give the length of the note. Consonants are the same in singing as in speech. You must learn to get on to the vowel sound as quickly as possible, for vowels are the only things which can give a sustained sound.’ (Cranmer, 1957, 27)

Around the same time, in 1950, distinguished American singer, teacher and editor of the International Music series of songs by composers such as Handel, Purcell and Mozart, Sergius Kagen, published a book entitled *On Studying Singing*. Although this is a relatively slim volume, Kagen has managed to impart a great deal of common sense in the descriptions he gives on the subject of learning to sing. Once again, there are not a great deal of exercises (for example) for preparing the voice; however there are a great deal of insights into the way that the student should prepare their mind and body for the journey towards achieving a professional voice.

Kagen articulates some very interesting thoughts on singing and speech and the instigation of both in the mind of the performer. Like Cranmer, Kagen is of the opinion that it is the impulse to make sound generated from a clear sense of imagination that allows the vocal folds work most efficiently. He states (for example): ‘We do not possess the faculty of compelling our vocal cords to flex in any precise manner without first having conceived an image of the sound we wish to produce.’ (Kagen, 1950, 41) In other words, unless we have a clear picture of the sound we wish to make, including a clear emotional statement allied to the colour of the voice, we will always be attempting to adjust the sound ‘after the fact’ – after it has been issued from the vocal folds.

To quote Kagen more fully on this concept:

‘It seems to me that no approach to the study of vocal technic can ignore the principle that the major portion of the control a singer possesses over his voice rests on his ability to imagine in its full complexity the sound which he wishes to produce – that is, in its pitch, vowel, duration, quality, volume, resonance, timbre, inflection, color, etc. If the characteristics of a sound the singer wishes to produce are unclear in his own mind, little if anything can be done to compel him to produce successfully a sound possessing such characteristics.’ (Kagen, 1950, 41)

As well, Kagen believes that once the singer’s imagination is compromised by listening to herself and judging the sound solely by aural feedback, the vocal quality is also impaired.

‘Another serious misconception of the nature of the singer’s instrument which produces very undesirable consequences is the idea that a singer must try to hear himself sing, or form an idea of what his singing sounds like to his listeners. As soon as the singer tries to listen to the sound he is producing, the functioning of his inner ear (or his ability to imagine sounds) becomes less efficient, all of which is equivalent to saying this his vocal apparatus is left temporarily with little or no guidance.’ (Kagen, 1950,52)

There is a theme amongst many authors, which emphasizes the idea of not listening to oneself as the only method of self-monitoring, but rather relying on a combination of listening together with other types of proprioceptive and kinaesthetic feedback to ensure that one is performing at an optimal level. It would appear that the knowledge of the challenges of accurate self-perception which face the singer were well known and articulated.

Writers such as the American singer and teacher Cornelius Reid further postulated that the voice must be conceived in the mind before anything could be sung. Indeed, Reid is quite forceful on this subject stating:

‘As all tones emitted by the singer are to some degree faulty, success in teaching and learning depends upon a program given over to changing an habitual coordinative process. Here it must be recognised that the effectiveness of all coordinative responses is influenced as much by the psychological as it is by the physical.’ (Reid, 1965, 1)

More of this conceptual approach shares a common basis with material written towards the end of the twentieth century as will be discussed later in this chapter. The concept of the human singing voice sounding different to the person producing the sound from

the way it sounds to the listener is one of the most difficult perceptive challenges awaiting the developing singer.

Cornelius Reid wrote two books on vocal production; *Bel Canto- Principles and Practices* (1950) and *The Free Voice – A Guide to Natural Singing* (1965). These discuss the art of the *bel canto* method as Reid sees it from the perspective of an attempt to restore the teachings of the old masters, or at least the author's interpretation of those teachings. Reid, like Cranmer and Kagen, believes in a clear and mindful concept of the sound prior to uttering the musical phrase. There is, however, a sense in these books of a 'lost golden age' of singing, which the author has re-discovered, and wishes to re-establish. The concept of a 'golden age' and of its reinstatement seems to be a thread throughout the history of singing. Indeed the eighteenth century singer Tosi, in his book of 1723, is already lamenting the 'lost art' of the singer and denouncing 'modern practices' as having abandoned the precepts of the previous age. Reid, likewise, believes that his contemporaries have abandoned the 'true' method of voice production and advocates a return to the teaching of the *bel canto* masters. There are challenges for this concept, the major one being that no recorded sound exists of the eighteenth century *bel canto* singers. Although the idea may be worthy, the treatises of the eighteenth century are open to different interpretations and thus cannot be 'proved', however instructive it may be to engage with them.

In a similar mould is the work by E. Herbert-Caesari, originally published in 1951, and called *The Voice of the Mind*. It would seem that Herbert-Caesari's work was very influential, especially in Britain⁵. White (1989) facilitated a survey of voice teachers in the UK (which is spoken about in more detail later in this chapter) and found Caesari to still be a strong influence at that time. Caesari's book is extremely comprehensively written and detailed describing the author's concepts of voice production based on the relationship between the vibrator (larynx) and the resonator (remainder of the vocal tract). Looking at the work from the perspective of the twenty-first century and the discoveries of voice science some of the information (for example his lengthy description of the proportion of the vocal folds involved in the production of the differing musical pitches) does not seem to be scientifically verifiable. There is no

⁵ Herbert-Caesari's earlier book *The Science and Sensations of Vocal Tone*, was published in 1936.

doubt, however, that Caesari's method had success judging by the influence that it has had on teachers of voice. Although first published in 1951, the book was re-published in 2002 by Caesari's daughter Alma Ceasari-Gramatke to 'carry on the work of her father' (noted on the publicity material found on the dust cover of the book). It is interesting that later influential authors such as Vennard (1967), Miller (1996), Brown (1996) or Chapman (2006) do not cite this author.

In contrast to the publications mentioned above, William Vennard wrote what may be considered the first 'modern' book combining the study of singing with an advanced description of anatomy and a scientific description of the acoustic nature of the voice. Vennard's work was first published in 1967 and has been revised a number of times. The author is cited quite extensively in the work of later publications up to the present day and it is clear that his work is venerated as heralding the new wave of books based around the science of the voice that were to be published in the 1970s, 80s and 90s.

Vennard describes in great detail the acoustic nature of the voice and gives the reader one of the first explanations of the 'singer's formant' or '2800' as he refers to it. He gives a detailed description of the spectral envelopes of the major orchestral instruments showing, eventually, that the peak of energy in the singer's voice stays in the listener's ear as the acoustic energy of the orchestral instruments dies away, leaving the singer's formant energy to carry the sound of the voice over the sound of an orchestra. As explained more fully later in Chapter 3, the singer's formant was known to the early Italian teachers of voice in the eighteenth and nineteenth centuries, where they encouraged what was termed *squillo* (translated: to ring or blare) in the voice. Voice teachers knew that *squillo* would enable the singer to be heard over the increasingly large orchestral forces that were being used to accompany voices.

Vennard, too, encourages the singer to conceive their sound prior to an utterance, stating:

'Before leaving our consideration of the attack, we should note that of course the ear monitors the entire process. This means that the correct attack should be conceived in the ear *before* the act. Actually the entire musical phrase should be conceived in advance.' (Vennard, 1967, 49)

His book also includes quite detailed drawings depicting the anatomy of the vocal apparatus, the lungs, and the thoracic and abdominal muscles the singer uses to power the outgoing breath while singing. He encourages the reader to become acquainted with the anatomy as he feels it will assist the student in their quest toward vocal freedom. Vennard also offers detailed advice to teachers on what he considers the best approaches to teaching, including giving sound reasons as to the use of each part of the vocal tract, what it is 'for' in terms of voice production and how to obtain a desired result. In a sense this book looks forward to the work of Estill who, from the 1980s to 90s attempts to find a physical exercise to enable the singer to gain control of each part of the vocal tract, and thus impose his will on the voice by direct physical control. This might appear to be in opposition to the school of thought of authors such as Reid (1965) and Kagen (1950) who speak of the conception of the sound prior to utterance, rather than through overt physical control – an apparent paradox.

Vennard's book is very comprehensive in the manner in which he covers the areas of the science of the voice. He couples this information with his ideas on how to teach and to best understand what is happening during singing from the perspective of both teacher and student. This book attempts to provide a complete text for the teacher and singer to use, as well as providing an inventory of ideas on teaching and voice that are drawn from the author's many years as a singer and voice teacher.

British singer and teacher, Julian Gardiner, published a book in 1968 that may be regarded as an antithesis of the style of book written by Vennard. Gardiner's book is perhaps more typical of its time in that it follows the pattern of the older authoritative singer passing on the wisdom of age to the younger student, without necessarily giving a scientific slant on the subject. Gardiner, however, does use anatomical descriptions and offers insights into the use of the major parts of the vocal tract, the oro and nasopharynx, the soft palate, the tongue⁶ etc. Gardiner's book entitled *A Guide to Good Singing and Speech*, seeks to promote the idea of ensuring that the vocal mechanism is used in a similar manner in speech and in singing. Discussion of this concept becomes more prevalent toward the end of the twentieth century and into the twenty-first century

⁶ All of the proceeding are parts of the vocal mechanism, the vocal tract is the name given to the spaces in the head and organs from the larynx to the lips; the oro and nasopharynx are the names for the wall of the throat including the nasal passages; the soft palate is the 'door' to the nose and controls air entering the nasal passages. All have a role in singing.

as writers of voice become increasingly concerned with a holistic approach to vocal training, including the vocal training of actors as well as singers.

Though not engaging with the physical science of voice production, Gardiner does offer an approach that deals with the nature of the use of the vocal apparatus. He speaks of the difficulties the teacher faces in attempting to change the speaking voice of the singer, in an attempt to ensure that the vocal mechanism is being used in an optimal manner for both speech and singing. He notes the following about the innate tendency of the singer to avoid any change to the habitual pattern of speech that he has adopted over his life – even if that habitual pattern will be ultimately detrimental to the vocal mechanism:

‘Furthermore the speaking voice is such an intimate part of his personality that, however dissatisfied he may be with its present manner of use, he will be subconsciously unwilling to make any drastic change. For better or worse his speaking voice seems as much part of himself as his own face.’ (Gardiner, 1968, 176)

Gardiner’s message here is obvious. It is clear that the speaking voice has an influential role to play in singing and must not be discounted. The very unthinking nature of our everyday speech, and the way we will use the vocal mechanism, adds to the complexity of the issue of accurate self-perception. Following from this perception, although speech mode and good enunciation may provide a platform for the development of the voice, the manner in which the speaking voice is used in a habitual daily fashion is vitally important to the student’s development. If the voice is used in a habitually constricted manner, for example, it will be doubly difficult for the teacher to assist the student to become familiar with the ‘open throat’ so necessary for free phonation. The student should be encouraged, therefore, to regard the speaking voice with the same degree of attention as they might the singing voice. Though Gardiner does not push the connection between speech habits and singing to the extent that will be argued in this thesis, his work can be seen as showing awareness of such a connection and its significance in voice teaching.

Gardiner also has some thoughts about the use of the term *bel canto*. He states in the preface to his book:

“'L'arte del canto" as it was called - the term "bel canto" was never used by Garcia or by any master of the old school - embraces every variety of singing from florid to declamatory.' (Gardiner, 1968, x)

Gardiner is suggesting here that the term *bel canto* is essentially a twentieth-century construct. Indeed, there are other authors such as Reid (1965) and Manén (1987) who suggest that term did not exist in the seventeenth and eighteenth centuries.

Gardiner voices some strongly expressed thoughts on the use of the singing and speech mechanism and on the thought processes behind speech. He maintains that speech is a human construct and one in which children need extensive training. Indeed, speech is not natural, Gardiner suggests, and it is the teacher's job to help the student find the original and natural voice they possessed as a child⁷. Further he suggests that words become associated in the mind with particular emotional states. As such, they carry the emotional overtones of the sensation behind the words and that should be transferred into the music by the singer.

'Singing is the vocal expression of an emotional mood. The function of the words of a song is to indicate the particular mood, and to identify it with some experience which the listener can comprehend and share; the function of the music is to reflect this mood, and to intensify its impact.' (Gardiner, 1968, 89)

Further, on the singer's duty toward the words of a song:

'You do not sing a melody. You sing a poem; a poem which is born anew in all the splendour and loveliness of a composer's inspiration.' (*Ibid*, 179)

Voice Science and Vocal Teaching

Throughout the 1980s we begin to see more publications by scientists who have a particular interest in the voice. Often the scientists are singers themselves and therefore have a vested interest in the subject. The scientist's approach is essentially a search to explain the mystery of the human voice; how it functions and under what considerations one can expect to see modifications in the sound that is produced. For example, which part of the vocal mechanism is involved in the production of oral twang, or in what way do the vocal folds change in order to produce Falsetto Quality? Such researchers seek the answers to these and many other questions. In addition to books there are many papers published in journals such as *The Journal of Voice* that were written by scientists

⁷ Indeed, this concept is also discussed by other authors such as Husler & Rodd-Marling (1976).

with an interest in the human voice. These will be discussed later in the chapter.

One highly respected author is the Swedish scientist Johan Sundberg who published the book *Science of the Singing Voice* in 1987. In the same vein as the book by Vennard, Sundberg uncovers the functions of the voice from many aspects; the vocal anatomy, the science of acoustics and its relation to the human voice, and the effect that various parts of the anatomy have on the sound that is produced. Sundberg is a singer himself and it is clear that this passion has provided the impetus for the book.

Sundberg speaks in great detail about facets of singing such as the requirements for control of sub-glottic pressure and the effect that has on the voice, and devotes a great deal of discussion to the tuning of vowels and formants. His explanation of the various forces required to sing in a classical fashion is based upon findings from both his own and other scientist's experiments and the author seeks to describe voice production in the language of science. The various chapters in the book elaborate on aspects of singing and the author attempts to place each aspect under scientific scrutiny and, as such there are results of experiments written into each chapter. Sundberg is therefore attempting to remove much of the mystery that has surrounded singing. He acknowledges that scientific knowledge does not replace good teaching, but that vocal pedagogy can be advanced through a thorough understanding of the physical and scientific basis upon which singing is founded. He also acknowledges that there is much more that science can do to uncover completely the function of the voice. Sundberg continues to be an enormously influential contributor to the field of voice science and continues to publish prolifically to the present day.

Sundberg is often linked with the American researcher Ingo R Titze, as they have contributed on a number of projects in the last twenty years. Titze's book *Principles of Voice Production* (1994) follows a similar pattern to that of Sundberg's work in that Titze 'emphasizes the physical law rather than empirical observation while relating the physical processes of voice production to other physical processes, inside or outside the human body' (Titze, 1994. Publicity material on the dust cover of the book). This publication is extremely comprehensive and covers areas such as the anatomy and biomechanics of the larynx, efficiency of breath and its effects on the vocals folds, generation of sound etc. It also offers information on voice classification, vowel

frequencies and vocal registers, while also venturing into the field of voice disorders and assessment of vocal fatigue. Like Sundberg, Titze publishes extensively both in book form and in journal articles up to the present time.

These authors seem to me to be at the forefront of the vocal science field as currently represented in the literature. They are widely respected and cited. It is clear that they are motivated to move the study of voice from the empirical to a theoretically based style, to move from the world of image and feeling to a world of specifics. The aim of Sundberg and Titze might be that of offering a greater depth of knowledge to the established singer, the teacher and the student in order that all might use the knowledge to secure a more effective singing; in the case of the teacher, their writings assist the student to progress more effectively from novice to professional singer. In doing so the student singer will also have a stronger understanding of the nature of the vocal instrument.

The works of Sundberg and Titze are extensively cited by other authors in publications that have a strong voice science application such as those by Miller (1996), Sell (2005), Kiesgen (2005) and Chapman (2006). Thus the work of Sundberg and Titze may be familiar to studio teachers through the books of authors like Miller *et al*, rather than through scientific papers. Miller *et al* interpret the scientific work and present it in a form that demonstrates the results of the scientist's findings as they are reflected in vocal pedagogy, and therefore more readily understood by the voice teacher. Furthermore the research of the voice scientists has had a positive effect on the diagnosis of vocal problems as they affect the professional voice user. The proliferation of material on the treatment and management of vocal health issues has grown consistently in the last two decades of the twentieth century and continues today. This will be illustrated in the discussion in the remainder of this chapter.

A writer publishing an individual perspective at the end of the 1980s is British researcher and singer Brian White whose doctoral thesis was published as *Singing Techniques and Vocal Pedagogy* in 1989. White's work looks at both vocal technique and the (then) latest contributions to the field of voice science and attempts to reconcile both. He quotes researchers such as Sundberg extensively and manages to succinctly pull together the findings of various voice scientists. An interesting feature of this study

is that he also publishes the results of a survey of British voice teachers as part of the book. Essentially the survey asked the teachers what their influences were with respect to their teaching, and sought to find out whether voice science was making an impact on their teaching. Apart from noting a disappointing response to his survey (as maintained by the author) it is extremely interesting to note, at that point, that most of the respondents seemed to be content to teach in what could be described as a conservative manner: most cited their own teachers (it was noted that the previously mentioned Herbert-Ceasari's influence featured extensively here) and their answers suggested that many were engaged in the use of methods of the late nineteenth and early twentieth centuries as their major teaching influences. White's book is extremely informative and brings together many of the ideas postulated by researchers in the nineteen seventies and eighties. He, like Sundberg, appears to be suggesting that singing teaching needs to move from an empirical to a theoretical style.

Meribeth Bunch's work *Dynamics of the Singing Voice* (1982 with revisions in 1993, 1995 and 1997) is a comprehensive text on the singing voice. Her approach is that of a mixture of observations from a voice teacher coupled with an extensive knowledge of vocal anatomy and an incorporation of some information on acoustics and information from the results of research into voice science. Bunch provides the reader with many line drawings of anatomical features as well as photographs of cadavers dissected to show muscles and structures of the vocal mechanism. As with many of the books from this period, Bunch uses many of the terms from the traditional methods of singing teaching while explaining them with detailed information drawn from the anatomical working of the body. Her descriptions are very fulsome. Although it may seem that the book is almost an anatomical guide to singing, her observations on the psychology of the student and insights into the use of imagination and spontaneity in performance are purely from a singing teacher's perspective.

One of the major contributors to the unification of vocal teaching with voice science toward the end of the twentieth century is the American researcher and author Jo Estill. Estill was a lieder and opera singer who began her research into the voice and how it worked during the 1970s. Her research led her to develop *Compulsory Figures for Voice* in 1980s, a set of exercises to isolate and develop control over various parts of the vocal anatomy - much in the style of the technical exercises she claimed were used by

figure skaters to assume command over a range of small movements which would allow them to master the larger components of competition figure skating. These exercises led her to develop a pedagogy based on scientific discoveries (mostly by Estill herself in conjunction with Ear, Nose and Throat surgeons and other scientists) that she calls *Estill Voice Training Systems*⁸.

Estill's methods became widely accepted in the United States and later throughout England, parts of Europe and in Australia. She became identified with 'belting', the style of singing used by performers of Broadway-style musicals. This high energy form of voice production has considerable inherent vocal abuse potential due to the style of breathing that is used (clavicular [high in the chest] rather than low abdominal as in classical singing) and the strong use of 'twang' which when unskilfully handled can lead to excessive constriction and vocal damage. Indeed, Estill has consulted extensively to casts of major Broadway-style music theatre presentations on vocal health and, using her methods, encouraged the casts to avoid vocal damage and perform long runs of musicals with some degree of vocal safety. Her work is also discussed and used by Speech Pathologists in the treatment of vocal abuse problems.

Following the lines of thinking of scientists such as Sundberg and Titze, Estill sought to move the study of singing directly out of the realm of the empirical and into the scientific. Moving further than the previous authors, Estill, by developing her *Compulsory Figures*, has set out to remove the use of the intangible (image based) style of training and replace it with specific physical exercises designed to train and monitor the vocal apparatus. In this way, she is also attempting to assist a singer to deal with the fact that the voice will sound different to them than to a listener. Instead of trusting in sound, the exercises for control are designed to enable the singer to know that if certain physical manoeuvres are undertaken then predictable outcomes are possible. By the end of the 1990s Estill's techniques had become an unofficial industry 'default', at least on the east coast of Australia, and training in the method is still currently available by teachers who are licensed to the Estill Voice Training Company.

⁸ Estill's daughter was a competitive figure skater, as mentioned by Estill in a workshop in 1996. The preface to her 1997 publication *Primer of Basic Figures* also includes a reference to figure skating hence the title '*Basic Figures*'.

Estill's work deals extensively with the individual parts of the vocal anatomy, mostly from the larynx through the vocal tract to the lips. She identifies the other areas (such as the abdomen) that are involved in phonation, but the majority of her work is to identify and provide an exercise to develop control over the laryngeal and pharyngeal areas of the vocal tract. She then developed a further publication (*Compulsory Figures for Voice, A User's Guide to Voice Quality Level Two – Six Basic Voice Qualities*) in which she identifies and documents six vocal qualities: Speech, Falsetto, Sob, Twang (Oral and Nasal), Opera and Belting. Each of these qualities are maintained to have attributes, individual pieces of which may be accessed by following the vocal exercises set out in the *Compulsory Figures for Voice, Level Two, Six Basic Voice Qualities*.

It is then a matter, according to Estill, to combine the various jig-saw pieces to form a complete vocal quality. For example, to obtain a 'ringing' Opera quality the following instructions are given:

- '1. Begin the tone on an easy (thin folds) /n/ with a tilted thyroid and retracted FVF.
2. Nasalize the vowel /i/
3. Twang the nasalized/i/
4. Close the velar port, sharply
5. Anchor, sharply
6. Lower the Larynx
7. Compress the Tongue.' (Estill, 1997b, 39)

Although following the steps outlined above may not be to the taste of all singing teachers or students, the Estill system achieves its aims of education and skill acquisition and provides a student of singing with a very comprehensive guide to the voice and what it is possible to do with it.

Although Estill has written her *Compulsory Figures* books her company and master teachers now revise and re-publish the material and the method is taught in workshops (usually lasting five days in length) after which the participants are able to purchase the books. In this way, the information is taught directly to the participant and the material

is not as open to interpretation as it may be through reading the books without experiencing the workshop. It also means that the author(s) can keep a certain level of control over the material.

Other Authors of the late Twentieth Century

During the 1980s and 1990s there have been an increasing number of American authors publishing material that strongly utilizes the work of voice scientists and vocal anatomy, but also that seeks to identify the results of modern voice science and anatomical information combined with the style of teaching of the historical masters. One of the foremost authors is Richard Miller whose book *The Structures of Singing – System and Art in Vocal Technique* (1996) seeks to unite anatomy, voice science and the teaching of the past into an amalgam of material that the modern singer and teacher would find useful. Indeed, this publication is very comprehensive. Miller makes analogies with information from the *bel canto* teachers of the eighteenth and nineteenth centuries and attempts to interpret the maxims of previous famous teachers into a contemporary form. As well as extensive chapters on anatomy and aspects of technique such as the *appoggio* method of breath management, Miller also includes an extensive list of vocal exercises for producing a classical vocal sound. Published around the same time as Estill's *Compulsory Figures* this book again shows the divergent nature of singing pedagogy. On one hand Estill's work seeks to completely revise the teaching of voice using voice science as the vehicle for transformation, while on the other, Miller's work seeks to back up the work of previous generations using contemporary voice science and anatomical knowledge to do so.

Richard Miller continued to write extensively until his death in late 2009, publishing books on training soprano and tenor voices, on national styles and on the artistic qualities of singing. As well, he was editor of the *Journal of Singing* (the Journal of the National Association of Teachers of Singing in the United States) from the period 1980 - 1989, editing articles related to vocal pedagogy. Unlike some of the books of the 1940s and 50s, Miller's book is complete with vocal exercises developed by the author, each with a defined purpose. There are, for example, exercises for achieving control over full and partial breaths, for unifying registers in female voices and for balancing

resonance by use of the nasalized consonants, only to mention a few. The book seeks to be comprehensive in nature and offers both singer and teacher a range of insights into Miller's view of vocal training, something it achieves very well. Miller's other publications such as *Training Tenor Voices*, *Training Soprano Voices*, *On the Art of Singing* etc are similarly comprehensive and aim to link the scientific with the principles of vocal teaching from historical to modern times.

In a similar vein is the work of James McKinney whose book *The Diagnosis and Correction of Vocal Faults* was published in 1994. McKinney, in a similar manner to Miller, draws extensively on anatomical material and the research of voice scientists to illustrate his work. McKinney also talks about the choral singer as well as the solo singer and notes some differences: one of the major differences is that choral singers do not usually reinforce the singer's formant as that results in single voices standing out; a quality not encouraged in the choral context since the ideal of a choral sound is that it should be unified. McKinney's work is comprehensive and brings together many ideas from previous generations as well as contemporary ideas of voice production and the results of vocal science enquiries. The book avoids much of the 'flowery' style of writing (as does Miller) of some of the older publications on voice training, and indeed presents the material in a straightforward and easily understandable manner.

Barbara Doscher's book *The Functional Unity of the Singing Voice* (1994) also seeks to unite a thorough knowledge of anatomy, the acoustic nature of sound and a comprehensive discussion of respiration, resonance formants and vowel modification and vocal registers. Doscher also includes an appendix on Vocal Abuse and Misuse and on Vocal Hygiene which make for sensible and informative reading. While providing many diagrams and explanatory drawings, unlike Miller, Doscher does not include any vocal exercises. Doscher was Chair of the Voice Faculty at the University of Colorado at the time of the publication of this book.

Following the same style, the late teacher and singer Oren Brown's book *Discover Your Voice – How To Develop Healthy Voice Habits* (1996) offers thoughts and directions from a senior teacher and performer. Brown was Voice Faculty Emeritus of the Julliard

School. I am particularly drawn to Brown's discussion of 'primal sounds'⁹, which he sees as the background to good singing and indeed is the subject of his first chapter. He writes:

'First and foremost, find your primal sound. It doesn't matter whether you are just beginning or have been singing for years. If you locate your primal sound, you are on your way to realizing your full potential as an artist. If you don't, your growth will be stunted.' (Brown, 1996, 7)

Chapman (2006), who strongly expresses the belief that primal sounds have fundamental importance, has cited Brown on this subject. Both feel that the use of primal sounds awakens the body's support muscles that are part of the human physiological/nervous system makeup (the deep instinctive responses responsible for the 'flight or fight'). These support muscles are the ones located in the lower abdomen (the rectus abdominus, transverse abdominus and the transverse obliques) and provide the power for the voice that enables it to be heard in a concert hall or opera house and help to sustain the voice over an extensive vocal range. The use of support muscles allows the trained singer to perform a two hour-long recital or a three-hour opera role without causing damage to the delicate vocal mechanism.

Brown, like other writers of this time, includes discussion of anatomy and the various components of the singing voice such as articulation, register management, breath management etc. His book includes an extensive list of exercises as an appendix and comes with a CD on which the exercises are demonstrated. The use of recorded sound with the written word appears to be a great advancement, not only in the use of contemporary technology, but also in the concept of providing an actual listenable version of the exercises. Brown states, in the introductory track on the CD that:

'The reason I decided to make this recording is that writing or talking about what sounds are like is much like trying to describe a picture without seeing it' (Track 1, accompanying CD to (Brown, 1996))

This is obviously a response to the matter of individual interpretation of written material that occurs as the reader relates the material they are reading to their own experience. Brown describes each exercise prior to its demonstration in order to clearly set out its

⁹ A Primal sound can be defined as '...an emotionally motivated vocal expression, often non-verbal, arising from our need to survive.' (Chapman & Davis, 1990). Some examples are crying, screaming, moaning, laughing, grunting, yawning.

purpose.

A further element of interest for me in Brown's work is that he has a background in voice therapy working with other types of vocal specialists (medical and allied health) in a voice clinic specialising in the rehabilitation of damaged voices. As the twentieth century drew to its close it is possible to see as a trend that singing teachers begin to embrace the voice as a whole entity rather than simply focussing on one cultivated area. Direct comparisons may be drawn between voice teaching and voice rehabilitation as many of the techniques that are used by both voice teacher and Speech Pathologist are interchangeable as may be seen in the work of Shewell described below.

A recent publication by British Voice Teacher and Speech and Language Therapist Christina Shewell *Voice Work – Art and Science in Changing Voices* (2009) demonstrates the inter-relationship of multiple disciplines that deal with vocal function in a book that discusses the care, use and rehabilitation of the voice. In this case, instead of being directed at the singing voice alone, it is rather a book directed at the professions which deal with the voice 'on the normal to abnormal continuum' (Shewell, 2009, 11). The author includes Speech and Language Therapists (known as Speech Pathologists in Australia), teachers of the Acting Voice, Singing Teachers and practitioners in the newer area of alternative voice therapies which attempt to facilitate participants to release many emotional blocks and therefore open paths to wellness through the use of singing and other sounds.

While it is founded in her work as a teacher and therapist, Shewell is clearly pointing out the relationship that exists between the various groups of voice practitioners. I would suggest that it is the goal of all of the disciplines included in her book that a client of a practitioner is able to use their voice freely in a manner that is suitable and appropriate to them. A singer, a professional speaker, a schoolteacher, an actor or someone recovering from a lack of vocal function due to abuse, illness or surgery may employ techniques discussed in Shewell's text.

Shewell's book contains a number of therapeutic options to assist the voice practitioner to facilitate the best possible outcomes in the client. There are options for the therapeutic use of breath, to develop resonance, on posture and on anatomy – all

relevant for the voice teacher. Shewell also offers observations on the way practitioners of each discipline would use the information she presents. There are extensive exercises designed to assist the client to obtain better function of the vocal mechanism and the breath. It is interesting that many of the exercises can be quite neatly transplanted across the disciplines so that the same breath exercise, for example, may be used by the Speech Pathologists as is used by the voice teacher. Although it is detailed and Shewell brings together some new ideas on diagnosing and prescribing treatments for vocal function ailments, the book does not contain any examples with music, nor are there any vocal exercises in the traditional sense.

Shewell recently visited Australia for a series of workshops under the auspices of the Australian Voice Association (September 2009). It is interesting, for the purposes of this thesis, that in the introduction to her book she cites Meribeth Bunch's book *Dynamics of the Singing Voice* (1982) and McKinney's *Diagnosis and Correction of Vocal Faults* (1994) as they 'gave me information and practical ideas that I would never have found in voice therapy texts' (Shewell, 2009, 11). She also cites Janice Chapman's book (discussed later) as it 'fulfils its subtitle as "a holistic approach to classical voice" and offers many insights into both the philosophy and practice of working the voice' (*ibid*, 11-12). This is not a book for someone looking to learn how to sing, however it is a valuable tool and store of resources for a teacher working with a range of pupils with different experiences who will benefit from a large range of educational options.

A noteworthy, if original, book published during the 1980s by the singer and teacher Lucie Manén was mentioned earlier in this chapter. Entitled *Bel Canto- The Teaching of the Classical Italian Song-Schools, Its Decline and Restoration* (1987) it is interesting to note that once again, it looks back to a golden age of singing which in the author's opinion has been lost. Ms Manén may indeed be correct: as previously stated, as there are no recordings of singers of the seventeenth and eighteenth centuries one could argue any number of options with regard to the possibilities of the sound quality they produced. She seems, however, to be in a minority when it comes to the manner in which voice may be taught. The author advocates the use of the *imposto*, which appears to be both a centre of concentration (as described by her disciple Hemsley – see below) and a physical 'opening' of the sinuses above the nose. Perhaps Manén's most notable pupil was the tenor Peter Pears who had a particularly individual vocal quality and

whose voice, at least to my ears, had a highly penetrating sound and distinctive wobbling vibrato. It may be that it is his use of the *imposto* that gives the sound its particular nasal quality as the site of the *imposto* is meant to be just above the nose (described by Hemsley, 1998).

Manén aims to give a ‘scientific’ framework to the approach she is delivering by making mention of many scientists with whom she consulted, but there seems to be a lack of any documented information to quantify results. Her description of being able to manipulate her oesophagus so as to be able to obtain a range of sounds I found extremely baffling, especially as most anatomical descriptions and research into the voice discount the use of the oesophagus in vocal production, as opposed to the trachea which some scientists such as Ingo Titze contend play a role in the resonance of the voice¹⁰.

As well, I am unclear how one could inflate some sections of the oesophagus to allow certain vocal sounds to be produced as she maintains. In all of the papers and books that I have read, no mention has been made of the ability for humans to alter the shape of the oesophagus at will. I may be corrected on this matter, but though there may be a case to make for this view, it would appear to be nonsensical. Indeed a brief look at a medical text on anatomy reveals no suggestion that the oesophagus can be manipulated at will. Zemlin (1981), a staple text on that anatomy of the vocal mechanism, has no such observation. There is no doubt that the author may have identified certain sensations in her body as she sang and has attempted to pass those on in writing, but there does not seem to be research and observation to back up the claims. There is also little in this book by way of defined exercises to assist the developing singer. Despite the paradoxical position of Manén’s teaching in the overall literature, there are notable singers who have promoted her ideas, as will be seen below.

Thomas Hemsley, a follower of Manén’s work and a singer and teacher of note (and pupil of Arthur Cranmer), has followed the less scientific line in his work *Singing and Imagination – A human approach to a great musical tradition* (1998). Although I find

¹⁰ Titze calculated the resonant feedback into the trachea of the compression waves in the sound produced in the vocal tract in his ‘Pavarobotti’ experiment in 1993. (Youtube video found at <http://youtu.be/UQw03TXZsHA>)

some of Hemsley's explanations difficult (as they follow the work of Manén), there are some very informative and interesting ideas in this work. He encourages the student to use the imagination and to consider aspects of characterization to assist in the acquisition of vocal colour. Interestingly, Hemsley projects a defensive attitude with regard to *imposto* in which he suggests that it is easy for those who have never felt it to dispel the notion of its existence as false. He states:

‘It is unlikely that someone who has no personal experience of the *imposto* would be able to recognize it in another, and therefore be of help in teaching its use.’
(Hemsley, 1998, 51,52)

His book contains examples of songs and arias from the standard repertoire and Hemsley invites the reader to experiment with an imaginative approach to the delivery of those works. He also includes chapters on musical pulse and work on the text of arias and songs. Unlike the works of McKinney and Miller, which were published around the same time, this work does not have any illustrations of the vocal anatomy but does have many musical examples. Hemsley believes strongly that imagination can make the singer a better performer, in tandem with understanding of technique and what it is to perform. There is little, if any, discussion of voice science. What is useful, however, is to have the author's thoughts, as an artist of high reputation, on the interpretative approach to specific songs.

In a similar, slightly unorthodox approach to singing is the work of Dr. Alfred A. Tomatis whose book *L'Oreille et la Voix* was published in 1988, and translated into English and re-published in 2005 by Roberta Prada with the title *The Ear and the Voice*. Tomatis was an Ear, Nose and Throat surgeon who had an abiding interest in the professional voice, first due to his father who was a singer, but then as voice consultant to the Paris Opera for many years. His is an interesting theory of the auditory dominance of the right ear and the ramifications that has for the voice. The many examples he gives suggest that his work certainly has merit and has helped many singers, especially those whose voices have needed rehabilitation. The work of Tomatis has continued, following his death in 2001, with licenced practitioners teaching his method throughout the world. This is not a book on 'how to sing', but rather, from a medical approach looks at the voice, its function and its rehabilitation via the information that the ear receives, processes and, in Tomatis' estimation, gives back to the larynx. There is much that makes sense from a layman's perspective in this work; it

may be essential to attend a course to experience some of his techniques first hand. The book, of course, cannot equip the reader with the aural experience of Tomatis' 'Electronic Ear', which may need to be experienced to gain a clearer picture of his approach.

In 1999 James Stark published *Bel Canto – A History of Vocal Pedagogy* in which he sets out the teachings of the *bel canto* school of Italian singing, with especial regard to the work of Manuel Garcia II (1805 – 1906). Stark views Garcia as the founder of the modern style of voice teaching, which combines vocal science and traditional teaching methods. This, claims Stark, is due to the invention by Garcia of the laryngoscope in 1855. Garcia presented his observations on the visible function of the larynx as it related to singing to the Royal Society later in that year. Throughout the book Stark relates the historical accounts by such singer/authors as Tosi, Mancini, Lamperti, Agricola and others to the work of Garcia and to modern interpretations of the vocal principles those authors discuss. Unlike Reid (1965) and others who lament the loss of the 'golden age' of singing¹¹, Stark suggests that that such a perception of loss is one typical of human nature and in many facets of life there is always a longing for 'the good old days'. Stark observes: 'The perennial complaints regarding the supposed decline of the art of singing have continued into the twentieth century, despite the flourishing of good singing' (Stark, 1999, 225).

Stark concludes his informative book with a section that describes a series of experiments directly relating to Garcia's theories conducted at the Groningen Voice Research Lab by Professor Harm K Schutte, Donald G Miller and Stark himself.

Revisiting the Knowledge of the Past

In the latter part of the twentieth century a number of investigative publications have appeared designed to revisit information from the earlier singing treatises and texts. Brent Monahan's book *The Art of Singing- A Compendium of Thoughts on Singing Published Between 1777 and 1927* (1978) and Berton Coffin's 1989 publication *Historical Vocal Pedagogy Classics* view historical texts through the eyes of modern vocal specialists. Coffin researches the ideas, concepts and maxims of authors such as

¹¹ Seen by Reid to be the lost art of *bel canto*.

Manuel Garcia II (1805-1906), Giovanni Lamperti (1839-1910), and William Shakespeare (1849 – 1931) and attempts to offer both a twentieth century interpretation of their teachings and a historical record of the processes of singing teaching and writing about that subject.

Monahan's work is a detailed look at publications on singing in this period between 1777 and 1927 and he offers insights into methods and skill-based teaching of many authors. His conclusions offer a clear sense of the calling of the singing teacher through the ages, from part-time teacher (while being a full time musician – usually a keyboard player) to the scientific approach at the end of the nineteenth century. He makes note of the changes in vocal teaching from the exercise-based approaches of the eighteenth century and early nineteenth century authors to the almost musically devoid books of the scientific authors of the later nineteenth century. He also describes a reaction against this style of publication and its associated teaching with the publication of 'natural' approaches to singing in the last decade of the nineteenth century (Monahan, 1978, 227).

In a similar fashion, Australian singing teacher and academic Jean Callaghan published a book in which she aims to reconcile the publications on voice science and notes the effect such publications have had on voice teaching. *Singing and Voice Science* (2000) brings together the work of many voice scientists and Callaghan cites Sundberg and Titze extensively. Callaghan's chapters cover the range of skills that the singer must acquire such as breath management, phonation, resonance and articulation, registration *et al* and offers the reader a view of each area from the voice science perspective. As well, chapters such as *Science and Singing* and *Teaching Singing* (which has subheadings such as *What Scientists Know About Singing* and *What Singing Teachers Know About Voice*) place the role of voice science within that of the role of the singing teacher and Callaghan offers insights into the utilization, limitations and advantages of the use of voice science in the teaching studio.

Singer and academic John Potter in his 1998 publication *Vocal Authority- Singing Style and Ideology* traces the development of the classical style of singing and its status with regard to other genres of singing. Potter also seeks to find a relationship between that style and the emerging and divergent styles of popular singing found in the twentieth

century. Drawing on his experience as a member of the renowned early music ensemble *The Hilliard Ensemble*, and as a contemporary musician, Potter makes comparisons between various vocal styles. He notes that, from the end of the nineteenth century, there is a concerted move to make western classical singing 'legitimate' by enshrining the teaching of the form in music colleges and conservatoria. He notes, also, that the majority of students in music colleges at the end of the nineteenth century were students of the piano and of voice (something which is still reflected in the student profile of my own university currently – although study of guitar is rapidly gaining numbers there, as elsewhere in Australian music courses).

In Potter's opinion, the nature of the treatises on singing during the seventeenth, eighteenth and nineteenth centuries have given classical singing an artificial legitimacy that other forms of singing have not achieved. As well as looking at the modern voice and popular styles, Potter looks at earlier genres of singing, examining the medieval period to look at the styles and roles of singing during that period of time. It is interesting that Potter examines some of the repertoire of sounds made by popular singers and cites examples of singers using a constant vibrato in a popular song in a similar manner to a classical singer. Such parallels in production may sit uncomfortably with the notion of classical singing as being something 'held above' popular singing. Potter suggests that if a popular singer has elements of a classical style in their performance, then somehow that performance may be perceived to have achieved a higher status than that of a singer who does not exhibit traces of a classical production. Potter may be one of the first to write about popular and classical singing as being branches of the same activity.

The notion of what constitutes 'good' versus 'bad' singing is one with which we should continually challenge ourselves when listening to a singer. I believe that, as singing teachers, we should look for stylistically appropriate sounds that are healthily produced rather than creating arbitrary parameters for styles that are divergent. There have been many 'cross-over' artists recording in current times, whose singing attempts to transcend the limits of any one style and attempts to appeal to an inclusive public with a wide range of listening experiences. The ability of a student to confidently embrace a range of styles and produce appropriate sounds is one that I believe still needs to be

tested properly. It is difficult, for example, for a young developing singer to be able to produce the voice in a classical manner and switch between that style and a more popular sound to sing with a pop band. Certainly that can be done, but to what extent each of the styles is rendered effectively may be questionable.

There is no doubt that one style can help gain access to another, celebrated soprano Renée Fleming maintains that her early experience singing jazz allowed her to take the pitch bending technique she used in that style over into Baroque literature (Fleming, 2004).

Trends in Singing Pedagogy of the Twenty-First Century

The advent of the twenty-first century has seen the emergence of an approach concerned with a holistic sense of teaching singing. With the promulgation of theories of learning such as those of Daniel Goleman (*Emotional Intelligence* 1996) and Howard Gardner (*Multiple Intelligences* 1983) it became obvious, to some authors, that a more wide reaching approach to singing pedagogy which encompassed differing learning styles and a consideration of all aspects of the person (mind, body and spirit) might be useful. Additionally it would appear that in many fields such as learning and public health, practitioners are now more aware of the complex multi-factorial nature of human interaction, which includes learning and well being.

This methodology is seen in the more recent approaches to teaching and learning evidenced in institutions of higher learning. Authors such as Karen Sell (US), and Janice Chapman (UK) have sought such broader approaches to the teaching of singing.

Writers such as Callaghan (2000) and Sell (2005) argue from the position that it is not enough for the teacher to rely on material that they may have absorbed as a student or in the early stages of their professional career alone; but that they need to be on a continual quest for new knowledge which may help them to find new ways to become more effective teachers and communicators. Such authors also suggest that the teacher should not limit himself to just one method of vocal tuition (i.e. not to stick slavishly to one style of teaching or method of teaching) but rather explore the different possibilities and styles of teaching that may assist the student to learn effectively. This takes into

account the different learning styles that Gardner proposes as they relate to an individual student. Such a process also offers alternatives to students with respect to teaching the basic skills of classical singing, allowing students to more actively engage in the learning process once their learning style is discovered.

Sell's 2005 book *The Disciplines of Vocal Pedagogy: Towards an Holistic Approach* presents a summary of the main vocal pedagogy of each of the seventeenth, eighteenth, nineteenth and twentieth centuries. Following that she brings together the work of voice scientists such as Sundberg and Titze, and writers of the previous decade such as Miller and McKinney. She advocates a pedagogy in which the individual is taught in a fashion that is commensurate with their strengths and weaknesses rather than slavishly adopting only one form of technique and attempting to make it fit all students. Sell is also mindful of the attitudes and responsibilities of the teacher. She discusses the notion of the 'responsible' teacher, i.e. one who is knowledgeable and up to date, takes into account the individual nature of the student and his propensity to learn, and is open to new techniques and possibilities. This notion is one that has appeared more and more during the latter part of the twentieth century.

This may be, in part, a reaction to the many people who lay claim to be teachers of singing but who have little in the way of background in the art. There are, historically, many pianists, organists and choir directors who have taken to teaching singing, and, anecdotally, many others who will teach but have scant performing and teaching backgrounds as mentioned by Monahan (1978), McKinney (1994) and Sell (2005). There has been a major campaign over the last decade and a half in Australia, the US and Britain to properly accredit teachers so that there can be some control over the quality of the tuition that students will receive and also that an accredited singing teacher can belong to a group of like-minded and educated colleagues. It is interesting to note that both NATS (National Association of Teachers of Singing [US]) and ANATS (Australian National Association of Teachers of Singing - the related body in Australia) have clauses pertaining to ethical and moral standards as well as educational qualifications. Sell notes the nature of the one-on-one relationship and also indicates the intense notion of trust that must exist between teacher and student. She states: 'A precious instrument belonging to someone else has been placed in the singing teacher's

charge, and money is being paid to have it properly trained and cared for.’ (Sell, 2005, 45) The book also comprehensively covers the areas of anatomy and physiology as well as offering insights into the major skills required of the singer.

Janice Chapman, in her book *Singing and Teaching Singing- A Holistic Approach to Classical Voice* (2006), takes a number of further steps and enlists the help of co-authors (including Speech Pathologist Ron Morris and Counsellor Mandy McCarthy) to provide a wide-ranging approach to singing teaching. Chapman brings a clear sense of a holistic approach with models of her idea of best practice in which body, mind and spirit intersect with the approach of the teacher to provide an optimal learning outcome. Chapman’s book is comprehensive in nature, and in a manner similar to that of Richard Miller, she attempts to unite the study of anatomy, the findings of voice science and the integration of the consideration of the whole person when teaching a student. Added to this information is a wealth of knowledge and the experience gained by a singer and voice teacher who has worked at the highest levels.

Additionally, Chapman draws contributions from expert authors in the fields of Anatomy, Hearing and Neuroscience to cover all of the aspects of voice training as the author conceives it. Chapman has been amongst the forefront of voice teachers who work with scientists to deepen her understanding of the voice. As well as passing on her knowledge to her students, she also has encouraged, through the British Voice Association, other teachers to make association with other disciplines in order to facilitate research into aspects of the voice.

Chapman’s book aims to cover a wide range of material as befits an exploration of the complete aspects of a student’s physiology and psychology and the complex relationship between the student and the teacher. In addition she includes a wide range of exercises designed to improve the production of the voice in line with the conceptual nature of her teaching.

Integrating the Voice and Body

A further notable development in the early twenty-first century is the publication of books that seek to integrate the teaching of voice (both singing and the speaking voice) with another type of body discipline. Examples are the integration of the Alexander

Technique, the Moshe Feldenkrais' *Awareness Through Movement* method and *Body Mapping* as put forward by the teachers of Andover Education. There are, of course, many books on the disciplines of Alexander and Feldenkrais, but the following are specifically concerned with singing as the focus.

Jane Heirich's book *Voice and the Alexander Technique* (2005) contains an outline of the life and work of J.F. Alexander who developed his philosophy and exercises on body alignment in the last decade of the nineteenth century from his own experience of recovery from vocal problems. Heirich's work investigates ways of integrating singing technique with the techniques developed by Alexander. The weak point of this book, for me, is that Heirich quotes Frederick Husler as being an expert in the field of singing teaching. Husler was one of a group of people who believed that the voice did not originate at the larynx, but rather originated in the nasal sinuses – that concerns me with the lack of knowledge this shows (Husler, 1976). However, my limited personal experience with Alexander techniques would clearly suggest that the use of a balanced body is a desirable factor in singing. Any discipline that encourages the body able to operate at optimal levels without tensions caused by misuse or habitual practices could only enhance the performance of a singer. Heirich's book outlines many exercises based on Alexander's techniques that a voice student could use and master.

Nelson and Blades-Zeller's publication *Singing With Your Whole Self – The Feldenkrais Method and Voice* (2002), examines voice production from the viewpoint of the Feldenkrais practitioner. Like Alexander, Moshe Feldenkrais became interested in the optimal functioning of the human body through his own experience at recovery from injury. His *Awareness Through Movement* lessons are designed to alert the student to habitual patterns of movement that we fall into over time that may prevent our bodies from performing at their best. His lessons are designed to alert the student to the patterns of everyday movement that are not helpful. The lessons are designed to assist, therefore, to replace poor movement patterns with more body-conscious movements that will make the body more skilful in the execution of everyday movements.

What has particularly drawn me, as a voice teacher, to the work of Feldenkrais is the

direct relationship (as Feldenkrais explains) between tongue root tension and hand tension and between the tongue and the deep abdominal muscles. These two considerations are ones that arise on a daily basis for developing voice students. Tongue root tension is widely found in developing singers (and more advanced students as well) and many younger singers exhibit tension in the shoulders, arms and hands. [It is always useful to gain different insights into a common problem in order to offer a number of options to students.]

Nelson and Blades-Zeller examine Feldenkrais' principles in great detail and provide a large number of Awareness Through Movement (ATM) lessons for the singer to use, but do not necessarily go into great depth on the 'how to sing' side of the equation. That is, the lessons in the book are designed to assist the singer to find a balanced body in order to facilitate better singing, but do not provide the actual 'how to' of voice production. It is clear that they perceive Feldenkrais work to be an adjunct to the sort of production work that a singer would undertake with a voice teacher. It is interesting to note that Feldenkrais is now a staple part of the curriculum of the singing program at the Victorian College of the Arts in Melbourne and at the WAAPA (West Australian Academy of the Performing Arts), the performing arts institution in Perth, Western Australia.

Authors Malde, Allen and Zeller are exponents of Andover Education, which is an off-shoot of Alexander technique, and is concerned with gaining a realistic picture of how the body fits together and thus performs in a predictable way. Their book, *What Every Singer Needs to Know About the Body* (2009), is a publication that encourages singers to understand and gain a mental picture of the anatomy of the body and to clearly understand the relationship between the various parts of the body as they are concerned with singing. The book's chapters are developed with the goal of obtaining a clear mental map of the body (hence 'body mapping') and the useful balance points in the body before embarking on a voice production focus. It is encouraging to note that there are chapters on communication and physical expression here as well.

It is interesting to note some similarities in this style of book with the notions of earlier writers on the voice. For example, the phenomenon known as 'placement' has been a contentious one over time with writers offering different suggestions as to how a singer

may use the sense of feeling the resonance in the face. Other writers such as Vennard (1967, 120) and McKinney (1994, 139) suggest that the notion of placement is an illusory one. In *What Every Singer Needs to Know About the Body*, the singer is encouraged to avoid using the idea of placement.

‘The face is made of muscle on top of bone. Encouraging singers to think of the face as a “mask” inhibits facial expression. The idea of “placing the tone” in any specific location is dangerous. The bones of the skull do vibrate with the sound wave. These sensations provide excellent information to singers. However, where a singer feels vibration is very individual, and descriptions of its location should always be solicited rather than dictated. Different singers feel the vibrations of resonance in different places. Remember, resonance occurs in the spaces of the vocal tract, not the bones and muscles. The sound wave carries through air, it is not transmitted through the bones of the skull as the idea of placing the tone in the mask would suggest.’ (Malde *et al.*, 2009, 139)

It is clear that this topic of placement can be, and has been, explained in a number of different ways.

Although it could be seen that the amount of effort and time to create a solid and correct ‘body map’ might confuse and distract a voice student, in my experience there are many students who are extremely unaware of their bodies. In the past, it has been those students who have a sporting or dance background that I have found are the most aware of their bodies and can more quickly respond to ideas of the body’s involving role in the production of the classical voice. Although this observation is based on anecdotal evidence, those students have tended to be able to absorb physical changes easier than students who are not so aware of their body. Since reading *What Every Singer Needs to Know About the Body*, and due to the fact that I introduce basic vocal and muscle anatomy in my studio, a number of students have been able to benefit from the idea of body mapping.

The Communicative Power of Singing – a Physical Approach

Although it is clearly not the only example of its type, the 1985 book by H. Wesley Balk *Performing Power- A New Approach for the Singer-Actor* encompasses many of the ideas of physical balance suggested by the Feldenkrais, Andover and Alexander exponents. Instead of applying one particular ideal of physical movement Balk, a theatre and opera director, postulates the idea of three different modes of engagement with the performance process: Hearing/vocal mode, facial/expression mode and

kinaesthetic mode.

He states:

‘As human beings we have three nonverbal, non-intellectual minds: the mind of the voice (and the music it makes in speaking or singing, apart from the words themselves), the mind of the emotions, and the mind of the body. These are modes minds. As the verbal, intellectual mind tries to control these other minds, it interferes with their operation, blocks the flow of their communication, and inevitably reduces the range of their communication.’ (Balk, 1985, 24)

Somewhat akin to the idea of multiple intelligences and emotional intelligence and the manner in which differing people assimilate knowledge, Balk suggests that each of us has a particular mode of the three options that is dominant in the way we respond and express ourselves. For example a kinaesthetically dominant person is much more likely to be physical in the nature of expression (free gestures/easy movement/thinking of moving around the stage while performing) and also able to absorb physical instructions easier than written or primarily spoken ones. Similarly, the hearing/vocal dominant person will relate to voice and vocal colour most easily and may find it difficult to express his or herself with a physical action.

The approach argued by Balk has put in a new light some of the experiences I have had working with opera and stage directors. Some had a very prescriptive approach where each step was calculated (for example ‘Walk three steps to the right, turn and sing’), while some, on the other hand would issue general directives (for example: ‘By the end of this aria I want you to be on the opposite side of the stage’) and leave it to the singer to work out how to get across the stage and to interact with the other performers. Balk maintains that it is not only the performer, but also the teacher/director who must become aware of the modes and decide which is dominant in him. It is the job of the teacher; therefore, to find ways to both use that dominance and also to work with the student to identify his or her dominant mode and to compensate for the comparative weakness of the other two modes. He further maintains that the teacher needs to fully understand his own dominant mode and attempt to communicate with the student without that dominant mode taking control. In other words, the teacher should not discriminate if the student has a different dominant mode of learning.

Balk has some interesting comments about singers and tension, and offers this

observation:

‘Singers, as well as actors, develop holding patterns in their voices and often fail to use their own instrument. This situation, however, is considerably more complex because singers are using a vocal technique that is already stylistically removed from their speaking voice. But the holding, the attempt to make a ‘special’ sound that is not their own natural sound, occurs with great frequency.’ (Balk, 1985, 121)

Balk also has some clear and interesting insights into the mindset of the performer, and this looks forward (from the vantage point of the 1980s) to the sort of integrated mind/body/spirit approach – some might say metaphysical approach- to voice tuition seen in the books of the early twenty-first century. The psyche of the singer is something that each teacher works on in every lesson. It may not be a primary objective of the lesson, but attempting to facilitate the student to find confidence in their actions and to translate that confidence into a healthy self-belief and reliance on good technique is a goal that teacher and student alike will work towards. Balk comments:

‘Performers become more concerned about their internal mental processes than about the communication of those processes through their external resources. Guilt builds up as they compare what is with what they think should be, and even a strongly communicating performance fails to give them joy because they have been judging the internal process and found it wanting. In a classic vicious circle, judgment of the product diminishes its quality, which in turn intensifies the negative judgment of the product, and so on.’ (Balk, 1985, 19)

The inner dialogue that accompanies most performances is going to either be a hindrance or a help depending on our mindset and some pre-existing conditioning that we may have undertaken to assist us to perform at an advanced level. Balk quite justifiably suggests that the singer can become more concerned about their mental processes over the physical ones as the mental game a singer plays to accurately and convincingly perform a song can become completely obsessive as they struggle to maintain a developing technique while juggling the complexities of the work they are performing.

Balk’s work seems to provide a clear and sensible method of assisting singers to find a way toward a well rounded performance, one which may promote awareness of their non-dominant modes of expression to boost the performance of their dominant means of expression. The power of the performer to move the audience is essentially the crux of any successful performance. This is obviously the goal of any student to be able to

move the listener. He states:

‘An audience is convinced that it knows a character’s mind by what it perceives through the external means of communication.’ (Balk, 1985, 23)

A singer who unwittingly communicates, by stiff stance, ungoverned gesture, or deadpan facial expression, an unconvincing characterisation cannot hope to make up the ground with a pleasant sound on its own. The coordination of all the communicable signals is needed to effectively transform the basis of a good sound into a great performance.

Knowledge of Rhetoric

Communication, articulation and speech will all be discussed in following chapters. With the notion of communication in mind, the ideals of rhetoric must be included in the discussion. Research into singing in the seventeenth and eighteenth centuries has established that the art of speech – rhetoric – played a major role as an adjunct to vocal tuition (Tarling, 2004). Singers were trained in rhetoric in order to convincingly use the declamatory, speech-like form known as *recitative* and to understand the delivery of the text. A number of contemporary writers investigate the use of rhetoric in singing and there is much to gain from an investigation into the way that words, arguments and voice tone were used in spoken oration and the manner in which those concepts may be applied to a present-day sung performance. *The Weapons of Rhetoric- a guide for musicians and audiences* (2004) by Judy Tarling is aimed primarily at the performer of baroque music, however the instructional information on delivery, use of tone and colour and discussion of the place of the audience and of deliberately seeking vocal effects to form an ‘affect’ to which the audience responds, may be seen to have a wider application than simply to that period in musical and artistic history.

Other writers such as Robert Toft and John Butt have contributed to the knowledge base for singers. Toft in his books *Tune Thy Musicke to Thy Hart* (1993) and *Heart to Heart, Expressive Singing in England 1780-1830* and John Butt in his book *Playing With History: The Historical Approach to Musical Performance* (2002) both speak of the place of rhetoric in historically informed performances. Both writers contribute regular articles to Journals such as *Early Music* and *Performance Practice Review* with detailed information on rhetorical practices.

The use of rhetorical principles in music throughout the history of Western composition is a subject that has attracted growing attention in recent literature on performance practice and analysis. Purely instrumental forms such as the sonata use a form of rhetoric in order to present a musical argument, exact some discourse on the material and restate it to finish the argument. When singing recitative, a working knowledge of the ideals of rhetoric is extremely useful to assist the singer to gauge the pacing and punctuation of extended sections of *recitativo secco*. Thus there is a link between the types of vocal colour, use of speech and articulation, and the delivery of the text using the principles of rhetoric which can help the young and developing singer find the core of the voice and to develop a sense of drama in performance. It may be that the core sound of the voice can be realized more effectively with a dramatic utterance, as an overtly emotional response can engage the support muscles more successfully.

As part of the vocal training process, the singing teacher will aim to awaken the student's emotional and artistic response to the poetry found in the repertoire. For the English-speaking student this means also the ability to negotiate the expressive aspects of poetry in the major foreign languages in which they will sing. Practice which includes speaking the text aloud, with due reference to the sentiment, the emotional climax(es) and the punctuation of the poem can be very useful for the student. This process can have the effect of linking the speaking and singing voice together. Techniques for achieving such a link are outlined later in the thesis in Chapter 8, where exercises for the use of Speech Quality can be found.

A Synthesis of Major Considerations for the Voice Teacher in the Twenty-First Century

While the considerations for the current teacher of the classical voice have a strong basis in the extensive literature as outlined, some are drawn from personal experience over the last twenty years, through a detailed set of notes and reflections on the last twenty years of teaching. That being stated, the experience gained by teaching many students of very different musical and educational backgrounds, areas of interest and potential, has led to many insights into the nature of vocal pedagogy and the many options that may assist the student to move forward.

There are some staple technical considerations that are common to the majority of

singing teachers to be discussed below. In addition, there are further considerations that are now increasingly common due to the dissemination of the results of scientific enquiry into the function and nature of the voice, as well as the more recent trends that aim to include all the facets of the person who is being taught. This makes the profession of teaching singing a much more complex one than it may at first seem. Many of my singing teacher colleagues will acknowledge that we are as much ‘counsellors’ as teachers of voice. Much of our time is spent assisting students to be confident in, and with, their production and guiding them through the triumphs and pitfalls that inevitably accompany the developing voice. Although I am not suggesting that either I, or my colleagues, could call ourselves ‘counsellors’, we are ‘treating’ the mind as well as the body. It may be that a course for singers need include modules on psychology or at the very least motivation in order to prepare the singer for the day-to-day dealings with a student when they (almost inevitably) begin to teach as part of their professional life.

For the purposes of this thesis, the basic technical building blocks of the classical voice have been defined as follows.

- A form of breath management
- The cultivation of appropriate resonance and the promotion of clear diction and articulation
- A balance of body and effort to produce an efficient form of phonation, including such concepts as the ‘open throat’, and onset¹².

The above list does not take into account the other various factors that need attention such as an understanding of many musical styles, familiarity with languages and the effect they have on resonance, jaw and tongue tension and a multitude of other variables. The list above is rather an attempt to isolate the very basic blocks upon which a developing singer will rely.

Additional considerations for the teacher, as raised over the last few decades, include:

- A thorough knowledge of vocal anatomy and the anatomy of the respiratory and support muscles in the abdomen.
- An appreciation and willingness to consider the assistance of body awareness as

¹² Defined in the Glossary.

promoted by the proponents of methods such as Alexander, Feldenkrais and Andover Educators.

- A realization that voice science may have a part to play in the vocal studio. The results of voice science may not always seem apparent, nor may we, as teachers, always see an immediate benefit, but voice science can increase the armoury of options that we can use to assist our students.
- The realization that teaching is part of a continual learning process that extends over the professional life of the teacher. As well, it is clear that a teacher must maintain a healthy self-reflective mind-set in order to facilitate his or her own best practice in teaching.
- An understanding that one is teaching not just the voice, but the entire person – body, mind and spirit.

In summary it is possible to suggest that a comprehensive form of singing tuition for the twenty-first century will include a basic understanding of the instrument the student is building (*vocal anatomy*), a way of phonating with freedom and safety (*vocal technique*) and the inspiration to ignite the student's imagination and response to music (*artistic expression*).

CHAPTER 3

A Proposition for the Use of Speech Quality in the Voice Training Process

A teacher working with young undergraduate vocal students is faced with a variety of choices as to how best to approach the vocal education of their student, not only how best to work with each individual student, but also how to work around the structural necessities and time constraints of an undergraduate degree program in the modern tertiary music curriculum. The teacher must decide on an approach that is effective and adaptable, as the incoming level and experience of students entering a tertiary course may vary widely. The following chapters will look at one such approach to teaching vocal technique and will illustrate the steps towards facilitating the student's acquisition of a reliable technique during an undergraduate degree of three to four years duration.

The audition procedure for the entry into the University of Newcastle's undergraduate program, like many similar tertiary programs in Australia, may best be described as one that seeks to identify whether there is potential to develop the voice, and whether the candidate has an aptitude for learning and development. Although the candidate should exhibit a commensurate level of vocal prowess and training, there is acknowledgement that at an entrance age of around 18 years, the student's voice will not be fully developed, rather it will be one that shows promise of development. The purpose of vocal training during the undergraduate degree (three years at Newcastle with an optional fourth year of Honours studies) will be to fit the student with a level of technical achievement that will allow them to fulfil the requirements of the degree, be able to perform confidently and be ready for further and more intensive training once the undergraduate degree is completed. At around 21-22 years of age on completion of the undergraduate process, it is further acknowledged that the student's voice will need advanced training in order to progress towards a professional career as a singer or voice teacher.

It is the technique that the student will develop during the undergraduate years that will facilitate and create the appetite for further development. Given the short number of individual lessons (some twenty-six per year at the University of Newcastle) and the amount of time that the student must work on her own, it is vital that an effective and

logical process with respect to the teaching of vocal technique be established. Within this process there must be the flexibility to allow for individual differences and repertoire preferences. It must, however, also put into place base-level technical concepts that will allow the student's voice to develop and additionally allow student and teacher to monitor together the development of the voice in a manner that is identifiable and meaningful to both. The main thrust of this thesis addresses the developing singer who, in this instance, is defined as one who is moving from late adolescence into adulthood and therefore moving towards a more mature classical sound.

This thesis will propose that the process of vocal development may be facilitated by the use of Speech Quality as a catalyst for a classical vocal output. It is further proposed that in order to continue development as a classical singer, a student should be able to obtain, monitor and maintain a classical sound. Speech Quality may be shown to be advantageous in cultivating a simultaneous onset of voice and breath, which is the beginning of a breath management system. It may also be shown to assist in the formation of resonant vowels that will improve the quality of the singing voice and add to the individual timbre of the student's voice. Speech Quality may also prove useful in aiding the engagement of the muscles of support in the abdomen and can thus aid the development of power, projection and stamina.

For the purposes of this study, the definition of Speech Quality (also identified as Speech Mode or Modal Voice) is taken from Estill's work *Compulsory Figures for the Voice* (1997). The speech mode of the voice is found in the lower registers and the vast majority of people speak in the lower part of their voice. With respect to Speech Quality Estill describes it in this way:

'Normal Speech quality (Modal Speech) is that quality heard in everyday educated society, the kind we expect to hear from TV commentators.

1. Physiology

The vocal tract is in a neutral position and as relaxed as possible. The larynx is doing the "work". The percept of effort is at the larynx.

2. Acoustics

In the comparison of the spectrum for the vowel /a/, there is a negative slope in the amplitude of the upper partials, i.e. the amplitude decreases as frequency increases.

3. Perception

The sound in the lower range has a certain presence. You can hear it with no difficulty, normally.

4. Risks

Because the vocal folds (intrinsic muscles) are doing most of the work without support from the extrinsic muscles, there is an element of risk in this mode, especially when it is pushed to higher levels of sound intensity.

5. Limitations

The tone is not aesthetically pleasing in the upper range without a change in Recipe (options) as you proceed higher.

The best part of the range – it works best in the lower part of the range.

6. Singing Value

Because there is more acoustic energy in the lower range, and because with lower frequencies, there are more partials in the upper spectrum, the quality has the highest intelligibility, normally. It “speaks” well in the speaking range.

It can be an exciting component in the classic Opera quality.

It is most effective for Recitatives, Pop Music, Folk Songs, Patter Songs.’
(Estill, 1997b, 11)

The potential of the use of Speech Quality as a teaching tool will also be discussed in light of its usefulness in facilitating a combined aural, kinaesthetic and proprioceptive awareness of the singing process. Thus, the developing vocal sound is maintained by learning to interpret the information gained from the aural and physical sensations noted by the student, which is then integrated into a practice regime. It is possible for a student to use this approach to maintain the quality of sound that is established during a lesson with a teacher.

It is also proposed the utilization of speech mode may be enhanced through the use of body awareness techniques such as Alexander Technique, Feldenkrais Awareness Through Movement and Body Mapping. Following the maxim that ‘awareness always precedes growth...’ (Balk, 1985, 197) an increased awareness of the body may assist in the interpretation of information that one can receive when actively singing, and can therefore assist the student to move forward during the acquisition of vocal technique.

Three Basic Steps to Initiate Vocal Development

A consensus of the literature suggests that there are three main areas of technique on which to focus when working with a developing singer. These three areas are:

1. an awakening of the nature of internal resonance (also including the positive contribution that good articulation can bring)
2. the establishment of an 'open throat' ¹³
3. the development of a breath management system.

These three facets have long been considered the mainstay of a vocal technique and are mentioned, in some form or another, in literature from earliest times to the present.

1. Resonance

Like any other musical instrument, the human voice has a source of the sound. This is the set of vocal folds that are found within the larynx. The folds are set in motion by a stream of air passing over them and thus they generate a 'primary sound' (Sundberg, 1987, 10). The primary sound is then shaped by the vocal tract – i.e. that part of the pharynx and oral cavity that lies above the vocal folds, including the articulators - the tongue, teeth and lips. The primary sound may be altered by various adaptations of the vocal tract. Sundberg suggests that this shaping is controlled by articulation (p.10). The physical aspects of the vocal tract act as a resonator as well as the air 'enclosed in the vocal tract' (Sundberg, 1987, 10).

A resonator essentially allows sound to resound (with a subsequent decay). A characteristic of a resonator

‘...is that it allows a sound to pass through under certain conditions depending on the frequency of the sound...Sounds having certain frequencies pass through the resonator very easily, so that they are radiated with a high amplitude from the resonator. These specially transmitted frequencies which fit the resonator very easily, so to speak, are called the *resonance frequencies*, or if the resonator is the human vocal tract, *formant frequencies*.’ (Sundberg, 1987, 12)

Sundberg also states that as a resonator itself resonates at certain frequencies - in the case of the vocal tract it is at the point of the formants - therefore the ability of the vocal tract to act as a resonator is greatest at the formant frequencies. Additionally, as most resonators possess a number of resonance frequencies, so too does the voice. The most

¹³ See Glossary.

significant of these are the five lowest formants¹⁴. The vowel colour is determined by the two lowest formants and all play a role in reinforcing the individual vocal timbre of the voice. (Sundberg, 1987, 12)

On the same matter the more recent author Karen Sell states:

‘There are five important formants in the vocal tract. The two lowest formants govern most of the vocal colour and the third, fourth and fifth are more indicative of individual voice timbre.’ (Sell, 2005, 81)

The significance of these facts to the vocal teacher is that the student must be made aware of the formant frequencies. As a student is able to discover and then work with the different formants, the timbre of the voice will develop. Prior to the discovery of the formants from the scientific perspective, voice teachers knew that if a singing voice was to gain in colour, volume and carrying power, then a ringing sound had to be produced. The early Italian teachers spoke of *squillo* (from *squillare* meaning ‘to blare’ like a trumpet) and encouraged that sound in their students. In current times, singing teachers commonly assist students to utilize the ‘singer’s formant’ – a clustering together of the third, fourth and fifth formants (Sundberg, 1987, 199). Indeed Berndtsson and Sundberg note that: ‘Acoustically the singer’s formant can be explained as a cluster of formants rather than as a single formant.’ (Berndtsson & Sundberg, 1994, 95). Most recent authors (Vennard, Sundberg, McKinney, Chapman *et al*) agree that it is a necessary ingredient of the classical singing voice. Vennard gives this account:

‘above the glottis is a space which is defined by the aryepiglottical folds, which, stiffened by the cartilages of Wrisberg and held open by the epiglottis, for a kind of collar for the larynx, (Par 205). We may assume that when there is the right kind of tension in the vocal lips, a certain partial of about the frequency mentioned above is produced, and at the same time the collar shapes itself to tune the air space accordingly; or we may assume that if the collar is shaped correctly the air in it will vibrate at the frequency of “2800” providing there is enough strength in the laryngeal vibration to sound it...In any case, it appears that what is commonly called “getting resonance into the voice” is really getting “2800” and this is fully as much a matter of proper vibration as it is proper resonance.’ (Vennard, 1967pp 89-90)

¹⁴ Formants may be described as peaks of energy. Those peaks will vary due to the acoustic properties of the vowel being sung and the pitch of the notes. There are more than five formants found in the human voice, but scientists such as Sundberg agree that the first five are the important ones when dealing with the human singing voice (Sundberg, 1987, 23).

Vennard's concept of '2800' is termed by Estill as *squillo* or 'singer's formant' and is given the designation: 'Twang' (Estill, 1997, 30). Chapman further ties the two terms together citing the work of Titze and his research collaborator Storey in the statement:

'Estill pioneered the understanding and specific use of this component (twang) in her valuable work in the 1980s where she identified "twang" as the (desirable) laryngeal constriction which creates the bright harmonics known also as "ring" in the voice. When this "twang" is actively present, it can be combined with a low larynx and wide pharynx to create the acoustic environment where the third, fourth, and fifth formants cluster together and gain their "singer's formant" bonus of the extra 6 dB (Titze & Storey, 1997). (Chapman, 2006, 90)

It is clear, therefore, that resonance and the singer's formant will play a major part in the pedagogy of voice teaching. The task of introducing the student to the singer's formant may be premature in the early stages of vocal development, however, and it is usual to work with them first on the Italianate vowels. These vowels are used universally in classical singing as they are considered 'pure' – that is, free of diphthong – and can introduce the young singer to a more resonant sound simply with their correct implementation.

One of the results of using Italianate vowels in the English-speaking setting is that their use encourages the tongue to behave in a manner that some students will find novel. It is known that the tongue is shaped in an individual manner for each different vowel. Miller (1996) provides us with a useful diagram (drawn from the work of Ladefoged) indicating the position of the tongue for eight different vowels. It is shown below.

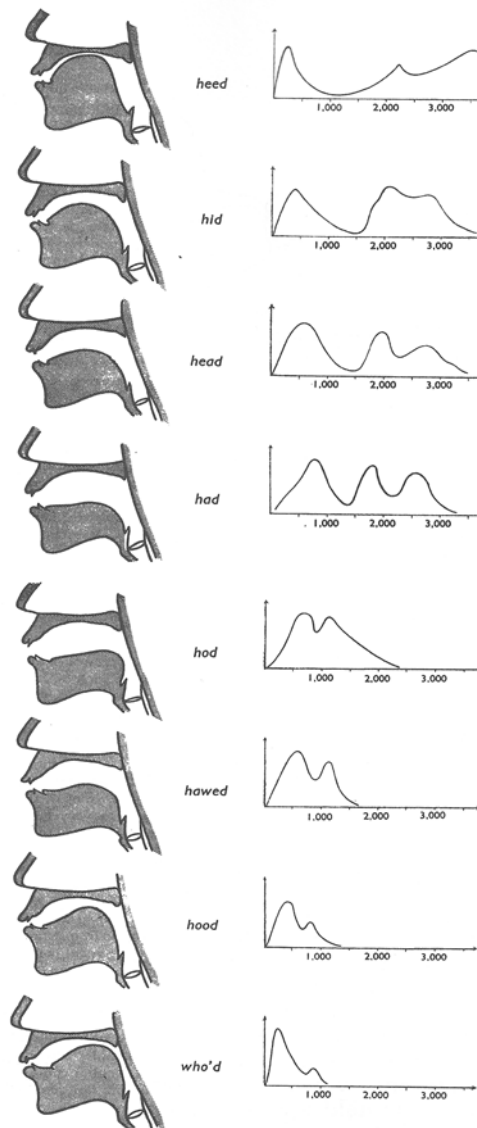


Figure 4.5. The positions of the vocal organs (based on data from X-ray photographs) and the spectra of the vowel sounds in the middle of the words *heed*, *hid*, *head*, *had*, *hod*, *hawed*, *hood*, *who'd*. (From Peter Ladefoged, *Elements of Acoustic Phonetics*, 1962. Tenth impression, 1974. Chicago: University of Chicago Press. By permission.)

Fig. 1: Reproduced from *The Structure of Singing* (Miller, 1996, p. 54)

It can be a revelation for the student to find that it is the back of the tongue rather than the tip that assumes the position for the various vowels. Some writers on singing speak of the need for the sides of the tongue to be drawn up, which physically means that there is a 'furrow' visible down the centre of the tongue. Vennard, for example, has produced a diagram on p114 of his book *Singing: The Mechanism and the Technic* which shows a representation of an open mouth showing sides of the tongue drawn up and a deep furrow in the centre of the tongue. The annotation for this diagram states 'Singing with open throat' (Vennard, 1967, 114) and appears to be one of the

author's visible signals that a singer was producing the requisite posture of the tongue to enable a desirable sound. He links that posture in the tongue with an open throat. Indeed, there have also been references to the back of the tongue being 'up' when the voice is well produced, indeed Estill talks about the need for the tongue to be 'compressed' up and forward (Estill, 1997a). The diagram in Figure 1 shows that the sides and back of the tongue are drawn up and forward during the pronunciation of the vowels in the words 'heed', 'hid' and 'head' (which approximate to the Italian /i/ and /e/ vowels) and that the tongue takes a flatter position in the production of the /a/ vowel in the word 'had'.

It can further be noted that the back of the tongue begins to pull more into the pharyngeal space above the larynx as the words used move towards the 'back' vowels of /o/ and /u/ - the words 'hawed', 'hood' and 'who'd' demonstrate this. Estill notes:

'Since the tongue forms the anterior part of the oral pharynx, the tongue position is crucial to the sound that is created. And since the tongue position may interfere with the vertical movement of the larynx, controlling the tongue dorsum is vital to reaching the higher range and to the balancing of front and back vowels.' (Estill, 1997, 148)

As the tongue is a very large and powerful muscular mass, its role becomes vital in classical voice production. The use of Italianate vowels will begin to educate the student in the beneficial use of the tongue. Authors of practical singing tutors, such as Chapman, may introduce exercises in order for students to learn the tongue 'setting' for the pure Italian vowels /i,e,a,o,u/ (Chapman, 2006, 276). Chapman's rationale for this exercise includes an explanation that 'Italian vowels really do "sing" themselves when honestly produced' (*Ibid*, p 276).

Further confirmation of the tongue's involvement with larynx position is shown in this statement by Chapman: 'The complex discrete changes in tongue shape between each vowel are guided in part by an automatic and subtle adjustment of the larynx itself for each vowel' (Chapman, 2006, 277). Authors from the early twentieth century, including Tetrizzini (1909), as well as more recent vocal pedagogues such as Browning Henderson (1991), and Callaghan (2000) make similar observations about the interdependence of the tongue and the larynx. It is interesting to note Tetrizzini's contribution here as she is recognized as being from the *bel canto* tradition. On this subject she observes:

‘The tongue is a veritable stumbling block in the path of the singer. The tongue is an enormous muscle compared with the other parts of the throat and mouth, and its roots particularly can by a slight movement block the passage of the throat pressing against the larynx.’ (Tetrazzini, 1909, 17)

And further, speaking of freedom in the tongue:

‘...combined with exercises in diction, help make the tongue elastic, and the more elastic and quick this muscle becomes the clearer will be the singer’s diction and the more flexible will be her voice.’ (*Ibid*, 18)

One may infer that the nature of the free working of the tongue and jaw was well known to nineteenth century opera singers and may indeed be drawn from the Italian tradition.

It is clear that a sophisticated coordination of various parts of the vocal anatomy is required to produce the sorts of sounds found in classical singing. The use of Italianate vowels, therefore, not only opens up to the student a way of discovering an enhanced style of resonance, but also begins the process of achieving the balance and coordination of articulators (tongue, teeth and lips), the sound generator (the larynx) and the power source (the breath).

A further consequence of using Italianate vowels is that, through the use of the /i/ vowel to begin a practice sequence (usually /i,e,a,o,u/), it can be noted in Figure 1 that each of the vowels has a distinctive spectral envelope. The spectrum found in the Italian vowel /i/ (as phonetically shown in the word ‘heed’ in Figure 1) shows peaks of energy in 2500 Hz and 3600 Hz areas. The peaks of energy conforms to that of the singer’s formant, Vennard (1967) speaks of ‘2800’ as the Hz value the singer should aim to encourage while others (Estill 1997, Sell, 2005, Chapman, 2006) mention 3000+ Hz as the peak of energy that corresponds to that of the singer’s formant.

It is noted in the diagrams shown in Figure 1 (p 59) that the peak of energy has moved below 3000 Hz for the /a/ vowel (in the word ‘had’) and is around the 1000 Hz mark as exhibited in the ‘back’ vowel /u/ - here represented in the word ‘who’d’. This information would suggest that the teacher should work with the student first to achieve a satisfactory /i/ vowel to encourage a sound that contains the higher frequency overtones (this is the *squillo* mentioned earlier). Once the student has an awareness of the overtones, it is then possible to encourage that quality as a component of all the

other vowels. In this way the back vowels (/o/u/) can be balanced with the front vowels (/i/e/) to achieve a uniform quality to the sound. It is acknowledged that other vowels may be used by the teacher to initiate a classical sound, much depending on the needs of the student as identified by the teacher. It remains, however, that the other vowels do not contain the higher frequencies that are inherent in the /i/ vowel.

Furthermore it is interesting to note that the position of the tongue assists in the manipulation of the higher frequencies. White (1989) has produced a diagram (integrating the work of a number of authors) that illustrates the position in the vocal tract where the production of the formants takes place (see Figure 2 below).

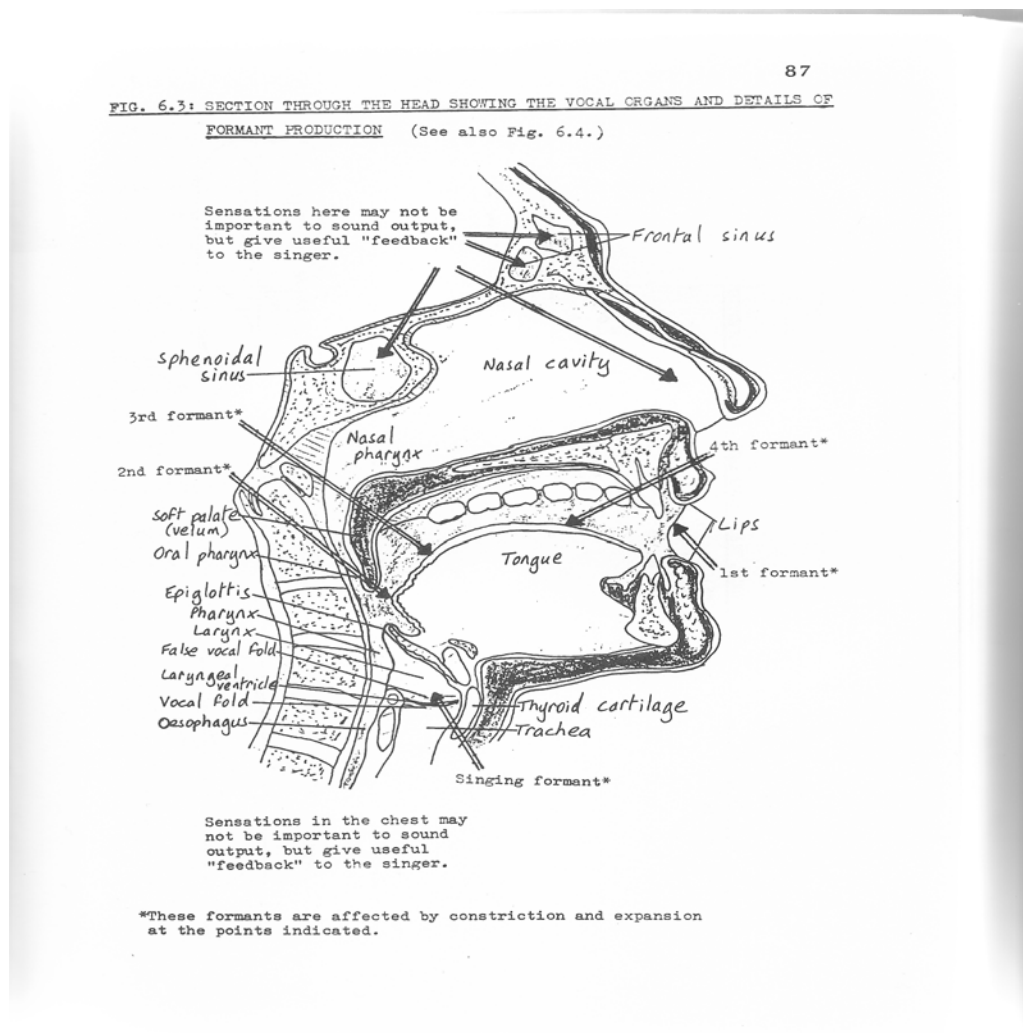


Fig. 2: Diagram of the vocal tract showing formant positions (White, 1989, 87)

The diagram suggests that the 1st formant is formed at the aperture of the lips, while the 2nd, 3rd and 4th formants are formed by the position of various parts of the tongue. The

‘singing formant’ he notes is formed at the larynx. Other authors including Vennard and Estill suggest that the formant is formed in the aryepiglottis found just above the larynx – Estill terming it the ‘aryepiglottic sphincter’ (1997a). This is further evidence of the importance of the tongue in classical singing and of the need for a student to be aware of its function in this regard. One can see that the position of the tongue will change the nature of the formants that are produced. White notes with relation to the diagram that: ‘These formants are affected by constriction and expansion of the points indicated’. It is through input by the vocal teacher and trial and error on the part of the student that effective manipulation of the tongue and vocal tract can lead to successful production of a classical ‘ringing tone’. The student will need to be conversant with a number of procedures so that they are able to confidently produce Italianate vowels and thereby become familiar with either the presence or absence of the desirable formants in their sound.

Here, it is useful for the student to be able to ‘feel’ the changes in the quality of the sound when the singer’s formant is being used as well as hearing the change in quality. It may be that the student feels that the sound is resonating in a different place within the skull, they may feel a vibration at the soft palate or other physical manifestation. This is valuable physical feedback. For those that rely on the ear alone there will be further distortion of sound for, as well as hearing oneself in a different manner (as already explained), the higher overtones in the singer’s formant may make the singer feel as if their sound is too thin or too bright as those higher frequencies will predominate over the other components of the sound.

This is due to the fact that the human ear is designed to hear higher pitches more easily than lower ones. Therefore the higher frequencies will register as bright and loud to the singer.¹⁵ Thus the singer may hear themselves as bright rather than full in sound and attempt to darken the sound to make it appear to have more depth. This can, itself, lead to vocal problems. Singers may depress the tongue root in the attempt to feel that they

¹⁵ The response of the ear to sound is dependent on the frequency of the sound. The human ear has a peak response around 2,500 – 3,000 Hz and has a relatively low response at low frequencies. (www.epd.gov.hk/epd/noise_education/web/ENG_EPD_HTML/m1/intro_5.html accessed 9/11/09)

are producing a warmer, fuller sound: the depressed tongue root pushes down on the hyoid bone and therefore depresses the larynx. Chapman describes it thus:

Singers can also be guilty of this fault, often in an attempt to “lower the larynx” to acquire an operatic sound. This fault is usually reinforced by the changes that occur in the singer’s aural perception of his or her own voice with a tongue depressed sound being “warm and full” to their ears (but dark, woolly, bottled, or muffled to the listeners).’ (Chapman, 2006, 101)

The valuable concept of the awareness of kinaesthetic and proprioceptive feedback is of great value here. The teacher should facilitate a process of awareness in the student that allows them to choose a combination of aural and physical feedback to assist the student to make the correct choice of sounds which will allow the voice to develop.

2. The Concept of the Open Throat

The untrained vocalist quite often exhibits a tight or ‘closed’ throat: close observation of another singer exhibiting such tightness may be essential for students as they learn to manoeuvre the pharynx in order to obtain the ‘open throat’ required by classical singing. Observation, in this instance, may assist them to understand the physical manoeuvre, mostly by observing a singer without it, and noticing the quality of the sound. Vennard points out:

‘...in most animals, and in most untrained singers, phonation is always initiated with a general tightening process and an elevation of the larynx. This is aided slightly by the upward breath pressure in the trachea. But the tone produced is poor. It could be recognised by a stone deaf observer simply by the throat tension which accompanies it.’ (Vennard, 1967, 108)

The trained classical singing voice, however, is characterized by a freedom of sound and an ability to negotiate the same quality of sound throughout the singer’s range. Obviously a ‘tightening process and an elevation of the larynx’ will not assist the classical singer to maintain a free sound due to the fact that the larynx can only elevate to a certain level within the throat, once one approaches that level the constrictor muscles will engage and vocal function will deteriorate. The larynx rises (in general terms) as the pitch rises in untrained singers and its excursion up and down in the throat can be observed during the swallow manoeuvre. If excess pressure is initiated by the singer in order to push through a register break, constriction of the larynx by the extrinsic muscles in the throat such as the pharyngeal constrictors (superior, middle and inferior constrictors) will mean that the efficient function of the vocal folds themselves

is compromised. The sound will become harsh, strained and in some cases may cease all together.

There is a strong held belief by many authors that the larynx must be lowered to obtain a classical sound – that is, the larynx will sit in a lower position than that found when a person is not singing. There are a number of opinions as to how much the larynx might be lowered, whether indeed it needs to be lowered, and whether or not it should then ‘remain’ in the one position. McKinney, for example advocates for a lower larynx position:

‘Most authorities now agree that the best position for the larynx is a comparatively low one, and that the larynx does not need to make any significant excursions up or down once phonation has started.’ (McKinney, 1994, 129)

Other authors suggest that a stabilized but freely moving larynx is necessary for a free sound (e.g. Sell 2005, 122). It is clear to me that, in spite of some discrepancies in the literature, it is counterproductive for the throat to tighten and to elevate the larynx as the singer initiates the sound. Therefore the young singer must learn to adopt a posture in the pharynx that encourages the larynx to sit freely within the neck and that there must be little tension in the constrictor muscles of the neck to avoid tightening.

There are a number of images and concepts that can be used to assist the singer to experience the changes in the vocal tract needed to produce an open throat. Strategies such as initiating a ‘pre-yawn’ state in the throat, asking the student to simulate sniffing a rose or to ‘fill the back of the mouth up with air’ are examples of images that are commonly used. Such images may work with some students, but not all are able to use them successfully to open the throat using these images alone. For such students it is necessary to adopt other strategies.

Some authors and researchers have attempted to find more concrete methods of obtaining an open throat than relying on an image. In her book *Compulsory Figures For Voice*, Jo Estill (1997a) outlines exercises for the retraction of the false vocal folds (also known as *vestibular folds*), the pieces of muscular tissue that sit in a position in the larynx above the true vocal folds and are engaged by exertion and high-level vocal activity. The physical exertions found when singing in an operatic or other highly energetic fashion or when exhibiting emotional extremes are apt to engage the false

vocal folds unless the singer is aware of their action and is able to countermand the body's natural response to engage them at such times. For Estill, retraction of the false folds is similar to the concept of the open throat. She maintains: 'Active Retraction of the False Vocal Folds is obligatory in the voice qualities that tend to trigger constriction: Twang, Opera and Belting.' (Estill, 1997, 36).

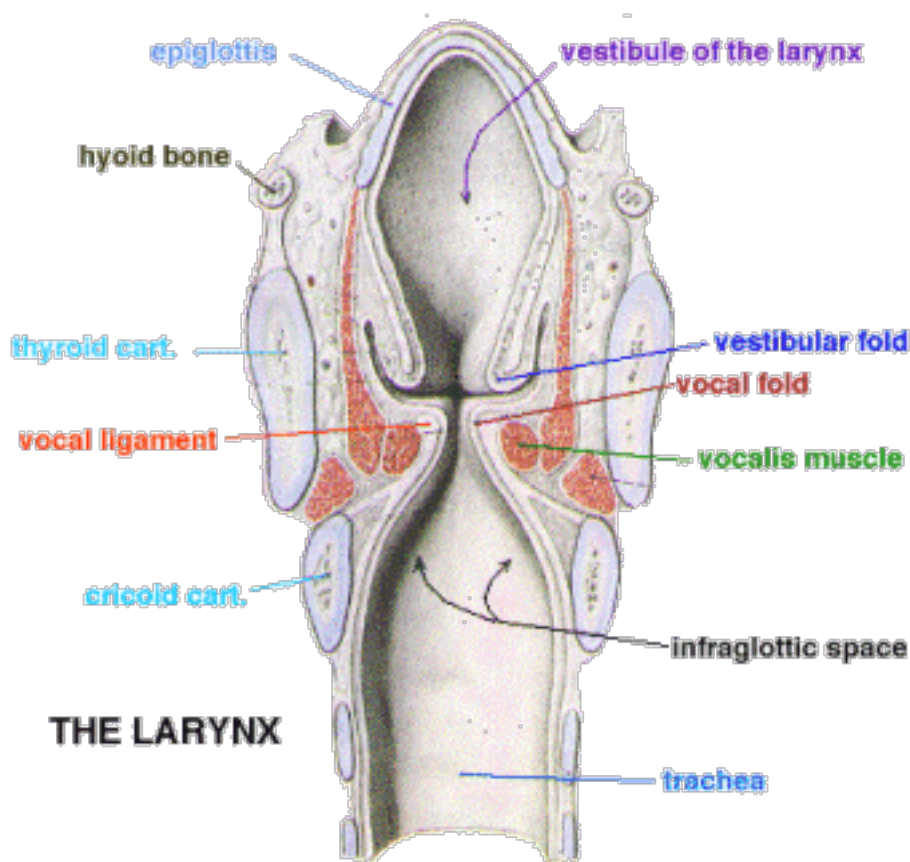


Fig. 3: Diagram of the human larynx showing the false vocal folds (listed here as vestibular folds) that sit above the true vocal folds. (Found at www.edoctoronline.com/medical-atlas.asp?c=4&id=21683 accessed 24/8/2009)

Figure 3 illustrates the placement of the false vocal folds within the larynx. From this diagram one can see the influence that the false vocal folds have on the true vocal folds, being situated directly above them, and how important it is for the student to be able to feel and control the movements of the false folds.

As with many of the muscles that the student needs to understand and control, the false folds are used in many ways in everyday function. They will engage, for example, when there is physical exertion such as lifting; they will adduct and shut off the exhalation of breath in order to increase pressure within the chest and abdominal cavity to allow for greater effort in lifting heavy objects. They are also used each day during defecation and in the swallow manoeuvre and one can experience them when coughing as both the false vocal and true vocal folds provide the closed sensation one experiences before the expelled air bursts through in the cough. When the student is aware of the use of various sets of muscles, they begin to understand the way to work with them effectively for classical singing. This is a level of biofeedback that the student is able to use to gauge the effectiveness of their singing without relying solely on listening.

Exercises for the retraction of the false vocal folds, however, are only one way to implement the shape of the pharynx in the manner required for production of the classical sound. It is important that the student experiment with the concepts and ideas that are given to them by the teacher in order to both experience the different physical sensations that arise when internal postures are changed, and to experience the differences in perception and sound that those postures will bring. Singing in a constricted manner (engaging the false vocal folds and other muscles in the throat) is a major problem for developing singers. The sensation of an open throat may be a new physical concept for a student and the feeling of space in the pharyngeal and oral cavity is new and 'intangible'. Such a posture may also lead to the perception that control of the aspects of vocalization such as accuracy of pitch is lost. The process of apparently 'losing control' right at the time when the student is attempting to gain control is often a difficult psychological hurdle.

Constriction of the vocal tract will mean that range is limited, tone is compromised and phonation is far from free. Unless the breath support is strong enough, the student will also find it impossible to keep the muscles of the throat in the widened position essential for free phonation. It is clear, once again, that a balance of the muscles in the throat and those of expiration is necessary to enable this posture of width and a maintain feeling of 'openness'. These are physical issues that need guidance and practice.

McKinney further observes on this point:

'One of the main causes of bad vocal sounds is tensing the constrictor muscles, it

hardens the resonator walls, reduces needed space, and tends to create tension in the primary vibrator – the vocal folds. All of these results are contributory to a tight, hard, pressed sound.’ (McKinney, 1994, 131)

The use of an open throat technique has a number of other effects, perhaps the most beneficial being that the thyroid cartilage of the larynx is now able to tilt forward in the neck. This is extremely useful in assisting the singer to negotiate register changes. If the larynx is unable to tilt, the range of phonation is severely limited.

2.2 The Role Of The Larynx

The larynx must rise and fall to make a range of pitches – the higher the pitch the more it will rise. I have mentioned the case of the untrained singer who will exhibit little control of the position of the larynx and there will come a point at which the larynx is unable to rise further. What usually occurs then is that the larynx will respond to the request for extra effort by shifting the plane of the vocal folds and thus moving into Falsetto Quality. (Estill, 1997a) This is most noticeable in male singers where the sudden shift into falsetto will be registered as a noticeable ‘crack’. By allowing the larynx to sit in a more neutral and stable position to begin with and by encouraging the thyroid cartilage to tilt forward, the upward excursion of the larynx can be checked and the vocal folds thus allowed to phonate more freely. The thyroid tilt is most useful for its ability to enable an easier and more even transition across the upper *passaggio* – the ‘passage’ to the upper voice, often referred to as the head voice. Although there has been mention of the discrepancies in the literature with regard to the position of the larynx for classical singing, there is agreement among many writers about the need for the thyroid cartilage to tilt. It is also important for the thyroid cartilage to tilt in order to achieve higher pitches. Kiesgen observes:

‘The cricothyroid muscles lie between the cricoid cartilage and thyroid cartilage. When the cricothyroid muscles tighten, the thyroid cartilage moves forward and down. The back of the cricoid cartilage also tips down when these muscles are tightened. This action stretches the vocal folds and raises the pitch of the voice. (Kiesgen, 2006, 285-286)

It is clear, therefore, that unless the larynx is allowed to move freely within the throat and tilt as required, higher pitches will become difficult for a singer to achieve.

Whatever, and however, the procedure for the initiation of an open throat is described by various authors, the singer must initiate such a posture in the vocal tract to encourage resonance and to allow the voice to move through the registers with greater ease. With respect to the sensation of this pharyngeal posture, it may differ from student to student, but this is where the teacher's ear is most useful. Once the teacher recognises and articulates that the sound has changed, the student must learn to notice the physical changes and be alert to the sensations that accompany that sound, so that it may be reproduced on a regular basis once the student is away from the studio. It may be necessary to reinforce a practice regime that includes exercises in retraction to ensure that the student is able to reproduce this phenomenon.

Essentially, the manner in which the student achieves an open throat does not matter, as long as the desired result is obtained and rehearsed so that the open throat posture becomes the default position for the singer whilst singing. As mentioned in the previous chapter, it is useful to encourage the student to *speak* with the same open throat posture, as it means that the vocal mechanism will be utilized in the same way when the student is not singing (i.e. the majority of the time that the voice is used). Sell observes:

‘Ideally, the spoken voice should match the singing voice. Work on the spoken voice is neglected in many singing studios, with the result that many singers have speaking voices that are misused and often sound like a completely different person.’ (Sell, 2005, 132)

3. Breath Management

There can be no doubt that a classical voice requires a supporting breath to allow for vocal power and freedom. In this case, it is the muscles of the abdomen that are utilized to provide the singer with a strong and consistent airflow. The muscles the singer uses are the internal and external intercostal muscles (used in expanding and contracting the rib cage), the internal and external obliques, the transverse abdominus and the rectus abdominus. As noted when discussing the role of the tongue, pharynx and oral cavity, coordination of the abdominal muscles for singing is a sophisticated process that requires clear description on the part of the teacher and clarity of practice from the student. It is not only the coordination of the muscles of expiration that need attention; it is also both the manner in which the student manages the breath as it enters the body and the manner in which the sound is generated at the larynx.

Many writers on singing technique have spoken of the need for a simultaneous onset: the free flow of voice and breath that occurs in a simultaneous manner. Simultaneous onset is also the usual form of onset in speech. While it is important for a student to understand the physiological nature of what is happening when phonating, it is equally - and perhaps much more - important for them to be able to recognise the physical action and feeling that occurs when different forms of phonation are taking place.

It is useful, therefore, for the student to realize that there are three types of vocal onset: aspirant (breathy), simultaneous and glottal. Chapman describes the three varying types as follows:

‘If the airflow occurs before the glottis is closed, a breathy onset (sounding like an /h/) will occur. If the closure is complete before the airflow commences, a glottal attack (sounding like a small click) will result as the air forces the vocal folds apart.

Coordinated action of muscle and breath leads to a simultaneous onset which is efficient and usually the most appropriate for classical singing.’ (Chapman, 2006, 60)

The ‘efficiency’ that Chapman advocates is similarly explained by Sundberg as ‘flow phonation’ when he refers to the state of the vocals folds as they react to an optimal level of sub-glottic pressure. Too much pressure and too high adductive force at the larynx and pressed phonation occurs, too little and the folds fail to adduct properly resulting in breathy phonation (Sundberg, 1987, 80).

The coordination required for classical singing is not only to maintain a simultaneous onset¹⁶ with good closure (adduction) of the vocal folds but also to increase the level of breath support and provide a subsequent increase in the compressed character of the breath. Another way to express this is to say that the sub-glottic pressure (i.e. the pressure from the lungs) is increased for singing. Singing uses a more concentrated form of breath; in essence the air is ‘compressed’ by the action of the belly wall (abdominal muscles) providing a more concentrated and faster airflow than in speech. This technique can be activated in a number of ways, with projected speech being one. By encouraging the student to speak well, with full tone and projection, the teacher can encourage a simultaneous onset. By using speech, which, in the majority of cases,

¹⁶ Sometimes called balanced onset.

presents with a simultaneous onset, it can act as an initiator of the full closure of the vocal folds to allow for a simultaneous onset in the singing voice.

In tidal breathing (the type of breathing we experience when 'at rest') the 'quantity of air contained in the lungs is determined by the lung volume. In this case, the air pressure in the lungs is almost the same as in the air outside' (Sundberg, 1987, 26). Singing, however, requires a change in the sub-glottic pressure that is occasioned by a contraction of the abdominal muscles and the diaphragm. The diaphragm flattens from its relaxed shape (similar to an upside-down bowl) to decrease the sub-glottic pressure and allow air into the lungs. In order to restore the diaphragm to the previous relaxed shape and expel the air, the muscles of the abdominal wall are activated, increasing the sub-glottic pressure and releasing air from the lungs (Sundberg, 1987, 31).

With respect to air pressure changes and breathing, the downward contraction of the diaphragm and the subsequent stretching of the tissue of the lungs creates an imbalance of air pressure – the pressure inside the lungs is less than the outside atmospheric pressure causing air to flow into the lungs to even up the pressure. The pressure inside the lungs then builds to a point where it is greater than that of the outside pressure causing the opposite to happen; breath flows out. Singers require a stronger breath flow than that found in tidal breathing. They need to strongly activate the muscles of expiration thereby compressing the air in the lungs, producing a stronger sub-glottic pressure, to create an air pressure greater than that outside the lungs causing the air to flow out in a vibrant and steady stream. (Sundberg, 1987) This is the desired type of airflow in classical singing: a strong and consistent stream. Students must learn to control that stream by learning to control the muscles of expiration. Sundberg has this to say about lung volume and air use, illustrating that singers will use the lungs to the best advantage and to promote breath flow:

'The lungs contain a certain amount of air when they have been maximally filled; this amount of air is called the *total lung volume*. In an adult man it amounts to something in the neighbourhood of 7 litres. After a maximum exhalation, a small amount of air will always remain, this is called the *residual volume*. In an adult male this volume is about 2 litres. The difference between the total lung volume and the residual volume corresponds to the amount of air we can use for breathing and phonation. It is called the *vital capacity*, approximately 5 litres in an adult male.' (Sundberg, 1987, 32)

And further:

‘Gould (1977) has shown that singers possess a vital capacity about 20% greater than the average for non-singers. This expansion does not take place by an increase of the total lung volume, but rather by a reduction of residual volume. Thus, voice training seems to have the effect, among others, of teaching one to take advantage of a greater portion of one’s total lung volume. It seems that one simply learns how to squeeze one’s lungs more efficiently.’ (Sundberg, 1987, 35)

In projected speech (i.e. speaking to be heard over a distance or noise interference) or singing, the abdominal muscles – together with the intercostal muscles which control the movements of the ribs – are engaged more strongly, further raising the sub-glottic pressure. There is often some confusion in developing singers about the role of the diaphragm and many are sure that they need to sing ‘from the diaphragm’. It is indeed the diaphragm that contracts to allow air to enter the lungs, but it is the muscles of expiration (abdominal, intercostal etc) that the singer uses to provide the necessary sub-glottic pressure. As such the abdominal muscles are situated below the diaphragm and separate from it. Karen Sell is quick to mention: “Phonation, for singing, at least, is **expiratory**, and the diaphragm is an **inspiratory** muscle.’ (Vennard cited in Sell, 2005, 113) (Letters in bold are the author’s).

In classical vocal production it is the higher sub-glottic pressure that facilitates the generation of the classical sound. It assists with the tonal quality of the voice and, of course, the carrying power.

The other major factor in achieving an effective breath management method is to ensure that the in-coming breath also has a place in the student’s understanding and thinking. Allied to the concept of opening the throat, the in-breath must neither instigate tension in the throat nor must it engender tension in the abdomen to allow for a rapid expansion of the rib cage and descent of the diaphragm in order for breath to flow into the lungs as efficiently as possible. There are many different forms of breath management (as outlined by Miller in his 1997 book *National Schools of Singing: English, French, German and Italian Techniques of Singing Revisited*), however all systems advocate that the in-breath be ‘relaxing’ and as free of tension as possible. Indeed, as muscles are only able to relax or contract, and if the muscles of the abdomen are to be engaged (contracted) for the supportive expiration cycle of the breath, then it is necessary to have

a degree of relaxation on the inspiratory phase of the breath to allow for the contraction of the muscles that will follow.

There are a number of techniques available to the teacher to assist the student to physically feel the difference between a tension-inducing breath and one that allows for muscle relaxation. Methods such as the *Accent Method* (as outlined in Chapman, 2006) may be utilized to assist in educating the student and increasing their awareness of the effort that is involved in the expiration cycle and the lack of effort necessary to achieve a relaxing inspiration.

The involvement of Speech Quality to initiate the three major areas of classical singing technique illustrates the approach termed ‘the use of speech mode’ in this thesis. When implemented as a consistent approach in vocal training it enables the teacher to depart from a number of traditional methods of classical vocal production such as an approach based solely on imagery. It allows the student to become aware of positive methods of phonation, in addition allowing them to begin to build a coherent framework from which to understand and manipulate their instrument. Such an understanding should lead to a speedier implementation of classical vocal technique adapted to today’s learning environments where efficient results are seen as important and where reduced contact time is a factor in tertiary vocal education.

CHAPTER 4

Speech Quality (Mode): definition and evaluation of its role in teaching female tertiary voice students.

As outlined earlier in Chapter 3, for the purposes of this thesis, the definition of ‘speech mode’ is based on that given by Estill (1997). It is restated as follows:

‘Normal Speech quality (Modal Speech) is that quality heard in everyday educated society, the kind we expect to hear from TV commentators.

1. Physiology

The vocal tract is in a neutral position and as relaxed as possible. The larynx is doing the “work”. The percept of effort is at the larynx.

2. Acoustics

In the comparison of the spectrum for the vowel /a/, there is a negative slope in the amplitude of the upper partials, i.e. the amplitude decreases as frequency increases.

3. Perception

The sound in the lower range has a certain presence. You can hear it with no difficulty, normally.

4. Risks

Because the vocal folds (intrinsic muscles) are doing most of the work without support from the extrinsic muscles, there is an element of risk in this mode, especially when it is pushed to higher levels of sound intensity.

5. Limitations

The tone is not aesthetically pleasing in the upper range without a change in Recipe (options) as you proceed higher.

The best part of the range – it works best in the lower part of the range.

6. Singing Value

Because there is more acoustic energy in the lower range, and because with lower frequencies, there are more partials in the upper spectrum, the quality has the highest intelligibility, normally. It “speaks” well in the speaking range.

It can be an exciting component in the classic Opera quality.

It is most effective for Recitatives, Pop Music, Folk Songs, Patter Songs.’
(Estill, 1997b, 11)

By definition speech mode may thus be considered the usual register for the spoken voice. McKinney ventures a step further and suggests: ‘The modal voice is the normal register for speaking and singing.’ (McKinney, 1994, 96) In this statement, McKinney

is using the alternate nomenclature for speech mode, i.e. 'modal voice'. Authors such as Sundberg, Titze and Vennard also use the term 'modal voice'. McKinney further observes: 'The modal voice has a broad harmonic spectrum, rich in overtones, because of the rolling motion of the chords'. (*Ibid*, 97) It is the presence of overtones in the voice that will give each voice its individual timbre, and, importantly, the 'rolling motion of the chords' will mean that the vocal folds (chords) are adducted (come together) as the student begins to speak or sing. It is vital that the folds adduct when the singer is phonating, otherwise the usual result is a vocal quality in which many of the overtones are absent. Estill calls this latter sound quality *falsetto quality*.

Defining Falsetto Quality

The definition of this quality given by Estill is as follows:

1. 'Physiology

Falsetto requires a total relaxed vocal tract. The vocal folds have been found, not only to be thin, but stiff. The folds in Falsetto have been observed to be higher posteriorly, probably due to the arytenoids being pulled back, raising the vocal process and lifting the plane higher in the back.

There is normally more air passing across the folds, although this can be reduced to some extent. There seems to be no effort other than that needed to exhale the tone.

2. Perception

Falsetto is flute like in quality.

Falsetto normally has no vibrato.

3. Acoustics

Very few higher formants above the first. Sometimes some noise in the upper partials due to breathiness.

4. Risks

Because of the greater airflow across tense folds, there is risk of the folds drying out with extended use of Falsetto Quality or with higher amplitudes.

5. Limitations

Falsetto is generally a soft quality and not suitable for loud speaking or singing.

It lacks emotional intensity.

It "likes" the top part of the range and becomes softer, the lower the pitch.

Trying to make lower pitches louder results in a crack to another quality, often to another pitch.

6. Value in Singing

It is often used for singing high pitches softly.

Interpretively, this quality is associated with innocence or ghostly voices.’ (Estill, 1997a, 17-18)

Although one may hold reservations about all the aspects of this definition of Falsetto Quality - especially with regard to the stated lack of vibrato in this quality - the fundamentals of this account are clearly expressed: the folds in this quality are held in an alternate posture, that the tone lacks formants in the higher frequency area, is flute-like in sound and presents as breathy in quality. These features are the hallmarks of Falsetto Quality. The breathiness of this quality is especially prevalent amongst young female singers. It is this phenomenon, and the frequency with which it is presented in the studio, that has led to me develop the pedagogical use of Speech Mode as a means of counteracting the use of Falsetto Quality as a habitual form of vocal production in the maturing voice.

Further observations on falsetto quality have been made in the pedagogical literature:

‘The absence of the ‘ring’ in falsetto is due to the fact that there is less muscular resistance in the larynx and most of the breath pressure goes into the fundamental, leaving not enough energy to sound upper partials. This is another way of saying that falsetto is comparatively breathy and “hooty”.’ (Vennard, 1967, 89)

‘The characteristic sound of falsetto is inherently breathy and flute-like, with few overtones present.’ (McKinney, 1994, 99)

McKinney’s statements appear to agree with the research of Estill when he states:

‘The essential difference between modal and falsetto registers lies in the amount and type of vocal cord involvement: in falsetto, only the ligamentous edges of the folds enter into vibration- the main body of each fold is more or less relaxed; in modal voice, the wavelike motion involves the whole vocal cord, with the glottis opening at the bottom first and then at the top.’ (McKinney, 1994, 100)

These observations further suggest that Falsetto Quality is not considered a desirable component of a mature classical sound. Certainly it may be possible to use it for effect from time to time, but it is clear that this quality should not play a part in a finished classical vocal sound.

A strong consideration for the voice teacher with regard to Falsetto Quality is the fact that the vocal folds are not adducted (drawn together) along the edge of the inside length of the fold, but rather are held in a position where the folds are open and touch only at each end. This position means that the ‘rolling motion’ described by McKinney – a simplified description of the mucosal wave that generates the initial vocal sound – cannot occur if the folds do not adduct. Therefore the singer whose technique is based on Falsetto Quality cannot hope to attain a sound that is rich in overtones. Miller (1997) includes a diagram of the position of the vocal folds in a number of different states showing their position during inspiration, exhalation, whisper, spoken phonation and falsetto. This diagram is reproduced below as Figure 4. Estill has already noted that the breathy tone of Falsetto is caused by air passing through the folds at a greater rate than in other vocal modes. Miller’s diagram shows why. The larynx functions as a valve, allowing air in and out of the lungs. If the vocal folds, which are part of the control of the passage of air, are held open in the falsetto position then the air is allowed to freely pass through with reduced resistance – creating a breathy sound. Thus the breathy quality combined with the lack of a full mucosal wave will mean that the quality of the sound that is produced will tend to be weaker and will not supply the range of overtones that gives a voice its richness and vitality.

Therefore, there is a strong correlation between falsetto quality and a breathy sound quality – most often initiated by an aspirated onset. It is the aspirated onset that has proven to be a constant issue in my experience of teaching undergraduate singers at the University of Newcastle. Of the three forms of vocal onset (described earlier in this Chapter) it is noted that aspirated and glottal onset are undesirable for classical quality.

There are a number of reasons why students in late adolescence may use an aspirated quality. It may be that that quality has been encouraged, the student has achieved a certain level of success with that quality and may be unwilling to give it up, or that the breathiness was initially the result of a mutational chink in the glottis, often found in the immature female and not corrected at the time of the student commencing tertiary vocal training.

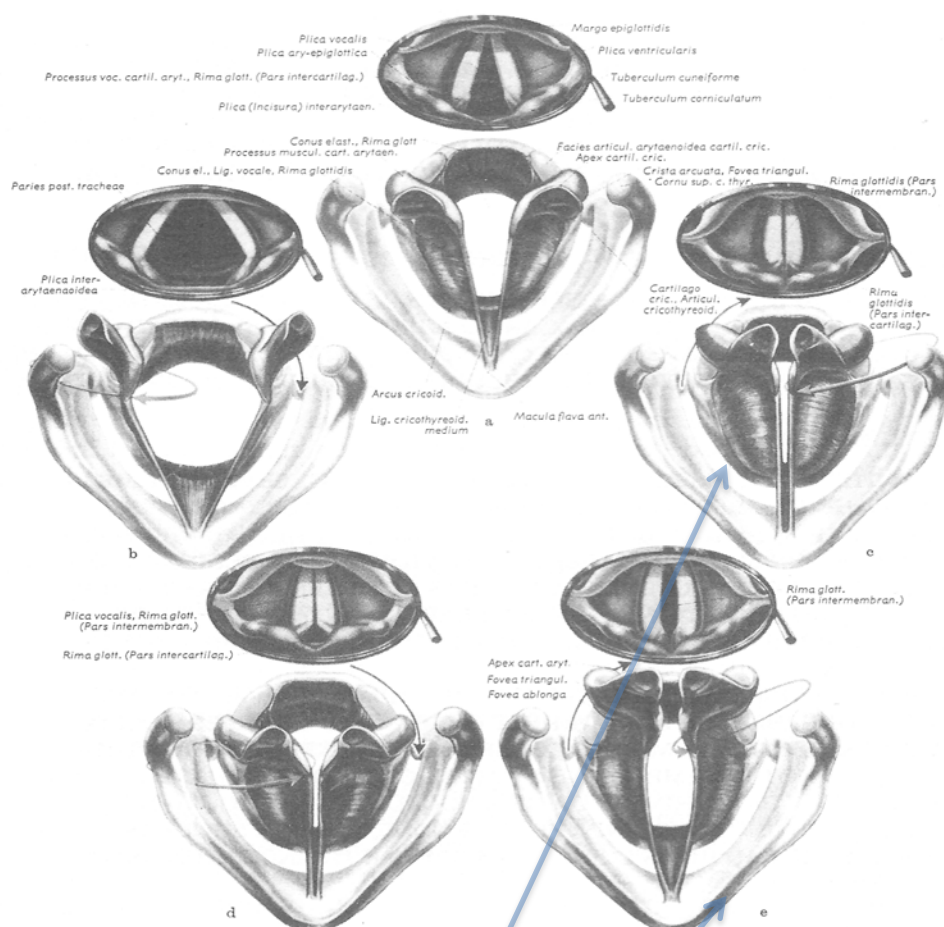


Figure 1.1. The vocal folds viewed by the laryngeal mirror, with a schematic design beneath, in (a) quiet breathing, (b) deep inhalation, (c) normal phonation, (d) one form of whispering, and (e) falsetto. (From Eduard Pernkopf, *Atlas der topographischen und angewandten Anatomie des Menschen*, ed. by Helmut Ferner, Vol. 1, 1963. Munich: Urban & Schwarzenberg. By permission.)

Fig. 4: Reproduced from *The Structure of Singing* (Miller, 1996 p.6). Showing the various postures of the vocal folds. Note especially diagrams c and e which show full adduction in normal phonation and the open posture of falsetto.

Some observations quoted below on the mutational chink by voice researchers show how commonly this phenomenon has been observed.

‘The young singer, who sings largely falsetto and who has a mutational chink, has it because the laterals are holding the vocal processes together, but the interarytenoids are not holding the rest of the arytenoids together.....Such a voice sounds clear but weak, because compression waves instead of passing out of the mouth are simply sucked through the chink by the rarefaction below.’ (Vennard, 1967, 68)

‘Female voices have a longer open phase and a posterior opening, creating aspiration noise in the region of the third format, which is perceived as a breathier quality than that of male voices (Mendoza, Valencia, Muñoz, & Trujillo, 1996).’ (Cited in Callaghan, 2000, 19)

‘Many young girls have breathy sound, which can sometimes be corrected by concentrated work on onset and release. Others have a breathy sound because of a posterior glottal chink, which does not always close, even with good technique, and may still be present in maturity.’ (Sell, 2005, 100)

These physical issues can make it a considerable challenge for the singing teacher to initiate a process of facilitating the change in the student’s sound. In most female students the mutational chink in the vocal folds is corrected by age, training or the natural physical development of the larynx, but if a student has been singing for a number of years - and has received attention and praise for that singing - an aspirated sound can become physically and mentally a very strong part of their self-image. When a teacher encourages a student to produce an alternative type of sound, therefore, it may be perceived as a demand for the student to change him or herself. There can be a great deal of resistance to change by the student who has experienced a level of success with any form of production. It is clear, then, that the reason for requiring a student to change a habitual pattern must be explained in terms of desirable vocal function and reinforced with analysis of the auditory and kinaesthetic feedback that may be perceived when initiating a new style of production.

Sell comments on a further ramification of this phenomenon when she states:

‘Further, from the psychological point of view, since the voice is expressive of the personality, criticism of the voice can be perceived as criticism of the person.’ (Sell, 2005, 5)

This observation suggests that a teacher should be aware of the negative effect that criticism of her vocal quality might have on a student. Sell further expounds on this point:

‘Singers are sometimes reluctant to make fundamental changes in tonal concepts. The quality of sound that the student is making may have become part of their personality. A critical evaluation of that sound may be felt as an intrusion into personal privacy, the more so if singers have been acclaimed for their singing. There may be fear of losing that prestige.’ (Sell, 2005, 103)

With respect to the young female singer there may be the additional challenge that production of Falsetto Quality may be closely aligned with their psychology. A young woman who is attempting to make a ‘feminine’ sound – that is, to their ears, one which is gentle, pretty and sweet - may experience difficulties in producing a sound that, to them, has none of those attributes. It is quite possible that they can interpret the use of full voice as being ‘strident’ and ‘shrill’. It may prove difficult to negotiate an attitude of non-compliance with the teacher’s requests to change the sound to the acceptable vocal quality required for the maturation process of the voice.

From the student’s perspective, however, falsetto quality is often a more accessible form of voice production in the early stages of development; it can make for an apparent ease of access to the upper voice in young female singers. For the voice to develop, however, access to ‘full voice’¹⁷ (that is, not falsetto quality) is necessary.

The student’s perception, or absence of perception of Falsetto Quality, is an additional factor, as McKinney suggests:

‘One of the problems of correcting a breathy sound is that the student is often unaware of it. It is so much a part of his natural sound that he does not hear it as breath.’ (McKinney, 1994, 85)

This presents a further challenge for the teacher.

Given the difficulties of making the transition from Falsetto Quality to a full sound, it is relevant to clarify that there are a number of negative aspects to the use of Falsetto Quality. These include:

- Difficulty in the maintenance of tuning and the ability to correct the pitch if it is noted as being out of tune.
- Difficulties in moving through the upper *passaggio* point (around F – F#5 for soprano voices and slightly lower for mezzo and contralto voices)
- Perhaps most especially, there is an inefficient use of breath and an uneven quality in tone in the voice, especially when negotiating the *passaggi*.

¹⁷ Where the voice is produced with adducted vocal folds and requisite support from the body.

The sole use of Falsetto Quality can also compromise stamina. As the air tends to pass quickly over the poorly adducted vocal folds it can dry the mucosa so that the singer feels uncomfortable, and the inefficient use of breath becomes a drain upon energy. In addition, the singer may experience the effect a lack of involvement of the deep abdominal muscles in the engagement of the sound at the beginning of the breath and in the maintenance of the sound throughout a musical phrase. Indeed some singers may not realize that strong support will engender a muscular response in the abdomen. Some may also show an inability to sustain a musical phrase and run out of breath before the phrase ends. This can be a major problem as it leads to a lack of confidence in the singer: they are simply unsure as to whether they can reach the end of the phrase or not - in other words they are likely to develop distrust of their own abilities.

Some solutions

McKinney presents a simple remedy for this situation: 'The best corrective procedure for a breathy sound is to train the vocal folds to close properly, thereby eliminating or minimizing excess breath.' (McKinney, 1994, 82)

McKinney also notes that the breathy quality is noticed usually more by the listener than by the singer (1994, 85). The singer, however, will notice that there may be difficulty in reaching the ends of musical phrases due to the lack of breath. Note that there is a difference here between lack of *breath* (due to the fact that the 'valve' (the vocal folds) is being held in a position where air is allowed to blow out as the closed phase of the vocal folds are compromised) and lack of *breath management*, i.e. the lack of adequate abdominal support.

The sound produced the singer whose technique is based on Falsetto Quality will have a diluted quality due to the excess air use, but paradoxically she may find this 'comfortable'. This paradox indicates that voice students can interpret the sensation as if they are (both) 'using the breath' and at the same time - due to the change in the partials that arises from the lack of the higher peaks of energy in the sound - can interpret the sound as being 'nice' (or inoffensive), and having an acceptable quality to their ears. The resulting sound may not, however, be acceptable to the teacher or listener. It is part of the problem of the singer hearing her own sound differently to the listener. The

challenge of adjusting one's perception of sound, due to the inaccurate nature of our perception of our own sound, will be discussed later in this thesis.

The change in the vocal fold plane, as well as an aspirated onset and resultant badly controlled airflow, means that there is often considerable difficulty in maintaining tuning as the singer moves up in the register. Although the singer's ear may be suggesting that the pitch is correct, the general perception to the listener is that the tuning is not settled, often being sharp. This seems to be due to the change in the function of the vocal mechanism at the point of the upper *passaggio* (for a soprano, it is in the region of F – F#5 as noted by Miller, 1996, 134). I also suspect, although have not found corroborative evidence in the literature to date, that there is an extra effort on the part of most singers with an aspirated sound to negotiate the *passaggio* area of the voice by further blowing breath. This also serves to change the singer's perception of her tuning.

Tuning problems may be most noticeable at the register boundaries in the voice: in order for the singer to be physically able to negotiate the register change that will occur at the upper *passaggio* point, Falsetto Quality may allow an easier transition than the use of modal voice, but there can be a noticeable change in the perception of the vocal quality from the listener's perspective. For many young female singers who then attempt to bring the falsetto quality down into the middle voice, there will be a noticeable 'hole' in the sound quality as the voice proceeds to move around the area where Speech Mode tapers off (around C5) - which Miller calls the end of the 'lower middle voice' (1996, 134). Many young women's voices will resonate strongly in the chest register, that is, below E4, but will characteristically slip into falsetto when moving above that pitch range. This may also be a result of a thyroid cartilage which is not allowed to tilt forward, restricting the ability of the vocal folds to stretch and adapt to the requirements of the pitch that is to be sung.

As previously mentioned, the mucosal wave initiated by the vocal folds is where the production of the basic sound takes place. The folds come together in a rolling motion from low in the folds with the closure rolling upward toward the upper part of the vocal folds. Researchers such as Vennard (1967, 39) and Sundberg (1987, 12) believe that the

‘Bernoulli effect’¹⁸ is the reason for the action of the vocal folds, however discussion of this phenomenon is outside the scope of this thesis. The voice source is therefore the sound generated by the disruption of the airstream from the lungs by the vibrating vocal folds. (Sundberg, 1987) When the voice is louder, the vocal fold mass is thicker and so the closed phase of the vibrations is slightly longer, therefore the comparatively stronger ‘explosion’ of air that is released when the folds are open ensures that the sound is louder. These phenomena are not present in Falsetto Quality due to the different nature of the presentation of the vocal folds and the incomplete mucosal wave that is generated – as noted earlier.

One of the challenges for the developing singer is that Falsetto Quality will generally not need deep abdominal support. This can make the adoption of a breath management system difficult and, furthermore, may have the effect that the student is unaware of the use of the abdominal muscles. The teacher, however, will be encouraging the use of the abdominal muscles. The student may often feel uncomfortable and confused, especially when the sound they are hearing from inside lies outside the experience to which they are accustomed, and the sensations in the body are unfamiliar.

Counteracting the Influence of Falsetto Quality

One of the most comprehensive ways to assist the student to acquire a full voiced tone using adducted folds and accompanying support is to use primal sounds. This idea has been developed by a number of authors including Gardiner (1952), Brown (1996) and Chapman (2006). Primal sounds are those that are produced as an emotional and reflexive response, and thus do not need to be taught. They include laughter, crying/sobbing, groaning and the ‘Mmm’ sound. When primal sounds are coupled with the ‘Ah-ha’ reflex (a light ‘spring’ of the ribs on inhalation and an engagement of the abdominal muscles on exhalation as found when uttering ‘Ah- ha’) it assists the singer to find a viable method of initiating the use of the rib cage, the intercostal and abdominal muscles, whilst also engaging the voice (Chapman, 2006, 19-20).

¹⁸ This effect is the drawing together of (in this case) the vocal folds by the passage of air through them. There is a consequent move apart which creates the mucosal wave found in the vocal folds.

The positive outcome of using primal sounds is that the student will feel the changes in the vocal apparatus as various sounds are tried. The postures that the body adopts for primal sounds can be beneficial for the classical singer and can be initiated without singing. Laughing, for example, will promote a wider neck – especially at the base of the neck, an area of the vocal apparatus that most students will be unaware and which needs to be widened during singing to assist with false vocal fold retraction or open throat. Sobbing will enable the student feel a difference in the width of the pharynx and a lowering of the larynx. Indeed, Estill recommends the use of many of these primal reactions to initiate free sound as found throughout her *Compulsory Figures for Voice* (1997a).

The movement of the larynx, both with regard to the up and down movement and the tilt of the thyroid cartilage, is an unfamiliar experience for many voice students. The use of the closed mouth hum, as experienced when singing on the letter /m/, or the open mouthed hum, produced with a nasalised /n/, is extremely beneficial as both of these consonants can only be produced with full adduction of the vocal folds, with the larynx in a neutral position (desirable for the young singer to experience) and can only be sustained with the use of the deep abdominal muscles. These are all characteristics that, once implemented, will advance the technical progress of the student of classical singing technique.

Once the student has mastered the ability to distinguish Falsetto Quality from a fully adducted sound then it is possible to use Speech Mode to further develop the three major areas of technique that have been identified in this thesis. The following chapter will discuss the application of Speech Mode to these technical areas in detail.

CHAPTER 5

The Application of Speech Quality to Technical Aspects of the Developing Voice

How is it possible to use speech or modal voice to effectively initiate the three major areas of vocal technique already discussed in Chapter 3? Why indeed would speech be a useful tool in assisting a student to find the core of their vocal sound and to develop the individual timbre of the voice? Are there also limitations to its use? The following discussion deals with the three technical areas of resonance, open throat and breath management, and the ways in which speech mode may assist to bring about appropriate function in the developing singer.

Defining and Developing Resonance

In order to initiate the process of obtaining the necessary resonance for singing, the student must be aware of the component parts of the vocal apparatus. In addition to the knowledge of the vocal anatomy and its function, the use of clearly articulated speech can be equally used to assist the singer to find a wide range of resonances in the voice and to intensify those that are beneficial for classical singing. McKinney states that ‘resonation is the process by which the basic product of phonation is enhanced in timbre and/or intention by the air-filled cavities through which it passes’. (McKinney, 1994, 125)

The reasons why resonance is a basic condition for the classical singing voice have been outlined in Chapter 3, as well as the value of basing the process on enhancing resonance using the Italian vowels. The use of spoken word in the voice lesson, however, is useful in itself as the process of speech must begin with a mucosal wave at the vocal folds. We have already seen that a well-initiated mucosal wave will encourage the production of a wide range of overtones. Therefore, in order to produce those overtones the folds must first adduct and then function optimally to produce the ‘rolling motion’ of the mucosal wave noted by many authors. (See above, p 75)

In general it may be said that changing the pitch of the spoken or sung sound will depend on the plasticity of the vocal folds – their ability to change in thickness and in length. For lower pitches the vocal mass will be thick and the folds short in length, while thinner, longer folds are found in higher pitches (Sundberg 1987, 51). Speech

usually manifests itself in the lower pitch area of the voice, and one can assume that the folds will be thick in mass and short in length during speech. These are ideal conditions for the adduction of the folds and the production of the mucosal wave. Following McKinney's advice that the best way to solve the problem of breathiness is to train the singer to close the folds (1994, 82), it would seem that working with speech mode during a lesson would seem to be an ideal way to initiate such closure.

A further use of speech in the singing lesson is to initiate a simultaneous vocal onset (see above p 70). The majority of people do not speak in a breathy manner, and therefore speech may be useful in obtaining a simultaneous onset, the coordinated response of breath and voice together. A simultaneous onset has further ramifications for both breath management and the open throat as will be explained later in this chapter.

There has also been discussion in Chapter 3 of the need for a cleanly articulated sound with an awareness of tongue position in order to produce a good quality vowel and to further enhance the quality of the vowel the singer is producing. Articulation exercises have been used for generations to assist fledgling singers to understand the nature of their and effective use of their instrument. Furthermore Callaghan states:

Alone, among musicians, singers have the joy- and the difficulty- of dealing with words as well as music. Introducing language into the music raises issues related to meaning, phrasing, style, memory, and the need to know several languages. Even more basic, however, is the fact that articulation of words affects the whole instrument: breath management, laryngeal function, and resonance." (Callaghan, 2000, 18)

It would be reasonable to assume, therefore, that clear articulated speech should form the basis of vocal studies and thus flow into work on resonance. It is interesting to note that there is much more written about the need for the speaking voice to match the singing voice in quality in contemporary literature than in the writings of previous generations, although Kagen (1950) and Gardiner (1968) have mentioned the importance of speech. Authors such as Callaghan (2000), Sell (2005), Keenze and Bell (2005) all suggest that the spoken voice should be considered as an integral part of the singing voice in vocal training. My own experience as a student did not include any work on the speaking voice, and indeed, my experience with many voice coaches and

teachers over the years has had little to do with the quality of the speaking voice. This is not uncommon as Sell reminds us:

‘Although singers spend a great amount of time and money on their singing voices, very few seriously consider training for their speaking voices.’(Sell, 2005, 131)

At a professional development workshop held in London by the British Voice Association (5/7/09), the Australian singer and Speech Pathologist, Ron Morris, was at pains to suggest that even an opera singer earning their living purely from singing only uses the voice to sing at around 20% of the total time the vocal apparatus is in use; the rest of the time the voice is used it is to speak. Observations such as this surely point to the certainty of including the spoken voice as part of the overall vocal training regimen.

The emphasis of recent vocal pedagogy suggest that Speech Quality may therefore be used to assist in promoting articulation for clarity and quality in the spoken word, and assist to ensure that the vocal folds are adducting properly in order to create the range of partials – and therefore formants- that is required in the classical voice. The use of speech may also assist to avoid the forced manipulation of resonances which, according to Kagen:

...‘is one of the reasons for the extraordinarily inexpressive manner of singing which is so prevalent among students. Singing is then completely divorced from speaking, and the sound of the voice becomes artificial and meaningless.’ (Kagen, 1950, 68)

Examples of exercises to use to promote adduction and to encourage resonance include:

- Counting out aloud
- Speaking on a monotone
- Intoning text on one note comfortably low in the singer’s voice
- Reading text aloud with attention to clarity and diction
- Onset exercises – finding the coordination to ensure that breath and voice occur simultaneously.
- Vowel pronunciation exercises including exploration of tongue settings for various vowels.

There are further more complicated issues to be discussed when considering the phenomenon of resonance. The following material will illustrate the complexity of the issues that confront both the student singer and the teacher alike.

The Location of Resonance

The necessity for the classical singer to produce a vocal sound that uses and emphasises the resonant possibilities of the vocal tract is of fundamental significance. Many young singers will have grown up with popular music as well as listening to a limited range of classical singers. Students may have a range of performers that they enjoy listening to; they may have a particular popular singer as a role model, as well as a classical favourite. It may be that the student consciously, or unconsciously, seeks to imitate a favourite. In doing so, the inexperienced singer may adopt a range of vocal habits that can be counter-productive to an effective classical production style as well as reinforcing a style of singing that may be detrimental to the vocal health of the performer.

In order for a singer to advance in the world of classical singing it is important that a full, rich sound is developed and that the quality of the sound is consistent from the lower part of the voice into the higher registers. Mention has already been made of the use of the singer's formant (around 2800 - 3500 hertz), but as well as producing the higher partials, the voice must be balanced and a range of lower resonances must also be evident. There has been previous discussion of the technique universally recognised to achieve a desired classical resonance, which is to utilize the Italianate vowels (/a/, /e/, /i/, /o/, /u/) (see Chapter 3). When the student is able to produce these correctly, they may be used to create an equally tuned resonance between the vowels and across the range of the voice. That is: the back vowels (/o/ and /u/) are as resonant as the front vowels (/i/ and /e/) and that the middle vowel (/a/) is equally resonant. The goal is that of a balanced sound, no matter which vowel is produced.

A Consideration of the Use of the Word 'Placement'

I referred in an earlier Chapter (2, pp 45 -46) to the illusory nature of idea of 'placing' the voice. Yet the word 'placement' is often used within the singing fraternity - the problem being that the term may be used to indicate a range of sensations that a singer might experience. With regard to learning to produce more resonant vowels there has

been a great deal both said and written about ‘forward’ placement of the voice. This concept can be confusing to the student. The notion of singing ‘into the masque (mask)’ is one that is often encountered amongst singing teachers, and the notion of creating a particular place in the oral cavity where particular sounds will resonate can create problems. Often, it creates either a hyper-nasal sound as the student attempts to project the voice into the front of the face and in doing so opens the velar-laryngeal port (soft palate) in the attempt, or it encourages a ‘white’ sound that is also breathy and lacking in resonance. McKinney cites Vennard on this phenomenon:

‘Vennard refers to “the illusion of placement.” The student feels vibratory sensations at certain places and discovers that when his teacher suggests moving the tone forward or backward, he can feel the sensations move. It is legitimate to call this “voice placement” if you understand that your sound has actually not been put anywhere.’ (McKinney, 1994, 139)

When developing resonance with the younger singer it may be better to leave such considerations of *where* the student may feel the sensations, rather to assist the student to understand *how* to develop their own perception of the resonance as it is experienced and to interpret such perception. This can help to avoid a situation where strict ideas of placement can become detrimental to the student. Callaghan observes:

‘In adhering rigidly to one theory of placement for all voice types, there is also the danger of creating uneven timbre across the range and accentuating register problems, since the success of increasing acoustic output with formant tuning varies with fundamental frequency. Again, the danger is that such an approach may become fixed, and freedom of adjustment in response to aural cues may be diminished.’ (Callaghan, 2000, 23)

My personal response to this has been to create a technique which aims for the student to be able to perceive a sensation of ‘up and back’ and is as follows: A tone is produced on a comfortable pitch to a nasalized /n/ and then the velar-laryngeal port (soft palate) is closed through Estill’s exercise of using a hard /g/ and adding a vowel (Estill, 1995), so ensuring the closure of the soft palate. So the exercise is: /n/- /g/- /a/. This has the effect of producing the tone high at the back of the pharynx and, following the student’s comprehension of the sensation of the nasalized tone in the upper pharyngeal area, those sensations can be registered by the student when the exercise moves to the open vowel. This is an exercise in shifting the focus of resonance and finds wider application than being restricted to voice teaching. It is often used by speech pathologists for remedial work with patients for a variety of phonation problems (Behrman, 2008, 47).

This technique has a number of positive benefits. Firstly, and perhaps most importantly, it gives the student a definite area of localized sensation of resonance (found when using the /n/). The student is asked to identify the resonance by observing the sensations – ‘Where does it appear to resonate/What can I feel when singing this nasalised sound/How does it make my vocal tract feel?’ They are then asked to add the hard /g/ followed by the vowel to close the soft palate and to match the sensations of the resonance of the open vowel in the same place that they had felt the /n/. The exercise also has the effect of lifting the focus of resonance higher than the student may have felt before and gives them a tangible place of reference. In addition, it aids in the closure of the velar-laryngeal port (soft palate), enabling the student to register the closure (by noticing the physical movement of the velar-laryngeal port when moving from the nasalised consonant to the hard /g/), and therefore avoid hyper nasality that an open soft palate would cause. If the student is able to clearly register the position of their soft palate while singing, it increases the level of bio-feedback available to the singer so that he or she does not have to rely on an auditory feedback alone.

Therefore, as well as training the body to be able to control part of the vocal anatomy, the student’s mind is being trained as well. Singing becomes a process of using physical manoeuvres plus a set of clear mental guidelines that the student can use. Other advantages include:

- Breathiness is reduced, mostly due to a more simultaneous onset of breath and voice. The /n/ cannot be produced without the adduction of the vocal folds and engaging the support muscles.
- The back of the tongue is high which helps avoid an over-covered sound and a depressed tongue root that may cause other vocal problems.
- It is the beginning of the awareness of the higher placed vowels demanded by classical singing. The vowel usually has a clearer sound than the student may have experienced. This result usually indicates a greater balance in the production of partials. This may be shown through analysis of the spectrum of the sound produced¹⁹.

¹⁹ There are a number of software packages available to use to produce spectral analysis, many, such as Sony *Sound Forge*, can provide students with an easily accessible method to obtain their own analysis.

The Role of the Well-produced Vowel

It is important to check that the student is able to identify the sensations of producing 'high' vowels. The high positioned vowel will give them a freedom of sound and clarity in the tone that may be new to the student. The higher resonating vowel usually also presents with a more balanced field of partials: both the lower and higher partials are present and in balance. What is this phenomenon and why is it regarded as important? There have been a number of voice researchers including Estill (1996), Miller (1996) and Sundberg (1987) who have sought to identify the presence and necessity of partials in the classical sound. Sundberg's description of partials gives a clear explanation:

'During phonation, the glottal sound generator, that is, the vibrating vocal folds, does not give rise to one single tone. Instead, an entire family or *spectrum* of tones is generated. The lowest tone in a spectrum is called the *fundamental* and the other tones are called *overtones*. The fundamental plus these overtones are called *partials*.' (Sundberg, 1987, 19) [Italics are Sundbergs]

Similarly White explains the phenomenon of fundamentals and partials:

'When one is considering musical instruments, (including the human voice), pure notes, i.e. those consisting of sound of a single pitch, are rarely encountered. Complex notes are produced by such instruments.' (White, 1989, 78) (The underlined text is the work of the author).

And further to the explanation:

'A complex note consists of a number of sounds of different pitches which are called partials. Partials related to the partial having the fundamental frequency by multiples of 1, 2, 3, 4, etc., are called harmonic partials, and others which are not integral multiples, inharmonic partials.' (White, 1989, 78) (The underlined text is the work of the author).

In the classical singing voice it is considered important to have an even spread of partials in the sound that is produced. Miller (1996), for example, speaks of the identifiable quality of the evenly balanced voice. The effect of this is that the timbre of the voice will sound rich, full and even. It may be recalled, from earlier discussion (see Chapter 3, pp 61-62), that the vocal tract will respond to certain peaks in the spectrum of the sound produced by a singer – these are known as 'formants' and are described by White:

'The resonances of the vocal tract enhance certain partials of the sound source, creating formants. These are peaks in the sound spectrum which include one or more harmonic partials. They are independent of the laryngeal tone (Luchsinger & Arnold, 1965, chap. 3), but are related partly to the vowel being sung.' (White, 1989, 85)

The formants have a direct influence on the timbre of the voice, giving its unique sound.

Quoting Sundberg:

‘The timbral properties of a note (regarding both vowel quality and voice color) depend on the frequencies at which there are strong and weak partials. In vowel sound, this depends on the formant frequencies, as we have just seen. This allows us to correctly conclude that *vowel quality and a good deal of voice color are determined by the formant frequencies of the vocal tract*. This is a most important point to remember. ...it is the shape of the vocal tract that determines the frequencies of the formant; therefore, vowel quality and voice color will ultimately depend on the shape of the vocal tract.’ (Sundberg, 1987, 19-20) [Italics are Sundberg’s]

These descriptions convey some of the complex nature of the sound that the human voice produces and reinforces the point that the establishment of resonant vowels is an essential part of the processing of developing the sounds required by classical singing. Achieving a balanced voice depends on the ability of the singer to resonate all of the vowels evenly; therefore time must be spent in alerting the student to the best method with which to form the vowel and the most effective way to allow an even transition from vowel to vowel. After all, singing requires that we recite text, and that text itself will require the singer to negotiate many changes of vocal tract shape in order to produce the words. If the vowels are uneven, that will mean that some words will not carry and the performance will sound uneven. It is during the process of equalizing vowels and developing a unified sound across the vocal range that the phenomenon of vowel modification will be encountered.

Bunch observes, with respect to the phenomenon of vowel modification:

‘Historically, teachers have helped singers to master the transitions by having them darken or “cover” the tone as they move to higher registers or to modify the vowel sound.....These techniques help create more space and a release in the pharynx and allow the larynx to remain low. Practically this means that the larynx is physically posed in a position where it can vibrate optimally.’ (Bunch, 1997, 79)

Gardiner suggests:

‘The vowel is never changed, but in the interests of making beautiful sounds on high notes is modified. The process, which is called covering, is not as drastic as it might appear. It is if the vowel starts to grow narrower from about D at the top of the treble clef in the case of women, and one octave lower in the case of men. The higher the note, the more it narrows into a ribbon of sound until in all intents and purposes it disappears.’ (Gardiner, 1968, 147)

It is clear that some sort of modification is required in order for the singer to produce the same quality of tone throughout the range. This is a hallmark of the accomplished classical singer. Sell sums up this concept:

‘Singers constantly monitor the effect of breath management, vowel modification and all other aspects of technique in order to achieve their most beautiful, efficiently produced sound.’(Sell, 2005, 127)

With respect to the sensations that singers may feel when producing resonant vowels, the teacher must work with the student to find the ‘sweet spot’ where the vowels will resonate evenly. (There will usually be a sensation associated with an optimum vowel resonance – which I have termed the ‘sweet spot’.) As human beings are not all made exactly the same, individual physiological differences will mean that each student may find the sweet spot in a slightly different place. Constructive experimentation by the student with an attentive concentration with the aim of finding the best resonant spot for each vowel, coupled with feedback from both teacher and recording equipment can assist to find the best place for the vowels to resonate evenly. This may involve small movements of the tongue (sometimes only 1mm or so) to shape the best possible sound and is essentially a case of trial and error on the part of the student, of course, with considerable input from the teacher. The use of a small mirror in private practice may assist the student to associate visible position of the tongue with the perception of sensation.

If the student is encouraged to perceive the sensations of the resonating vowel effectively, they will be able to employ kinaesthetic feedback to their performance, rather than relying exclusively on listening. Sell speaks of the concept of integrating differing modes of feedback and observes:

‘The three proprioceptive stratagems, hearing, feeling and seeing the voice are extremely reliable checkpoints, given the parameters of healthy and efficient vocal function based on a systematic technique, and they should be included in all vocal pedagogy.’ (Sell, 2005, 129).

The work of voice and acoustic scientists such as Sundberg (1987), White (1989), Estill (1997), reinforces the point that information from scientific investigation into the production of vocal spectra can benefit the voice teacher and student alike.

Further Discussion of the Use of Italianate Vowels

As the *bel canto* style of singing originated in Italy, it may be assumed that the characteristics of Italian language aided the development of the techniques associated with that style. The Italian vowels resonate high at the back of the pharynx and the back of the tongue is generally higher than in similar vowels in other Romance languages or in English. This phenomenon may explain by the many references to the use of Italianate vowels across the literature. Additionally, Miller's citation of Ladefoged's work (see Figure 1, Chapter 2, p 59) illustrates the energy spectra inherent in the vowels, especially the Italian /i/. The role of the use of such vowels in the production of the 'singer's formant' has already been outlined (see Chapter 2). The lighter nature of the Italianate consonants in comparison with those produced, for example, in English or German, means that one can keep the open feeling in the throat with greater ease in Italian. Most writers referenced in this thesis have devoted chapters to discussing the value of using Italianate vowels. Introducing the Italian language to an English-speaking student, together with the concept of resonant space and high placed vowels, can have a marked effect on their singing.

It may take some time for the English-speaking student to become familiar with the physical sensations associated with the Italian language, and also to become familiar with the type of movement of the jaw that is necessary (and in many cases the comparative lack of movement). The student may find a feeling of freedom that many have not experienced before. By persevering to master the physical aspects of both internal space and loose jaw, however, the benefits will gradually be heard and felt.

Even though it may be that the English-speaking student is challenged by their first excursions into the Italian language, the teacher can assist the student to find the freedom in the jaw in the student's native language as well. There are many simple physical manipulations that the teacher and student can explore to assist them to find the correct sort of usage. Some examples are:

- The mandible (lower jaw bone) is capable of pushing the jaw forward or allowing the jaw to move down and slightly backwards. By placing the fingers on the temporo-mandibular joint near the front of the ears the student is encouraged to explore both movements but to only utilise the 'down and back' movement when singing or speaking.

- Simulating washing the face or stroking the cheeks while singing (suggested in workshops with Jo Estill in 1996) promotes a release of the jaw.
- Chapman suggests that a thumb is placed in the mouth with the thumbnail hooked under the top teeth and the knuckle of the thumb pushed against the chin to encourage the habitual ‘jaw jutter’ to avoid pushing the jaw forward (experienced in her studio).
- Holding the forefinger and thumb across the face transversely under the lower lip can also be beneficial in helping a student feel that the jaw is moving down and back rather than coming forward.

The Acoustic Nature of Vowels Related to the Position of the Tongue

Referring again to the diagram reproduced from Richard Miller’s book *The Structure of Singing* (1996, 54, cited from Peter Ladefoged *Elements of Acoustic Phonetics* (1974) (see Chapter 2, p 59): the diagram shows the position of the tongue for eight vowel sounds in English. I have found this diagram invaluable in helping students understand that the tongue must be flexible to form the various vowels and that most of the work done in producing text is done inside the mouth by the tongue rather than using the outside facial muscles. The fact that we learn to speak by imitation and not through reflective learning means that we are often unaware of the workings of our own speech mechanism.

Often, if a student is asked to repeat a vowel pattern, for example /a/ /e/ /i/ /e/ /a/, there may be considerable confusion about what the tongue is doing, which part is moving most, in what direction the back of the tongue is moving and what the tip is doing. Many students, for example, will say that it is the tip of the tongue that is moving most and are surprised to find it is not.

Placing a finger inside the mouth while speaking the pattern of vowels noted above can quickly show that it is the back of the tongue that is making most of the changes in position. This also helps the student to make the connection with the idea that the tip of the tongue is down behind the front bottom teeth when producing vowel sounds, but at other times, it can be shown to be in considerable motion when articulating consonants. A useful exercise to further acquaint students with the way the tongue works is to get them to say and then sing a phrase in the manner of a ventriloquist (with the lips almost

closed). This encourages an appreciation of the work that the tongue is doing as words are articulated. It also helps the student to understand that the lips, while certainly promoting a clearer articulation, essentially put the finish on the word and are not the instigators of the word. The use of the ‘ventriloquist’ notion is also useful to enable a student to maintain a position of ‘open throat’.

There is another problem here for the student that is a good mimic. In order to produce the sound of their favourite singer (as they comprehend it) the student may in fact make contortions of the vocal anatomy (especially the tongue) which, although it may sound to them as if they are successfully producing the type of noise they want, may in fact be causing tension and inhibiting the natural sound of their voice, especially if they are imitating a recording of live sound and presence. Part of the journey of any young student is to rid himself or herself of any overt imitation of a favoured singer, rather to find and own their own sound.

Refining Resonance – the ‘Singer’s Formant’ and ‘Twang’

As suggested in Chapter 2 above (pp 61-63), the ‘singer’s formant’ is not only well recognised, but it is considered a necessity for today’s classical singer to acquire the skill of producing this phenomenon. It was also mentioned that the concept of the ‘singer’s formant’ may be best left until the student is able to consistently produce good quality Italianate vowels. The ability of a singer to produce the ‘singer’s formant’ is normally the sign of an advanced student. This phenomenon is well documented in the literature. Chapman, for example, observes:

‘Research in the past four decades has been carried out on a phenomenon called “the singer’s formant”, which is a desirable alignment and use of the vocal resonating areas resulting in a “supercharger” effect, a bonus of resonance (which equates to loudness) over and about that which would normally be predicted for a given vowel.’ (Chapman, 2006, 89)

The frequencies produced are in the range of approximately 2800 – 3500 Hz, around the peak response range of the human ear and also, conveniently, in the frequency range where the energy spectrum of the modern orchestra tends to die away (Vennard (1967), Sundberg (1987), Titze (1994)). This is one of the reasons why a singer may be heard above an orchestra in that the frequency of the formant can carry to the listener by virtue of the high range of energy. Additionally, the use of this technique boosts the

decibel level of the sound the singer is able to produce, simply making the output louder (Sundberg 1987).

Often, rather than using the term ‘singer’s formant’, the word ‘twang’ is used instead. This term, employed by Estill and others, can be used to name a technique for introducing the singer’s formant to a student is often used as a descriptor to name the high ‘ring’ found in the sound of a professional singer.

The added advantage for the singer is that there is an increase in the brightness of the sound produced and an increase in the volume produced. The reason for this is the ‘combining’ effect of the formants. Sundberg describes it as ‘a clustering of the third, fourth and fifth formants’. (Sundberg, 1987, 199) He continues:

‘In other words, the frequency separation between these formants is smaller in the sung vowels. As a result, the sound transfer ability of the vocal tract in the frequency range of these formants will increase, and a spectrum envelope peak will arise, other things being equal.’ (Sundberg, 1987, 119)

The singer who adopts the technique of producing ‘twang’ and who learns to incorporate this phenomenon into their production finds that the volume of the voice is increased allowing for an easier sense of production when singing either with a large accompanying group or in a large performance hall. Experience in my own singing and in my studio, although largely anecdotal, indicates that there may be many other benefits of using ‘twang’ and the ‘singer’s formant’. These include an apparent ‘saving’ of breath (i.e. a lungful of air seems to go further) and higher pitches become easier to produce, perhaps because of the forward tilt of the thyroid cartilage that occurs when the formant is produced. This is conjecture on my part, although during the Estill workshops in 1996 I saw many examples of more effective breath usage and singers able to access higher pitches more effectively, a phenomenon that was discussed by the participants.

When speaking about the singer’s formant, Chapman states:

‘This is the “squillo” sought by the Italian school of bel canto that ensure that the singer is audible over the orchestra without damage to the voice.’ (Chapman, 2006, 94-95)

What we now understand is that the singer’s formant acoustically surpasses that of even the highest instrument of the orchestra – the piccolo, whose partials tend to die off

around the 3000 Hz mark (described by many researchers including Vennard, 1967 and Sundberg 1987). This enables the singer using the singer's formant to have a peak of energy that allows the voice to carry above the orchestra. Singers with an operatic production will sound clear and strong, but cannot attempt to 'out-shout' 80 instruments in an orchestra without this quality: it is the use of the singer's formant that assists them to be heard without unnecessary and damaging effort.

Chapman also has this to say:

'Resonance is one of the most important parts of an operatic singer's stock-in-trade because their voices must carry unamplified through a large orchestra and fill a large auditorium. Not only do opera singers need big voices, they also need a vocal technique which will allow the text they are singing to be clearly audible. ... The presence of *squillo* or "twang" in the operatic voice is crucial for vocal efficiency and longevity.' (Chapman, 2006, 89-91)

It is vital for the student to begin to experience the production of well resonating vowels and their associated vibrations otherwise their development as a singer is severely compromised. Being able to recognise the perception of where the vowel *feels* as it is resonating - as opposed to where it might actually be produced - is vitally important. It is recognised that there will be differences in proprioception between people: thus it is essentially with the help of the teacher that the student will begin to understand that such and such a vibration or other feeling will mean that the vowel is resonating and carrying well. It is only by considered experimentation with shaping vowels and positive reinforcement - either by the teacher or away from the studio with the use of recording aids - that the student can develop their technique to position where they can confidently reproduce resonant vowels in a reliable manner²⁰.

In the early stages of resonance training, it is important for the student to recognise the alternate ways of producing each vowel and which, based on hearing and feeling, is more useful and acceptable for classical singing. A vigilant approach too is necessary here, but once the student finds the right sorts of resonances they will quickly become dissatisfied with anything less.

²⁰ The late French ENT surgeon and writer on singing, Dr Alfred Tomatis, discusses the proprioceptive nature of producing resonant vowels in his book *The Ear and Voice* (2005, pp 112-114).

Ramifications for the Student

What the production of ‘twang’ means for a student, as mentioned earlier, is that those higher sounds will predominate in the ear, giving the singer the idea that their sound may be over-strident or thin, especially for a high voice where the fundamental pitch of the note will be high as well. For a student who has concentrated on producing what appears to them to be a very warm and rich tone to their inner ear, or who may have spent a great deal of time in a choir where they have been encouraged to make a sound that does not stand out, the idea of adding an apparently shrill sound to their singing can be extremely confronting.

The physical act of finding the sound that we call ‘twang’ may be difficult for a student as well. The sound is initiated by a number of means – imitating the sound of a taunting child, giving an impression of a witch’s cackle, cockatoo calls or any number of means worked out by the teacher. In order to produce these sounds the student must be willing to attempt them and then to sustain the sound. The reticent student may be unwilling to make such sounds, feeling inhibited and even silly. Once again it is a measure of the trust that exists between student and teacher which will allow the student to find the personal security to appear ‘foolish’ while making a range of sounds which may not initially appear to have a great deal to do with singing.

The student should be encouraged to produce a twanging sound and to adopt this phenomenon as a component of the finished and well-produced classical sound. The fact that it will not be the sound by which they are heard and judged needs to be reinforced by the teacher. The production of twang and the ‘tinny’ edge to the sound that many students perceive when producing twang is another of the bio-feedback phenomena that the student can incorporate into their repertoire.

Despite the benefits of incorporating the ‘twang’ quality into singing there are some negative aspects of producing this phenomenon that need to be kept in mind. It is possible to overproduce and constrict the larynx and pharynx when attempting to make ‘twang’ – this obviously must be avoided. One of the methods of ensuring that the twang is produced safely is to do so with the tongue protruding from the mouth, releasing any possible constriction that the tongue will cause. Once the student can

produce ‘twang’ with the tongue protruded, it can be seen that singing with the tongue alternating in and out can be used to facilitate the acquisition of the quality without constriction. Additionally, the student is shown that the production of twang should not be effortful, and as such highlight that constriction can be avoided. Citing Chapman once again:

‘The presence of *squillo* or “twang” in the operatic voice is crucial for vocal efficiency and longevity. Sometimes singers and teacher misunderstand this desirable constriction at the level of the aryepiglottic sphincter and mistakenly employ the constrictors of the throat instead. This produces a ‘neck-tie’ tenor sound and should be avoided.’ (Chapman, 2006, 91)²¹

One of the benefits of the use of twang that has already been mentioned is that it considerably increases the volume of the voice. This is potentially extremely useful for the singer, especially when performing in a large hall with an orchestra. The negative aspect of a perceived shrillness has already been discussed, but there is a further issue with proprioceptive feedback to be considered. As we increase the preponderance of higher frequencies by initiating the ‘singer’s formant’ and the volume increases, there is a very real phenomenon of perception that the singer must consider. The brain is fitted with its own defence mechanism against loud sounds – especially those emitted by the owner of the voice. Sundberg has the following observation:

‘There is one more reason that a voice sounds different to speakers and listeners. The sound from our voice organs propagates not only in air but also within the tissues of the speaker’s body. The sound level in the vocal tract is extremely high during phonation, no less than 10 times, or 20 dB, higher than the threshold of pain’. (Sundberg, 1987, 158)

The singer produces sound most often at a much louder level than the everyday speaker. This means that the brain will dampen the sound in order to avoid damage to the delicate hearing mechanism and hearing centre in the brain, further occluding the actual sound that the singer is producing. This does not mean that the singer need avoid producing louder sounds, rather they must simply know how to deal with the sensory

²¹ On the subject of twang it is interesting to note here that many teachers and voice scientists maintain that the soprano singer does not use the singer’s formant (2800 Hz) in the same way as the low voiced and male singer does. My belief is that this range of energy is indeed used by the soprano, but in a different manner to other singers. It is generally agreed that as the fundamental of the soprano is so high (due to the range of pitches they would normally sing) the singer’s formant is not necessarily being used; on experience however, by encouraging twang and the ability of the singer to produce the singer’s formant energy range, the soprano voice is improved in sound projection and tone quality.

information that is produced. When the singer is singing loudly, therefore, they must trust the sensations as well as the sound – singing loudly will only skew perception even more.

Optimal Speech Level

McKinney further suggests that singers need to be careful to speak at an optimal speech level. This is the level ‘best suited for resonance with the least physical effort’ (Aronson cited in Shewell 2009, 187). The optimal level is often used by Speech Pathologists to assist those with voice disorders and may be found by placing the hand over the mouth and nose and gently humming through a pitch range from low to high and back. The optimal level will be found where the hum becomes the most resonant (McKinney 1994). What normally transpires, at least in my experience, is that the optimal level is usually a couple of tones higher in pitch than where one normally speaks. (My normal speech pitch for example is around A3, however my optimal pitch is closer to C3.)

The slightly higher pitch of speech may be confronting for some, but the optimal pitch value can be useful in assisting the student to ‘tune’ the vocal tract and may help some begin to establish the sort of resonance discussed earlier in this chapter. Additionally it may awaken in the student a respect for the speaking voice, especially if it is discovered that their habitual speaking pitch is considerably higher or lower than their optimal pitch. The reported experience of many of my students in the studio is that the optimal level changes their perception of the location of sensation of resonance. The recent publication by Speech Pathologist Christina Shewell suggests that ‘if body, breath, channel, phonation and resonance aspects of the voice are all working well, a comfortable natural pitch is likely to be the result’ (Shewell, 2009, 187). Whatever the rationale regarding the speaking voice and its pitch, it is important for the singing teacher to regard the speaking voice with as much respect as the singing voice.

The Open Throat

Vennard states:

‘There is more agreement among teachers of singing upon the fact that the pharynx must be as open and free from constrictive tension as possible than upon any other principle of singing.’ (Vennard, 1967, 92)

Although this statement was made some years ago it remains valid: a throat that is free from the constrictive action of the muscles in the neck is an equally important factor in vocal training today. Today it may be that the voice researcher/pedagogue will express the open throat in a number of differently descriptive terms. I have already mentioned the notion of the ‘retracted false vocal folds’ of Estill (1997a), but other researchers speak of the vertical laryngeal position (the position of the larynx within the pharyngeal cavity) when speaking of the importance of the open throat. Writing in 2001 Iwarsson states:

‘VLP [Vertical laryngeal position] is regarded as relevant to voice function. A high position of the larynx is typically associated with a hyperfunctional voice source. Therefore, a lowering of a habitually elevated larynx is sometimes a specific goal in singing pedagogy as well as clinical voice therapy.’ (Iwarsson, 2001, 386)

Reference has previously been made of the constricted and elevated larynx as evidence of an untrained voice (Vennard, 1967) therefore it must become one of the primary tasks of the voice teacher to look for a way of initiating a lowered or neutral larynx (i.e. one that sits comfortably in the throat in a neither elevated nor lowered position). There are many images and processes that may be used to do this that are found in the literature. A ‘pre-yawn’ setting for the throat or ‘sniffing a rose’ are examples of widely used images, while Estill’s retraction exercises are an example of a process. Such concepts illustrate a range of approaches that have a role in promoting a open throat posture and will vary from student to student.

Speech mode may have a useful role to play in this process as well. Due to the nature of everyday speech where we tend to use a light tone and an unsupported posture, declaimed speech may be very useful in promoting an open throat. By suggesting that the student speak at a lower pitch than their normal speaking voice is it possible to encourage the larynx to sit a little lower than the student’s normal experience. This can have the effect of allowing the muscles around the larynx to release allowing the larynx to move downwards slightly in the throat and to tilt forward; both desirable postures in classical singing. If this is coupled with projected speech – the idea of declaiming text over a distance – it can have the effect on increasing the level of muscular support in the abdomen. This in turn can awaken the singer to the option of using a slightly darker and more resonant sound than they may be used to using.

In order to achieve such resonance, it is necessary for the student to speak with an open throat. Speaking in this manner, without the need to sing, can be an ideal method of introducing a de-constricted, open throat to the student. Through the use of their perceptive abilities, furthermore, the student can then attempt to keep the same feeling of freedom found in speech while singing.

Examples of exercises to promote an open throat.

- A range of de-constriction exercises to allow the student to feel a sense of space and freedom. E.g. ‘pre-yawn’, ‘filling the mouth up with air’, using a ‘sob’ posture for an inspiratory breath etc.
- Speaking at a slightly lower pitch or using ‘optimal pitch’ exercises.
- Using visualization techniques such as ‘coin size’.
- Using the thumb to monitor under the jaw so that the student can experience the relaxation of tension of the jaw and throat when inspiring.
- Other jaw, teeth and throat monitoring exercises. (See Chapter 8)

Being able to establish and maintain the postures required to open the throat means that the student must have control over many variable constituent parts of the vocal apparatus, as well as the muscles in the face and neck and the mandible. Coordination of these in order to work effectively – both as a unit and independently – can take time to implement and maintain.

So much written material is available describing the concept of the ‘open throat’ that it comes as a surprise to report that it remains, in my experience, one of the most problematic considerations for the developing singer. Indeed the idea that one needs to ‘make space’ and maintain that space throughout a singing phrase is often foreign to many students and the instigation of this process can cause as many problems as it rectifies. There is often confusion about making space at the back of the throat and also keeping the base of the neck wide (activating the ‘collar’ muscles), with many working hard to obtain the former, but neglecting the latter. I have already mentioned some images such as ‘sniffing a rose’ that teachers can use with students, and have done for generations. Such images may work with some students, but not all are able to use them successfully to open the throat.

The existence of such divergent ideas for initiating the same response also points to the lack of a set of uniform terms about singing that the singing teacher may use with the student. Descriptive language is only one way to teach a concept, of course, and different students learn in different ways. The teacher needs a repertoire of strategies and techniques for the student, as it is usual for the same concept to be introduced in a number of different ways over a period of time in order to cater for the contrasting and varied learning styles of students. Sometimes a visual image may suffice; at other times it is a direct physical manoeuvre that will awaken the student's awareness to a change in habitual posture or the use of muscles in a different manner.

The other side of the situation is that, no matter how a teacher is able to illustrate a concept or suggest a change in habitual status, if the student is not willing to learn, or is not open to the idea, it simply will not work. In my experience as a student, it was not uncommon, on reflection some years later, to realize that teacher 'X' was talking about a particular concept, but that I had no knowledge of the concept and could not grasp what was being suggested until I had had more experience in which to place the concept. It is important for teachers to recall this experience, and to acknowledge that students may need time and experience as well as varying styles of explanation, to grasp a technique about which the teacher is clear, but with which the student may struggle²².

Once the sensation of open throat is established and becomes habitual, there are a number of beneficial results for the singer. The feeling of extra space inside the mouth and in the throat allows the Italianate vowels to resonate freely (indeed an increase in volume and brightness is often apparent). The larynx is also allowed to sit a little lower in the laryngeal vestibule due to the widening of the pharynx brought about by the use of the open throat technique. All these factors reinforce the point that the neutral or lowered larynx is a staple posture of classical singing.

²² The struggle to supplant a habitual muscular pattern with an alternative may be helped by using a technique such as Feldenkrais where it may be possible to introduce an unfamiliar muscular coordination which may help gain the effect the teacher is aiming for, without relating it directly to singing. E.g. ATM sessions on isolating parts of the rib cage may have an effect on the throat due to the manipulations required to achieve the movement of the rib cage. Feldenkrais' aim of changing habitual patterns by becoming aware of our habitual ones obviously has a range of application to physically based pursuits such as singing.

The Depressed Tongue Root

When working with a developing singer it is important to be aware that the use of a depressed tongue root may develop as a habit and cause difficulties as the student progresses. Some of these potential difficulties are very significant and include inconsistency in maintaining tone, and constriction that can cause technique failure by making production of sound challenging. Some of the symptoms of depressed tongue root include tension under the chin and in the jaw, a fairly rigidly fixed and lowered larynx, and ‘plummy’ vowels. There may also be difficulties with flexibility especially if the melodic line moves quickly from the lower to upper part of the voice. If it is difficult to freely produce sound then there will be associated problems with stamina and extra energy will be needed to make a tone that can lead to further technical failure. Many students will attempt to find that energy by ‘working harder’ and therefore tend toward pressed phonation, and thus constricting the muscles in and around the larynx in order to correct what they are hearing. As explained previously, this is usually counterproductive and it is important to have an alternate concrete and identifiable strategy that the student can implement in place of over-production.

There are a number of reasons why students will adopt a depressed tongue root posture. They are outlined in the following description from Chapman:

‘The tongue can have a direct effect on the position of the hyoid bone and, hence the larynx. In particular, the tongue can act as a false depressor of the larynx causing the hyoid bone and tongue root to be depressed down on top of the larynx. This tends to give a dark, woolly sound that is not flexible as laryngeal efficiency and resonance are hampered. This dark, bottled sound is often heard in the speech of the deaf where the deaf person attempts to increase kinaesthetic feedback by pulling the tongue back into a retracted position. Singers can also be guilty of this fault, often in an attempt to “lower the larynx” to acquire an operatic sound. This fault is usually reinforced by the changes that occur in the singer’s aural perception of his or her own voice with a tongue depressed sound being “warm and full” to their ears (but dark, woolly, bottled, or muffled to the listeners).’ (Chapman, 2006, 101)

Both the teacher and student need to be aware of the sensation of pushing the tongue down. An exercise in positive reinforcement such as pressing the tongue down and then releasing it to become aware of the differences in sensation, or thrusting the tongue completely out and then relaxing it may need to be undertaken to convince the student of the need for the tongue to remain loose. It is interesting to note that the tongue is one

of the strongest muscles in the human body and, as noted by Chapman: ‘It is a large muscular structure that is capable of almost infinite variability in shape, position and tension’. (Chapman, 2006, 86) Essentially, this means that it is vital for the singer that the tongue is understood in terms of its role and strength and is rigorously watched for its ability create tension and therefore detract from an ease of performance. There are many other examples in current vocal literature of the problems in vocal production that are attributable to the misuse and tension of the tongue. Authors such as McKinney (1994), Brown (1996) and Bunch (1997) as well as Chapman, devote sections in their books to the correct use of the tongue.

There is also the consideration that the depressed tongue will draw the soft palate down making it very difficult to maintain a high position for the soft palate. As described by Chapman:

‘There is a strong interaction between the soft palate and the tongue. The palatoglossus muscle runs between the sides of the soft palate and the sides of the tongue, and its action depends upon one end being fixed. If the palate is high and arched, there is a tendency for the palatoglossus muscle to draw the sides of the tongue up and slightly back. Conversely, if the tongue root is depressed, the palatoglossus muscle will act to draw the soft palate down. As muscles can contract and relax but not expand, this makes it impossible to have a high-domed soft palate in combination with a depressed tongue root.’ (Chapman, 2006, 87)

If the tongue is unable to maintain the position where the sides are drawn up and back, then it is quite difficult for the student to find and maintain the tongue in the correct position for the Italianate vowels.

Freedom in the Tongue and Jaw

There are very few students who do not have problems with jaw and tongue root tension. The fact that the tongue root is anchored at the hyoid bone – which in turn becomes the anchor for the strap muscles that raise and lower the larynx –makes it a prime site for the consequences of holding tension in either the tongue or the neck.

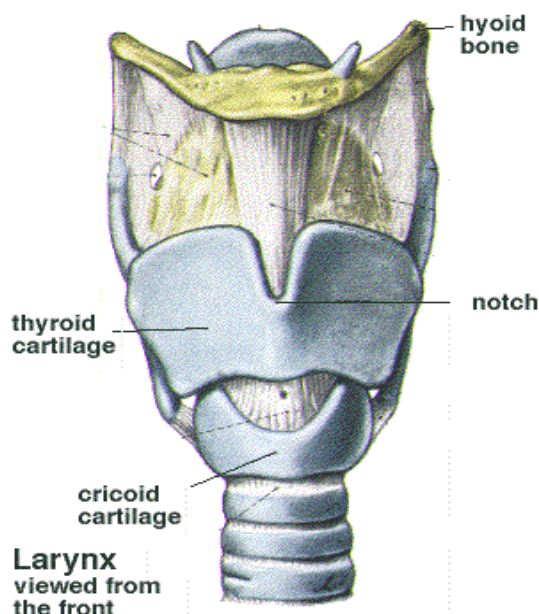


Fig. 5: Diagram of the larynx showing the hyoid bone and the two major cartilages, the thyroid and cricoid cartilage. Found at www.yorku.ca/earmstro/journey/larynx.html accessed 27/8/2009.

Tongue Root Tension

There has been a general, if largely anecdotal, consensus for many years amongst singing teachers that most English speakers will carry tongue root tension, simply from the way that we speak with an often less than ideal use of the tongue, lips and jaw, although it could be argued that tongue root tension is endemic in all languages as similar poor habits are not restricted to English speakers. Thus, our everyday speaking habits may be the cause of major problems and Speech Pathologists have a large clientele with vocal dysphonia²³ brought on by functional misuse in everyday life (e.g. speaking in an unsupported manner or speaking with poor adjustment of the neck or jaw or poor use of the tongue and constriction in the throat) - singers are not immune from this phenomenon.

This can bring us back to another interpretation of the phrase of the early *bel canto* method teachers: ‘cantare come si parla’ (sing as you speak) (Miller, 1996, 74). If the way we use our tongue in general speech promotes tension, then it makes it very difficult to use the tongue in another manner whilst singing. So, as well as previous

²³ Defined as: difficulty in speaking due to a physical disorder of the mouth, tongue, throat, or vocal folds.

ways that I have thought about the phrase - i.e. to use the idea of speech mode to initiate a simultaneous onset - we could use that phrase to mean that the use of the vocal apparatus in speech inevitably *must* be the same way we use it in singing. The one must reinforce the other. That ideal could of course work either way, the one can help the other to a better outcome. To speak for many hours in one manner and then expect the same vocal apparatus to function at a high level in another, more demanding way, is to invite detrimental consequences. In 1950 the teacher, author and editor Sergius Kagen had this to say about speaking and singing:

‘Most vocal students would do well to try to learn how to speak clearly, rather loudly, not nasally and for long periods of time without tiring or becoming hoarse. The type of resonances employed in such speaking could then easily form the basis of the resonances used in their singing.’ (Kagen, 1950, 68)

The idea of the symbiotic relationship between speech and singing, however, is not new. Berton Coffin in his book *Historical Vocal Pedagogy Classics* cites the eighteenth century singer Giambattista Mancini (1714-1800) when he states:

‘He felt it very beneficial for a singer to read portions of poetry aloud daily in a loud voice to form the habit of making all those necessary changes and shades of voice.’ (Coffin, 1989, 10)

McKinney expands on this point further showing the clear reason for speaking and singing in a similar manner:

‘The basic mechanism for speaking and singing is the same, and the physical processes involved are essentially the same. Speaking and singing share the same breathing apparatus, the same larynx, the same resonators, and the same articulators. There are obvious differences, of course, for speech and song do not sound alike, but these are differences in degree and extent of usage.’ (McKinney, 1994, 166)

Overuse of the Jaw

Similarly, as outlined above (p 95) the student must be made aware that the production of words is not the function of the mandible (lower jaw). The jaw must be flexible and free from tension when producing words. A great deal of tension can be circumvented if the singer is able to feel that the jaw does not have the function of forming the words; rather it assists in the articulation of the word but does not initiate it. The student can be assured, through a series of exercises, that the jaw does not need to be involved, but instead should be flexible and feel quite loose (without tension). This can be

problematic to establish for the student who has been encouraged to ‘open the mouth wide’. Apart from making little acoustic sense to do so (see above in this Chapter 2, p 62, Figure 2) this idea only encourages a dependence on the jaw that brings with it a great deal of tension. In my experience, students with this problem will be more likely to produce a musical phrase note-by-note rather than to conceive it as a whole. This is due to the fact that their production will be based on producing individual sounds. As well as promoting tension, this sort of production is very tiring. This phenomenon is visible in the student who attempts to change a row of pitches by moving the jaw to another position to make the next in the series of pitches.

Encouraging the student to leave the jaw out of the production process can be at first a foreign concept. I have already discussed some physical interventions that may be used to assist the student’s awareness. Equally, it can help to remove jaw tension when the student becomes awakened to the realization that it is the brain that is controlling the production of pitches, that we have no nerve endings in the larynx to tell us what is happening, and that the jaw has no function in the instigation of the process. Encouraging the student to sing a musical phrase in their mind before singing out loud can also help them to realize that it is the memory of the tune and text that actually drive the function of the larynx, rather than the need to produce each single note. A melodic phrase can then become a complete event rather than a series of separate notes. (‘Mental singing’ – practicing silently - also has the added bonus of helping with memorization and confidence: if you can’t sing it in your head, you will not be able to sing it correctly out loud.)

Meribeth Bunch expresses the following on the use of the jaw in her book *The Dynamics of the Singing Voice*:

‘The student of singing is usually surprised to learn that the production of vowels and most consonants requires little active movement of the lower jaw. Provided muscles elevating the jaw are properly balanced, the tongue will do most of the work without interference or antagonism from the muscles of mastication...Suspension and release of the jaw must be pursued consciously for most people because their speech patterns tend to either be careless or over articulated.’ (Bunch, 1997, 112)

The Independence of Tongue and Jaw

Many students tend to use the tongue and the jaw as one unit rather than independently. Through force of habit they may therefore be reticent to change that mode of phonation. Chapman has suggested one of the causes of this and its resultant tongue root tension:

‘Some singers cling to the sensation of singing with tongue root constriction as it gives aural feedback via bone conduction which makes them feel that they are “making a really rich sound”. This is because the higher harmonics in the sound are being dampened, and bone conduction is not as efficient as air conduction in the transfer of sound.’ (Chapman, 2006, 75)

The student should therefore be encouraged to use the tongue and jaw independently through exercises that involve quick and light movements of the tongue (for example using the Italian ‘l’) or ‘babbling’ (nonsense syllables based around the letter ‘l’ and other sounds) as suggested by Chapman (2006). The ‘babbling’ exercises can be practiced over a wide range of pitches incorporating low, middle and high range. The connection between the aural perceptions experienced by some students and the use of the tongue in a depressed manner has been described above (p 105). This phenomenon clearly has connections with the way that the singer hears the voice in a different manner to the listener.

Once the student is able to feel the difference that a relaxed jaw can bring then exercises can be done to improve their perception and encourage similar freedom in the main singing languages. The notion of the balanced approach to singing – where enough effort is done in the most efficient way to allow for support and comfortably flowing phonation - is an easy one to suggest but not so easy to put into practice. Young students may have been exposed to popular singers whose facial expressions – especially when indicating high emotional points or higher pitched notes – tend toward the grimace end of the spectrum²⁴. They may therefore find it difficult to let go of the facial tension and trust in the support that the body can give. It is a challenging concept for a developing singer to find the balance between internal and external work. Once they have experienced the freedom of sound and movement that balance can give and have realized how effectively expressive it is possible to become, it becomes an

²⁴ However, the grimacing face is not only limited to contemporary singers, there are some notable classical singers who indulge in a series of extreme facial grimaces – the teacher needs to be vigilant here and ask the student who they might be imitating. The teacher also needs to be aware that facial contortions could be the result of poor previous teaching as well.

enormously inviting goal to look for the balances at all times. Once the student is able to phonate in this manner, of course, the portrayal of suitable facial expressions commensurate with the emotional state of the text will be able to be registered.

The ‘Collar’

Another factor briefly mentioned before and which needs consideration when discussing the open throat is the tendency for the student to feel that the ‘open throat’ is at the top of the pharynx only. This accompanies their perception of the raising the soft palate and while concentrating on that area they tend to neglect the area at the base of the neck. Certainly, in my studio experience, and in conversation with other singing teachers, this is on anecdotal evidence a problem that occurs often in tertiary students.

One of my first questions to a new student is: ‘What is your concept of open throat?’ Most responses to this question will emphasize the need to lift the soft palate and create a feeling of space high on the pharynx wall. Many are surprised, therefore, to realize that the base of the neck needs to be considered as well. This means that they are concentrating only on the back of the oropharynx visible through an open mouth, and simply raising the soft palate will not necessarily completely enable a useful retraction of the false folds or allow for a widening of the pharynx at the base of the neck.

To awaken students to this part of the anatomy and to give them an opportunity to widen the lower part of the neck, and thus retract the false folds, I often use a technique I gained from a Speech Pathologist during a Voice Interest Group session of Hunter/New England Health located at John Hunter Hospital (Newcastle) some years ago.

The student is encouraged to breath in and out taking special care *not* to make any sound while breathing. After a few breaths the student is asked to become aware of the ‘hole’ they are breathing in and out of, and, once aware, to estimate the size of the ‘hole’ using coin sizes as the matching criteria. The student is reassured that there is no correct answer and whatever they are experiencing is correct for them. Once a coin size is enunciated (for example 20 cents) then the student is asked to imagine the hole is larger – say 50 cent sized. They are asked to ‘play’ with that perception and to feel the

corresponding width gain across the base of the neck. The student may be taken further, imagining the hole is the size of the base of a drink bottle or (as the Speech Pathologist suggested) a drainpipe. Once this exercise is completed the student is asked to vocalize while thinking about and imagining the various diameter ‘holes’ they have experienced. It comes as a revelation to many that the sound changes and there is sometimes substantial improvement in flexibility of the voice. It is often useful, then to suggest that the student practice during the week using a particular coin size as the default size and to report their observations during the following lesson. The student is also asked to spread a hand around the base of the neck and feel the activation of the muscles around the base of the neck. The activation of such muscles is referred to, by some authors and teachers, as ‘using the collar’.

Chapman makes reference in her book to this phenomenon as ‘the collar connection’ and perceives it to be the “top of the support system”, and further: ‘...it can only be achieved with good supported airflow, good posture, and an absence of upper-chest muscular tension.’ (Chapman, 2006, 56) Chapman also feels that the collar connection has a role to play in resonance as well.

As with most physical manoeuvres there are possible counteracting tensions that should be avoided. Attempting to widen the base of the neck by pulling the shoulders will not achieve the desired result, but rather create a set of tensions that limits the voice. As suggested by Chapman, it is imperative that the whole body posture and alignment of the student is taken into consideration when attempting to achieve these manoeuvres, especially as experience has shown that upper chest muscular tension would appear to impact badly on the voice. Additionally, it is, in my experience, possible to ‘over-open’ if the student attempts to take the sensation too far that only leads to other problems. The student is asked to be aware of the manoeuvres they are attempting, and if it feels to uncomfortable to drop down the “size” of the hole to where it is comfortable. As previously discussed, *awareness* of any given technique is the best way toward understanding and progression, not blind compliance.

Breath Management

As mentioned above (p 70) simultaneous onset will have an effect upon breath management. This is because the vocal folds serve as a valve for the inspiratory and

exhalatory system and are either able to release air freely (in a general exhalation), or by being brought into use to sing or speak, they can provide resistance in the form of the mucosal wave. Equally influential in Falsetto Quality is the posture of the vocal folds: Falsetto Quality allows the air to escape from the valve with greater freedom and speed due to the incomplete closure of the folds and the lack of a complete mucosal wave. (See above p 74)

Managing the breath for singing purposes is a complicated process involving control over muscles in the abdomen, throat and oral cavity. It takes time and care to achieve a balance in effort and for a great many students the tendency to work too hard and over-produce the voice is a major problem. The ability to co-ordinate the required groups of muscles for a supportive breath and not engage those that may instead provide excessive constriction or tension is one that takes effort to master. There has been a great deal written on breath management systems in the vocal literature. I have previously mentioned Miller's book *National Schools of Singing: English, French, German, and Italian Techniques of Singing Revisited* (1997), in which he examines at many of the national schools of singing and their breath management techniques. They are indeed many and varied. Whichever technique is taught, however, it is imperative that a balanced way of using voice and breath is developed.

Prior to the establishment of a breath management system, student singers often initially locate most of their effort at the larynx, which will suffice to a certain extent if the repertoire is contained within a limited range. There is comparatively little available in the regularly studied classical repertoire with such a range, however, thus the student must learn to sing with a vocal range that is considerably larger than normal speech compass. A number of pedagogues have suggested the use of a numeric scale of effort level (e.g. Estill 1997a, Chapman 2006) to help the student find appropriate levels of work.

Once a student acquires the skill of singing with an open throat and using their deep abdominal muscles to propel and control the airflow, then the use of an effort level as a guard against overuse may be helpful. A numeric scale from 1 – 10 can be a useful guide for the student, with 10 being the most effortful number. My experience has shown that some will work initially at around 7 – 8 at the throat and 2 – 4 at the

abdominal muscles. It is relatively easy for the student to perceive a difference in effort if they are asked to reverse the numbers, that is, to operate at around 2 – 4 at the throat and 7 – 8 at the abdominal muscles. The latter is a much more desirable distribution of effort: in classical singing the support muscles must be strongly engaged in order to achieve the goal of free phonation.

In order for the student to achieve control over breath, the abdominal muscles must be engaged and a simultaneous onset must be achieved. In this manner an effective breath management technique can be established.

Some exercises that are useful for obtaining these procedures include:

- Onset exercises (e.g. John Carol Case exercise shown below on page 114)
- Initiation of primal sounds. (See Brown, 1996 and Chapman, 2006)
- ‘Spooky Lady’ and other monotone techniques
- Semi-Occluded vocal tract exercises such as the use of the rolled /r/, lip trill/buzz or ‘Puffy Cheeks’ (see Chapter 8)
- Speaking the text aloud.

Falsetto Quality or Full Voice? /Considerations of Onset

There has been considerable discussion throughout this thesis of the young singer with breathy onset and resultant aspirated sound and the importance for these singers to replace their habitual style of singing with an alternative technique which accesses full voice using full adduction of the vocal folds. Exercises are given in Chapter 8 which examine this function of the voice in detail, but it is worth offering some simple options that the student can use to ensure that they are practicing the most efficient way of producing the voice²⁵. For details of the positions the vocal folds adopt in various functions of the larynx note the diagram given earlier note Figure 4, p 78.

McKinney (1994, 85) suggests that the aspirated quality used by some singers may be so habitual that the singer does not register the overuse of breath. If the teacher has

²⁵ Note that the term ‘Falsetto Quality’ and ‘falsetto’ are interchangeable here as found in McKinney (1994). Similarly the term ‘full voice’ is my way of expressing that the vocal folds are fully adducted while phonating, as opposed to the vocal folds adopting a different shape and partial adduction in Falsetto Quality.

asked the student to monitor the use of breath, there are a number of ways to manage this process. The initial way is to monitor the onset of the voice. (On the three types of onset: aspirant, glottal and simultaneous, see above page 70). By making the student aware of each type of onset and giving them exercises for reproducing each, the teacher can begin to break a habitual sound.

Onset – Finding the Preferred Form for Classical Singing

It is important for the student to be able to understand and reproduce the various forms of onset so that they are able to make a choice of the manner in which they would like to phonate. The desired onset is the simultaneous, balanced, coordination of voice and breath. It is clear that the student must be able to accurately reproduce all of the options in order to make that choice.

The reproduction of glottal onset is simple and the student can repeat phrases like ‘each and every’ noting the glottal starts to both of the ‘e’ words. Ridding a student of habitual aspirant beginning to sound can be more difficult. A simple exercise, however, may help²⁶. The student is asked to sing on a single note for a slow count of three. This is done in three different ways:

1. Three counts of an exaggerated ‘Hah’ extending the ‘H’ for two counts and allowing a clear /a/ vowel on the last count
2. Controlling a little more by allowing the ‘H’ only on the first count and moving to the clear /a/ on the second and third counts
3. Three full counts of /a/ ensuring there is no aspirant ‘H’ to begin the vowel

The student will become aware of the simultaneous onset of voice and breath when they become aware of the coordination of both functions while practicing part 3 of the exercise. Many students used to the aspirant onset will find this exercise difficult, but awareness of the objective and some mindful practice will ensure that they know the difference between all three means of onset. The act of speaking a vocal phrase aloud - i.e. reading the text to the rhythm of the music and following immediately by singing it

²⁶ Obtained from the late renowned singer and teacher John Carol Case during my studies with him in London in 1988.

- can often assist the student to recognise the difference between aspirant onset and the, more likely, simultaneous onset which occurs when speaking.

Students may become aware that they are using Falsetto Quality when they are unable to sustain a musical phrase for the required length of time: in other words, their breath will not suffice. This is possibly the best clue for the student if they are unaware of the breathy nature of their sound. Speaking aloud on a monotone may alert the singing student to the more efficient use of the breath and to realize that a long musical phrase may indeed be possible without running out of air.

Various images may also be useful to the student when attempting to curb aspirated onset and breathy tone. Over the years there have been many suggestions circulated by various teachers with whom I have worked and exchanged ideas. The notion of ‘pulling the sound in’ – rather than ‘pushing it out’ – has often helped students to master a simultaneous onset. In a similar manner the notion of an ‘exit hole’ for the sound at the top of the back of the head and that each successive note passes through that hole has worked for some. Anecdotally this image often promotes a considerable change in the sound, enabling the student to feel a widened pharynx and lifted soft palate (a first for some). It also has the effect of lifting the focus of resonance higher in the back of the mouth, further assisting in the beginning of resonance training.

Richard Miller’s 1996 book *The Structure of Singing* gives some very useful exercises for simultaneous onset, and additionally for full and partial breath replacement that I have found very practical and efficient when working with students who present with an aspirated onset. (See Miller pp 36 -37).

Many students may be encouraged to use recording equipment while practicing. As previously stated: ‘The characteristic sound of falsetto is inherently breathy and flute-like, with few overtones present’ (McKinney, 1994, 99). When aware of this form of production the student may feel confident to distinguish the difference in sound between Falsetto Quality and full voice. Their ability to distinguish between the two qualities may be assisted by using recording equipment as a component of their practice regime.

They can thus be assured of the differences and note the characteristics of each so that they can rehearse the desired quality with confidence.

Historical Practices – Using a Candle and a Mirror

There are some time-honoured practices as well that may be used by the students. Early writers such as Garcia and Tosi suggested the singer practise with a lit candle in front of the mouth so that the flame is disturbed gently by a correct breath pressure and not blown about or extinguished by excessive breath use. The student this becomes aware of the consistency of the breath. Similarly a finger can be placed in front of the mouth and a soft, warm, constant stream of breath experienced with correct usage. A small hand-mirror can also be used in front of the mouth that will mist up if too much breath is used.

Estill has noted that one of the characteristics of Falsetto Quality is that the posture adopted by the vocal folds in this quality allows the breath to flow through the folds quickly. As a result the mucosa of the folds then ‘dry out’ leaving the singer with an uncomfortable sensation. Once the student is able to initiate sound in the desired simultaneous onset, it may be that the sensation of dryness should be alleviated. For those who tend to sing in a hyper-nasal manner, with the soft palate partially open, a small mirror may be used underneath the nose to monitor the escape of breath, the misting of the mirror will alert the student to the situation. Coupled with exercises designed to allow the students to gain conscious control over the soft palate - such as Estill’s ‘Nga’ (nasalized consonant which opens the soft palate, hard ‘g’ which facilitates closure of the soft palate followed by a vowel sound (in this case /a/) during which the singer checks the nose for any sense of leaking air - the singer can be assured that the tone will not be nasal. (Estill, 1997)

It is clear from this discussion of onset, that the lack of coordination of the breath that will cause an aspirated onset which will almost certainly cause the vocal folds to move to the falsetto position. I would suggest that the student utilize strategies that engage the desired onset as well as instigating a form of breath support and management. Once the student is aware of the difference in vocal colour and sound when he or she sings in full voice, they will usually want to reproduce that sound exclusively.

There are some undeniable sensory differences in the sound making as well, and the student will become aware of those, they may be aware of a different feeling in the throat: perhaps the sense of the full closure of the vocal folds will register with the student – Estill has exercises for that in her *Compulsory Figures for Voice* - or in the change of sound noted in the inner ear. McKinney's observation on the full range of partials produced by the rolling motion of the vocal folds has already been cited, but he is also keen to point the following: 'The key factor is that the *whole* cord is involved in the vibratory pattern of the modal register; this is not the case in falsetto.' (McKinney, 1994, 99) Whatever the response that is generated in the student, the goal is the same: to generate awareness of the difference between Falsetto Quality and full voice, both in sound and sensation.

Balance Between the Body and the Vocal Mechanism

There is no doubt that the balance required between the muscles of the neck, jaw, palate, the extrinsic and intrinsic muscles of the larynx, and the considerably more powerful muscles of expiration, is a difficult one to achieve. The more that the student is equipped with knowledge about the anatomy of the vocal tract and the support muscles, the easier it becomes for them to make an intellectual 'picture' of what is needed. Once that intellectual picture is in place, the student is able to more readily reproduce the delicate balance needed for effective vocal production. This ability to recognise what is happening with the body and to visualize and understand how best to use the body is termed by some as 'body mapping'. Some of the publications noted in Chapter 2 on this matter such as *What Every Singer Needs To Know About the Body* (Malde *et al.*, 2009) may be found useful. What is certain is that the student will benefit from an understanding of the body and from attempting the sorts of visualization techniques described in the types of books noted above.

It is worth realizing at this point, that tension in other parts of the body, such as in the hands, legs, shoulders and even the eyes can contribute to tension where it is not required and may even inhibit vocal production. Many students, and professional singers alike, can benefit from physical exercises and regimes (such as the practice of Alexander Technique or Feldenkrais Method) that teach body awareness. Awareness of the entire body is needed for singing, not simply localized effort in the neck. An increasing range of publications enjoin the singer to become more and more aware of

the body and its alignment when singing. (For example; *Singing With Your Whole Self: Feldenkrais Method and Voice* (Nelson and Blades-Zeller, 2002)) Although it may take considerable time to absorb the principles of either Alexander Technique or Feldenkrais Method, the student can benefit if the teacher has a working knowledge of one or both of these approaches. These methods are especially informative about how the breath system interacts with other parts of the body and the singer can benefit from the sense of balance and ease of movement that familiarity with either of these techniques can bring. Similarly, the student should be encouraged to find out how their body works in general, there are many classes in disciplines such as Yoga and Pilates that may be accessed easily and may increase the student's knowledge appropriately – and, of course, a sporting pursuit is open to all.

The idea of holistic teaching, where the body and mind are taken into account along with the voice, can only serve to reinforce the various areas of control that a singer requires.

Further Discussion of the Concept of Primal Sounds

As mentioned in Chapter 2, another useful tool to assist the student to realize where effort is being made, and how to avoid over-production, is to use primal sounds. Primal sounds, in this instance, are explained as those noises that do not need to be taught. Laughter, crying, groaning, the 'Mmmm', the sharp cry of surprise and others elicit a response in the body which may be considered both natural and, obviously, occur at a primal level of nervous response. These sounds tap into the larger abdominal muscles in a way that 'cultivated' sounds may not. In an interview with pedagogue Janice Chapman she stated: 'There is a set of connections in the body from primal sounds that when worked up provide the set of support junctions for the singing voice.'²⁷ In her book she enlarges on the point to say:

'The importance of primal sound cannot be overestimated. It helps the singer awaken the connections to his or her emotional motor system which can be trained into appropriate abdominal support and natural breathing for singing. The interdependence of primal sound, posture, breathing and support is at the core of the teaching model for a very good reason. It is the 'human expression' in sound which truly communicates emotions and ideas to others. When fully developed

²⁷ Recorded by C. Allan during a conversation in London, 3 July, 2009, and quoted with permission.

and finessed from the emotional motor system it can become holistic singing of the highest order across all styles of music.’ (Chapman, 2006, 22)

In my experience, primal sounds can awaken in the student the conscious use of the abdominal support muscles. When the student is awakened to the quite natural engagement of the support muscles using primal sounds, experience in my studio has shown that it is a sensation that the student wants to repeat. Once the sound is connected to the support muscles and the student learns where the effort is located, the true sound of the voice can be exposed. In addition, as the primal noises are essentially concerned with emotional response (laughter, crying etc.), they can provide a way toward a connection with a listener that will resonate on a much deeper level. We, as listeners, respond instinctively to emotional singing much as we are ‘hard-wired’ to respond to a crying infant, to join in with infectious laughter, or to sympathise with another person in distress. The ultimate goal of any technique in singing is to enable the performer to move the audience, to take them on a journey: to transport them to another place.

Performance Flow

The ultimate goal of most singing texts, and certainly of the voice teacher, is to help the singer find a technique that allows them to create a free sound with the sense that their body is working with them. This means that the often-heard entreaty to ‘relax’ should perhaps be better replaced by ‘be balanced!’ Author, voice coach and opera director H. Wesley Balk in his book *Performing Power; A New Approach for the Singer-Actor* speaks of the fallacy that you must ‘relax’ to release tension: ‘The system [body/mind] must be in a state of dynamic ebb and flow, neither relaxed or in a static state of tension.’ (Balk, 1985, 197) This is the idea of performance ‘flow’; the body and voice are in a state of readiness, not forced into a performance mode where tension, rigidity and the consequent impairment of vocal tone become obvious. An awareness of effort can often free a developing singer from excessive tension. The student should be encouraged to actively check their effort levels at each practice session.

Muscular Awareness/Postural Considerations

Our own awareness of our bodies, the posture that we habitually adopt, whether or not we sit well, and the position of the jaw when speaking etc, are factors which are not

necessarily high on our agenda. It is only when something is pointed out as perhaps being detrimental to function that we begin to notice what the body is doing and consider making changes. Consideration of muscle awareness and posture are elaborated below.

A: An Understanding of Support

To be able to produce the quality and level of sound required for classical singing, the singer must be able to recognise and locate the muscles used for support and phonation and be able to register inappropriate engagement of muscles which might be counter-productive to flow phonation (Sundberg, 1987). These muscles include some extrinsic laryngeal muscles, the larger mastoid muscles in the neck, the pectoral muscles in the chest and the larger abdominal muscles. A singer with excessive tension in the shoulders and arms/hands can easily be find they have unwanted tension in the neck and jaw and that their lower abdominal support is restricted; the singer who 'reverse breathes' where tension is applied to the abdominal muscles while inhaling (rather than allowing the breath to come in naturally), can find they have an inflexibility of the voice and a tight, tension filled sound. Similarly, tension in the legs and the knees can lead to decreased ability to access the support muscles in the abdomen as rigidity sets in to compensate for the tilt in the pelvis that occurs due to the straightening and locking of the knees. Naturally, the abdominal muscles are used to maintain and erect posture, but it is possible to use the skeleton to ensure that the lumbar spine takes the weight of the body, leaving the abdominal muscles freer to assist with phonation.

The balance in the muscles required to make phonation as effective as possible is a delicate one. The larger muscles of the body play a considerable role in the ability of the singer to minimise unwanted tension and to maximize the body's natural ability to support and control the voice. This usually necessitates a lengthy period of time for the developing singer to learn the sensations and make appropriate adjustments. The figure of fourteen years has sometimes been quoted as the length of time needed from the singer's first lessons to the time when they may be considered to be at a professional level. (Janice Chapman, 'Nurturing the Emerging Performer', address to the Festival of Voice held at the University of Newcastle , 4 October 2006). Whether we agree with that figure or not, there is a considerable period of time that the singer must commit to

before being able to control the body to consistently produce a classical sound on demand, let alone master some main areas of the classical repertoire.

B: A Discussion of the Nature of Posture

Students must also learn the difference between *dynamic* postures, in which the body is free to move and transfer the energy from the support muscles into the sound, and *static* postures, in which the body is held rigidly and works against the transmission of energy. There are other words that can be used in place of the word ‘posture’ which can transmit the idea of a more dynamic stance. Author MaryJean Allen suggests the following: ‘Next, try on the word **buoyant**: think of lightness and resilience...try on the word **springy**: moving as a result of elasticity’ (Malde et al., 2009, 12) (bold words are the author’s). It is worth exploring a number of options with respect to words with students, as words and their associated ideas will resonate differently between individuals.

Chapman also states:

‘Teachers of young and developing singers need to work holistically on a week-by-week basis in order to bring about a confident but natural posture in their students. The postural alignment should become an unconscious part of their vocal technique and carry over into everyday life.’ (Chapman, 2006, 34).

The restriction of a set number of weekly lessons, due to the limitations of a University semester, means a finite period of collaborative time that a teacher and student have together. It is important therefore to encourage students to follow up physical conditioning of some sort that will further reinforce the postural concerns that are raised by the teacher. Work with Alexander or Feldenkrais teachers, lessons in Pilates or Yoga for example, will assist the student to be aware of the body and the manner in which core stability and strength can be utilised effectively.

It is clear that, in the pursuit of a classical singing technique, there are many aspects of mental and physical control that need to be taken into consideration. Acceptance and use of perceptual feedback is clearly as important as aural feedback, perhaps more so when we consider the inability of the singer to accurately gauge the full scope of the sound they are producing due to the limitations of the body’s own systems. Learning to

understand the kinaesthetic and proprioceptive feedback mechanisms should form part of the overall process of development for the young singer. It should be as important a part of the process as the development of the major areas of technique that have been discussed so far in this thesis.

The importance of the role of feedback between the teacher and student, and its role in the learning process will be discussed in the following chapter,

CHAPTER 6

The Journey Towards Effective Self-perception

Meribeth Bunch quotes author Eloise Ristad (author of *The Soprano On Her Head*) on the emotional aspects of the student's journey:

‘Being a good student means having the courage to leap into the unknown. *“It takes an act of will to become vulnerable enough to explore scary, unknown territory in our minds and bodies...It takes will power and courage to suffer the turmoil of change. As long as we return to our old habits/formulas we will not take the step into unfamiliar territory”.* (Ristad, 1982) (Bunch, 1997, 21) (Italics are by Ristad.)

The previous four chapters have described the basic building blocks required for a classical singing voice and proposed the use of speech quality to initiate those building blocks. These chapters have also touched on the perceptual issues to do with hearing one's own voice and the challenges of using perceptual feedback effectively.

It has been demonstrated throughout the history of classical singing that the acquisition of a strong technique takes a considerable length of time. The acquisition of technique is essentially an empirical pursuit with the teacher as a guide and the student taking the role of the experimenter, working out the various facets of technique themselves and responding to the feedback that they receive through both aural and kinaesthetic experiences with guidance from the teacher. These are challenges which face the young singer on the way to achieving a level of technical mastery.

The teacher's role is that of the facilitator, even a coach in the sense of sports science. A classical singer is required to sing for considerable periods of time and, for the most part, unamplified. In order to progress effectively, therefore, the singer must become a ‘singing athlete’ who is attuned to the body, has learnt –by ‘directed’ trial and error - to use sets of muscles to support the vocal apparatus and has developed vocal freedom by adopting a reliable technique in order to express the nature of the text and music being performed. As well as mastering the technique of being able to sing for long periods of time and at high volume levels, the classical singer has to learn to do so in the safest possible manner – in other words to learn how to use the voice to maximum effect with sufficient stamina to sustain the voice with minimal risk of damage. It is safe to suggest that vocal health, including ideas and information about protecting the vocal apparatus

from abuse, is a pre-eminent concern of vocal teachers today. From the description presented in this thesis and in many other studies, it can easily be seen that the acquisition of a reliable technique will take a considerable time to achieve.

The end point of the acquisition of technique is to apply it in a professional context. The singer undertaking classical training will wish to look for a way to enter the music profession and, in Australia, there are not a large number of options – certainly for classical singers (see Hannan 2003, pp 72-74). Therefore the majority of younger professional singers will seek work in repertory companies performing opera, musical theatre or choral repertoire. These ventures will almost undoubtedly have at least two x 3-hour calls per day: Opera Australia, for example, works on 2 x 3 hour calls per day (one of which may be a performance) for five to six days per week. Similarly, performing up to eight performances of a musical theatre work per week, or singing for a number of calls when involved in session recording work demands reliability in terms of technical facility. This means that the singer must have a technique that allows them to negotiate at least 6 hours per day while rehearsing an opera, for example, plus any additional practice time or lesson time for self-development. Such a technique takes time to develop and the quality of it must be maintained in order for the singer to work at a high level throughout their career.

It is vital, therefore, that the singer develops a method of monitoring the sound that they are making. The issue of relying on auditory feedback alone has been mentioned in the previous chapter and has been shown to provide an inaccurate perception for the purposes of self-monitoring. Thus an important part of the singing teacher's role is to enable the singer to recognise and use the proprioceptive and kinaesthetic feedback from the body as they are phonating. The collective information from aural and body sources can then be used to assure the singer that they are functioning well, and in a manner in which they can be confident.

One of the major concerns for the developing singer, and teacher, is that the student is unable to literally see and touch the instrument. Certainly, we can feel various parts of the body during phonation, and it is probably easier for the teacher to do that than the student, but it is not possible to 'see' what the larynx is doing at any given time. The importance is obvious, therefore, that a student is able to recognise the sensations they

receives from their own vocal mechanism and support muscles. It may seem obvious that a singer would both seek to interpret that feedback and be aware of its impact; however, it is not always the case that a student both understands what they are feeling and is able to interpret those sensations in a useful way due to the varying circumstances that occur during phonation.

Chapman describes the main challenge facing the young singer in this manner:

‘...For example a music student learning the clarinet arrives at college with an instrument one can see touch and manipulate. No one expects the student to build the clarinet first. A singer cannot see their voice, has only limited sensation of the instrument, and is strongly reliant on auditory perception which must be educated over time.’ (Chapman, 2006, 9)

The implications to note from the above point are that the instrument (voice) is being built as the singer is both receiving tuition and performing, often in examination conditions, and that the singer must learn to interpret sounds and sensations accurately in order for the voice to develop and reach its potential. Material presented in Chapters – 2 – 5 has sought to isolate the use of Speech Mode to initiate good function in three major areas of vocal training: the development of resonance, the open throat and the development of a breath management technique. These major technical matters and their associated sensations can form the basis for the feedback the singer can use. A thorough understanding of the three areas is necessary, therefore, for the singer to be able to use the sensations effectively.

There are a great number of concerns going through a young singer’s mind at the time that they are phonating. The student may be attempting to incorporate a particular technical concept; they may be negotiating a difficult pattern of pitches; may be worried about remembering the text; worried about their impact on and reception by an audience, or the acoustic environment of the hall, not to mention the fact that they may be suffering from a cold, allergies, hormonal or emotional imbalances and the challenges of dealing with air conditioning. The impact of any or all of these factors means that observation of sensation may be either compromised or limited. Callaghan observes:

‘The senses are what form the link between the inside and the outside body. It is the human body that sees, hears, feels, perceives, and makes sense of its surroundings. That same body may be thinking language and music while

apprehending internal sensations of vibration, movement, and sound, and while attending and responding to external sensations such as the sound of its own voice and the sight and sound of instrumental accompaniment, other singers, and an audience.’ (Callaghan, 2000, 16)

The Problems Associated with Auditory Perception

The fact that the singer hears their own voice differently to a listener presents some challenges for the developing singer. A singer will hear the voice essentially first through bone conduction to the ear and then as a result of acoustic feedback. Sundberg notes:

‘the sound from our voice organs propagates not only in air but also within the tissues of the speaker’s body...part of the sound one perceives of one’s own voice has travelled directly from the vocal tract to the hearing organs by so-called bone (as opposed to air) conduction. The bone conducted sound differs from the air-conducted sound in one important respect; at high frequencies, bone conduction is less efficient than air-conduction.’ (Sundberg, 1987, 159)

Therefore, in a way, the singer is always slightly behind in the equation if they are relying on audio feedback alone. In addition, the human ear is designed to hear higher pitched sounds easier than lower pitches. The voice alone, therefore, is not the only aspect of singing that requires understanding. It is also the nature of the way that the singer will approach the perception of the voice that requires training.

Added to the list of perceptual issues is the challenge of coping with the very different acoustic properties of the various rooms in which the singer finds his or herself: the teacher’s studio; their own practice room, smaller and larger performance spaces etc. The problems with hearing oneself mean that other responses must be called upon which may give a truer sense of the nature of the voice.

Concerning the physical processes of the singer’s experience of her own voice, Oren Brown states the following:

‘You hear your voice inside your head not only by air and tissue vibration but by bone conduction as well. There are reflex interconnections between the sensory nervous supply to the larynx and the middle ear muscles (McCall, 1971). Add to this that you hear the sound of your voice by air conduction from the outside of your mouth to your ear and by acoustic feedback as the sound you make reverberates off of walls, and the like. Both acoustic feedback and air conduction come too late to be of help. The sound has already left your body. You must

sensitise yourself to the inner hearing – your proprioceptive sense of your voice.’
(Brown, 1996, 200)

Although auditory feedback is obviously required by the singer, the ramifications of the phenomenon of bone-conducted hearing are that the developing singer may perceive his or her sound in one manner and may be troubled by the efforts of a teacher to change the sound. The factor of the changed sound may simply be too unfamiliar for the student. For many, as already mentioned, adding twang may cause concern and it may be more beneficial to begin resonance work by beginning to tune vowel sounds rather than to introduce twang until the student is more comfortable with experimenting with a differing range of sounds.

Sundberg also writes on the difficulties for the singer to monitor accurately the sound being produced:

‘Many of us have had the experience of listening to hi-fi recordings in which everybody – except oneself – sound exactly as in reality. This perception is a good demonstration that one hears one’s own voice rather differently than that of other speakers. There are two main reasons for this. One reason is that sounds travelling from the lip opening reach the ears with very different degrees of success, depending on the frequency of the sound; the higher the frequency, the more the radiation is concentrated along the longitudinal axis of the mouth. Therefore, what reaches the speaker’s own ear with negligible amplitude reduction are the low frequency components of the spectrum.’ (Sundberg, 1987, 158)

It is therefore a critical step for the student to learn to trust sensation rather than sound on its own. To a layperson, suggesting that you should not listen to yourself while singing may sound ridiculous, however: the perception of sound by the singer is so skewed by the passage of sound through their own body that it cannot be relied upon to accurately represent the sound they are making. Indeed, the anecdotal evidence from my own experience and that of singer colleagues, suggests that one is making so much ‘noise’ whilst singing that it is difficult to actually ‘hear’ at all.

Many writers have discussed this situation and how it relates to singers. Vennard (1967), Bunch (1997), Chapman (2006) and many others write from the perspective of a singer and /or teacher working extensively with students. Sundberg (1987) and Titze (1994), as voice scientists, speak of the physical phenomena of hearing the voice

through bone and other body tissues as well as their own experiences as singers. Whatever the perspective, it is a very real situation. Whilst it is impossible to sing without some cognition of the sound being made, it is clear that the student should be made aware that listening to the sound and attempting to make judgements based solely on that information may, in fact, give the singer a skewed source of data which may indeed imperfectly match the listener's experience of the sound. This may precipitate a course of action by the singer to 'rectify' anything they may perceive as being unsatisfactory and make the situation worse rather than better.

Authors such as Kagen (1950), Reid (1965), Vennard (1967), and Hemsley (1998) suggest that it is the mental inception of sound that will give the singer control of the sound they produce. Indeed there is much to agree with here, as a strong mental image of the sound that is about to be produced can discourage the student from micro-managing the sound during a singing phrase.

Further Feedback Issues

There are physical considerations that the singer can engage in which will further influence the quality of the perceptions they receive. For example the act of drawing the back of the tongue into the throat and depressing the root of the tongue as it can give the singer the impression that a great deal of sound is being produced. To the singer the perception is that they are working hard and making a strong tone, whereas to the listener the sound may appear dull and lacking projection in a concert hall. On this point Zielinski and Kiesgen observe:

'If a singer listens to his sound and accepts it as an accurate representation, it will mislead him and cause him to sing badly. He most likely will pull the sound backward into the head and enjoy the conductive resonance he finds there, believing his voice to be resonant and rich when to the outside listener it is muffled and lacking in upper partials.' (Zielinski and Kiesgen, 2002, 135)

Similarly overworking the jaw in an effort to 'make space' or to use the mandible to somehow create the vowels (which are created inside the mouth by adjustments of the tongue position and not with the jaw on the outside) can make the singer perceive that they are really working hard, but in fact an over-use of the jaw only adds to unnecessary tension and distorts the sound.

The dilemma for the performer here is that an examiner or audition panel may perceive the sound as dull, whilst the singer feels that they have worked hard. Similarly, shouts of 'support your voice' from a teacher may only encourage a student to grip the abdominal muscles and to attempt to inhale too much air, the result of which will compromise the quality of the sound that is produced.

Present-day Concerns with Training the Voice

Present-day voice training in Australia - and internationally in English-speaking countries - is founded on the tertiary conservatorium model, most often found these days within the framework of a university, whereby students need to fulfil set syllabus and examination requirements each semester. This means that they must cope with the demands of the syllabus at the same time as putting into place the basic building blocks of their instrument. True, most syllabi are sequential and build on the previous semester's work, but with singers it is often a case of 'one step forward, two steps back' (or even three or four steps back). Thus by the end of a semester a student may be performing at a less than expected level, only to find that three weeks into the new semester there is a leap forward in proficiency. Unfortunately the poor result from the previous semester may have dented their confidence; therefore confidence rebuilding is often required. It has been my experience that a teacher cannot discount a singer too early. There are students who have shown great promise and then failed to develop at a higher level, and others who seemed mediocre at best, who will suddenly improve markedly and move on to further study and a successful career. Author Karen Sell cites singer and author Richard Miller: 'Miller reminds us that "Some singers bloom early, some singers bloom late" (1996, p 81)'. (Sell, 2005, 44)

Many tertiary music institutions in Australia make no differentiation between the student studying voice and those studying all other instruments. The lesson times for both singers and instrumentalists are usually identical and dependant on the amount of lesson time allotted to particular course codes. Although there may be classes in stagecraft and languages that singers can attend, it is generally of little significance to the university structure that the singer is both learning a repertoire of challenging music and building their instrument at the same time. To be sure, a pianist must learn dexterity, finger and tone control, and a flautist must learn to maintain different tones

and produce a range of timbres, but if the instrument is not satisfactory, those students can 'trade up' to a new and better instrument.

With a voice, it takes time to uncover the core of the sound and, even in those gifted with a generous natural instrument, time is needed to explore the possibilities of that same instrument, as it is being fashioned week by week. It is clear from most conservatorium entrance requirements that instrumentalists will have a technique that is fairly well established prior to the commencement of tertiary studies, enabling the student to embark on acquiring a wide-ranging repertoire and refined interpretive judgement. In the case of voice students, however, there is a general consensus that a mature technique can only come with a mature voice. Therefore it is not expected that the singer's technique will be fully established prior to commencement of studies, but rather that the technique is acquired as the student matures and progresses through the years of study. The larynx does not finish growing until around 27-28 years of age and as such the teacher and student must be aware that the voice will change and be willing to embrace those changes as they occur.

In most tertiary institutions in Australia, the standard semester is between 12 and 14 weeks, giving students a maximum of 28 lessons per year. This is indeed little time in which to perfect an instrument, build the stamina necessary for the performance of increasingly difficult works, and integrate into the student's technique and repertoire a working knowledge of at least three European languages (even if this is confined mainly to pronunciation). Added to this is that the teacher is trying to encourage a healthy student whose physical and mental energies are united to give them the best opportunities of performing well, and it is apparent that there is a need for far more time and input than the majority of university budgetary and course restraints are able to provide. The assertion that the voice is 'different' from other institutional pursuits is not necessarily acknowledged in the tertiary course structure. This is a further reason why the teacher must be aware of a range of approaches to deal with the variety of students within a very finite time scale.

Body Image and the Psyche of the Singer

A critical factor in the singer's progress is the willingness to engage in the psychological change that is often needed during singing training. This notion of psyche can also refer to the state of one's body as well as the voice. For many young female students body image is a challenge since many young women harbour intense feelings of inadequacy with respect to their bodies. (Although not universal, this is indeed a challenge encountered in my experience of teaching). One of the requirements for singing is to release the abdominal muscles whilst inhaling – in fact the instruction to 'drop the tummy' is often given when teaching the SPLAT breath. 'Splat' is a term coined by Chapman and explained thus:

'Diaphragmatic/belly release inhalation or *Singers Please Lose Abdominal Tension*, hereafter referred to as SPLAT, on the other hand, does not recruit any expiratory muscles during the in-breath, but relies on a flexible abdominal wall which allow the diaphragm to descend quickly, fully and efficiently'. (Chapman, 2006, 41)

Whether a teacher explicitly employs the 'Splat' technique or not, it is important that the classical singer experience a release of the tension caused by the muscles of expiration as the new breath is drawn in; even in alternate methods of breath management (see Miller (1996 pp 20-40), there is a universal requirement for a release of tension when the singer needs to inhale. The release and subsequent re-engagement of the support muscles provides the necessary energy to ensure the sung phrase is supported.

For the late adolescent girl who is already self-conscious about her body shape and may be worried about the belly line in clothing and therefore habitually holds the belly in tightly, asking them to let the tummy go and allow themselves to adopt a perceptually 'unacceptable' body shape can be very intimidating. The measure of trust between the teacher and student may be tested here, but the singer will not achieve the freedom and quality of sound they are seeking without adopting the 'Splat' breath (or its equivalent). Holding the knees straight and holding strong tension in the shoulders and arms can

further decrease the effectiveness of the ‘Splat’ approach. Body image and the sense of self go very much hand in hand.²⁸

Kiesgen acknowledges the habitual reticence of some students to release the abdominal muscles on the intake of breath:

‘...they have trouble releasing the abdominal muscles during the act of inhalation. Most people have learned to stand with these muscles pulled in because they feel that they look better that way.’ (Kiesgen, 2005, 170)

It is important for the teacher to be able to feel which muscles are being used for support to enable the student to register and reproduce the correct muscular sensations required for classical singing. Until a measure of trust is established between student and teacher, this can be difficult to initiate. The experience in my studio shows that students do progress faster if they are able to accept and implement feedback from the teacher on the correct use of the support muscles.

The Singer’s Ego

The concept of the voice, and of vocal health is inextricably linked with the psyche²⁹ of the singer. Along with the psyche is linked the self-identity and self-worth of the singer – the ego. The singer, perhaps more than any other instrumentalist, must be confident that the sound they produce is ‘right’. A pianist, for example, may struggle with a piano whose keys are not voiced evenly, and can reasonably complain that such and such an instrument did not allow them to play as effectively as they might given better circumstances. For the singer, on the other hand, there is an imperative need to have trust in the body. If the sound is not to the liking of an examination panel, an audition panel, student peers and (later on) the press and critics, then it may be perceived that the instrument has let them down; that *they* have let themselves down. There are obvious blows to the ego of a singer if auditions are not passed, work does not come or selection for operatic roles does not result.

²⁸ In this regard it is perhaps more difficult for a male teacher to work with young women than it is for a female, although I acknowledge here that it may be just as difficult for a female teacher to work with young women as well.

²⁹ Psyche: defined as ‘the human soul, mind or spirit’. Oxford American Dictionaries.

On an associated topic, there are very few other professions where a person can lose a major stream of income due to a relatively minor ailment. A singer can lose a major fee and career opportunities (after rigorous preparation) because laryngitis or a heavy cold has set in. If a singer withdraws from a performance due to illness - or fear that their reputation may be damaged by a sub-standard performance - there is no fee for nearly doing the job! It is no wonder that author Barry Green (famous for the book *The Inner Game of Music*) in his work *The Mastery of Music: Ten Pathways To True Artistry* (Green, 2003) uses singers to illustrate his chapter on Ego. There are many instances of soloists having to withdraw for an engagement due to indisposition; this is evident on concert schedules for major opera and orchestral institutions throughout any given year, a circumstance that has always characterised the profession. Indeed, this is a fact of working with an organic instrument, something not dealt with by instrumentalists. Any cancellation will have an effect on the singer: they may feel inadequate; they have let people down; they have lost income. The student who may have to forgo a fee-paying engagement at a time when money is most needed or withdraw from a competition or an examination, also feels all of these considerations at a lesser level in a way that foreshadows the experience of the professional singer. Part of their education, therefore, must include strategies to assist the young singer to deal with the frustration and potentially detrimental aspects of cancellation.

All of that aside, the development of a healthy performance ego goes hand in hand with the vocal development of the singer. How can a singer perform at a high level, sing challenging pitch and rhythmic patterns, communicate the essence of an emotionally charged text and relate to their audience if they do not have a strong sense of being in command of their instrument?

The Value of Play

There is often merit in asking the student to 'play around' both during a lesson and in their private practice. Play can have the effect of making singing appear to be 'less like work' and may encourage students to drop some inhibitions. Students can be asked to 'hula-hoop', 'ski' or throw a ball around whilst singing. The breaking of an habitual stance or posture often brings about a sense of relaxation in the body, especially in the torso, shoulders and arms where tension is often rigidly held, and allows for the natural connection to support muscles. Here too, the term *balance* comes into play as the

student must find the middle line between overt movements in the ‘play’ and strive to keep the same sensations of looseness whilst remaining relatively still.

The perception of the body’s place in space and the freedom that a balanced body brings adds greatly to the overall effectiveness of employing kinaesthetic feedback. Zielinski and Kiesgen observe:

‘Awareness of other qualities of vocal production also must be cultivated. The singer must become aware of the sensations associated with proper posture, good body alignment, efficient breathing, and free phonation. Students who need to make changes in these technical qualities must become able to monitor and manipulate them until they can perform them properly without conscious control. This is an important part of the feedback process and in a sense constitutes listening as well – listening to the body.’ (Zielinski and Kiesgen, 2002, 136)

The idea of play is also useful as a distraction technique if a student is becoming excessively worried about the sorts of sounds they are making, distraction assists them to become more comfortable with new sensations and sounds. Play encourages the student to avoid a rigid pose and may help in assisting a student to break a habitual pattern of sound production – especially if that is determined as counter-productive by the teacher. Balk suggests:

‘A singer who is overprotective of a certain kind of sound resists head and neck movement. And yet, if the head is allowed to be moved freely and to release, there almost inevitably will be an improvement in the quality of the sound.’ (Balk, 1985, 196)

The experiences in my studio bear out this statement. Quite often I will ask students to make a slow, gentle circular motion with the head and/or rotate the shoulders while singing. Almost inevitably there is a positive improvement in the quality of the sound. Writers such as Chapman (2006) maintain that there should be no involvement in the muscles of the upper chest while singing, it could be that the positive improvement while making the head or shoulder rotations releases tensions held in the upper body, or, as Balk suggest, it simply allows the singer to avoid ‘holding’ the sound with the shoulders or neck.

Playing around can also be extended to invitations for the student to play around with their sound as a way of breaking a habitual posture of the vocal apparatus. For

example, instructing the student to imitate a ‘wobbly old mezzo’; if they are constantly presenting with a tight jammed larynx, can have the effect of releasing the larynx and allowing it to take up a more neutral position. This often has the effect of creating a warmer sound, as the resonating tract is lengthened and widened providing a longer, wider tube, and the larynx is allowed to go into ‘tilt’ whereby the thyroid cartilage will tip forward in the throat. That manoeuvre has the added advantage of assisting the beginning of the singer’s ability to cope with register changes. The tilted thyroid cartilage also has the effect of inducing vibrato into the sound. Writers such as Vennard (1967), Estill (1996), Sell (2005), and Chapman (2006) believe that a forward tilt of the thyroid cartilage is mandatory for the production of a healthy vibrato and, indeed, a healthy voice. It has been my experience that students who are willing to make a range of sounds, beyond what they may consider to be ‘singing sounds’, progress more quickly than those who do not. This is possibly because they are receptive to more than what they may consider ‘acceptable’ sounds and therefore will allow the voice to create a range of sounds that could lead to more expressive singing. There is no doubt resistance amongst many students to this practice that reinforces, as already mentioned, the need for trust between teacher and student.

Other Useful Tools to Change a Student’s Posture

A mirror becomes a highly effective tool when one is attempting to change a habitual stance. Contrasting with the student’s sometimes faulty idea of the body’s stance and shape, the mirror will accurately reflect the body and note can then be taken of the position of neck, chin, arms, pelvis, knees etc. Additionally, the mirror will also clearly show the shape of the mouth that the student uses, the range of facial expressions the student is attempting to utilise and the position of the tongue can be noted.³⁰ Similarly, the use of a video camera can give the student many insights into what they are unconsciously doing when performing.

A further physical exercise I have found useful in realigning the body in an optimal manner for singing is the idea of ‘wall singing’ – an exercise gleaned from a colleague’s studio and then modified in mine. The student stands in a crouched position (knees

³⁰ Speech therapists sometimes also suggest the use of small hand mirrors so that students can focus on mouth shape and also check that they are not releasing air through the nose (if so, the mirror will mist) (Behrman, 2008).

bent) with the buttocks and the shoulders pressed against a wall. This position encourages relaxation in the shoulders and neck and the student is required to keep contact with the wall with their shoulders and buttocks. With the knees bent this position tends to allow the abdominal muscles to relax noticeably when the student breathes in (and, the abdominal muscles remain tight it provides a strong opportunity for the teacher and the student to be aware of this fact.) It is also possible to align the neck and head correctly when the student is in position. The results are often revelatory to the student and can give them strong indications of the parts of the body in which they may be experiencing tension.

Towards an Integration of Body and Sound

Historically it was the singing teacher who was the perceptive transmitter of feedback to the student. In the days prior to recordings and from what we understand about the learning process - which was essentially full-time – the student sang to the teacher and/or other advanced students to gain feedback on their progress. I have already mentioned the issues of today's weekly voice lessons and the large amount of time that a student will spend in private practice so it is imperative that means are found to ensure that practice is productive.

There are obviously many different ways of gaining a true sense of the sound apart from relying only on one's ears. These include the reasonably priced pieces of technology that can be used to assist, mostly through the ability to produce realistic quality recordings of the voice in real time. Whether it is by the use of a mini-disc recorder, through a computer software program, a microphone attached to an iPod or the humble cassette tape: the ability to play back the evidence of an improvement in sound and to immediately ally that improvement with physical sensation can enable a student to feel confident that what they are doing is effectively ringing changes for the better – even though the internal sound and sensation might be new and foreign to them. Many studio teachers will offer the student the option of recording each lesson for playback and for use in the student's weekly practice sessions.

In addition are many recently released, reasonably inexpensive software products that can provide the teacher and student with spectral analyses in order to show the student

what the partials in the voice are doing, whether the upper end of the spectrum needs to be boosted (the addition of 2800 Hz) or the lower end of the spectrum needs to be balanced (achieved through greater involvement of the body in supporting in the sound and a more resonant vowel). Although it is not suggested that this would be necessary for each student, for those that are unconvinced, a spectral analysis can be useful in boosting confidence and acceptance of a new sound. This technique can be useful for the student who is reticent to accept new concepts and may provide further corroborative information to encourage a change in their habitual sound.

In conclusion, the more that a student is able to have confidence in the sensations that they receive when singing, the more consistent their progress will be. Using the evidence of sound alone together with a teacher's commentary can present real problems for the student: in that the audio feedback may be signalling one thing, but the sound produced is not reliably allied to the feedback, due to the physical and audio limitations described above. Finding and using the proprioceptive sensations from bio-feedback may provide a more concrete way of ensuring that the sound produced is moving towards a consistently professional quality – an ultimate goal of the serious student. Perhaps a useful way of putting this point is contained in the phrase that the student needs to work towards controlling the energy, not the sound. The attempt to gain control over the sound by simply listening to one's own sound will not give a true picture of that sound, as the critical listener hears it.

Already in the late nineteenth and early twentieth centuries, before the invention of such technology, singing teachers were strenuously advising students to use proprioceptive means to judge their singing. The late American teacher, Berton Coffin, explores early vocal pedagogies in his 1989 book *Historical Vocal Pedagogy Classics*. In it he summarizes the work of voice teacher William Earl Brown's book *Vocal Wisdom (Maxims of G B Lamperti)*³¹. Coffin states:

'He advised the singer, "Do not listen to yourself sing! Feel yourself sing!" This was because "phonetic vibrations felt at lips, nose, head, throat and chest, carry distinct messages in the singer's consciousness until habitual reaction takes the place of effort and thought." In other words, the mucous membrane or "inner skin" was the monitor for the singer, and not the ear. This could direct the singer regardless of the acoustics of the hall in which he was singing.' (Coffin, 1989, 93)

³¹ Giovanni Battista Lamperti (1839-1910), voice teacher.

What may at first appear intangible with some practice will become more than just tangible, it will provide a concrete way of moving forward with confidence. Essentially, if it feels good and sounds good, it will be so. If there is tension in the sensations there will undoubtedly be tension in the sound. The student will often exclaim that ‘it feels too easy’, but surely that is a useful goal. If the technique is ‘easy’ then the mind has more time to dwell on the interpretation of music and text, and to communicate with the audience.

Self-monitoring – A Checklist

An approach towards assisting students to deal with the complexities of obtaining a classical vocal technique is that of a checklist for self-monitoring. This is a device that I have developed over a number of years and is designed to set up an easily accessible checklist of sensations with which the student can identify using both aural and kinaesthetic awareness. In this way, when problems arise, the student is able to tick off a short checklist to see exactly what is working or what may be missing with regard to vocal technique. If followed, the checklist may assist the student to take concrete steps to implement in practice what is learnt in the studio to ensure a steady development of the voice.

The ‘trouble-shooting’ checklist, which I have devised for use with my own students, includes the following:

- Am I using Full Voice or Falsetto Quality. A consideration of onset will be paramount here to ensure that full sound is generated.
- Where is the voice located? Where can sensations be felt and can I find the sorts of sensations that were noted in the studio lesson?
- Is my throat open/have I retracted my false vocal folds?
- Where is the effort located when singing? Can I identify the area of effort and judge whether it is productive or counter-productive? What sensations can I feel in my support muscles and my throat?
- Are my jaw and tongue free or are there constrictions and tensions in either?
- What is my body doing? Is my posture facilitating my free phonation or working against it?

With most developing singers, there will nearly always be deficiencies in the basics of breath management and resonance. We have discussed at length that the development of a breath management system and a resonant tone underpins the western classical singing style. Some simple pointers, such as those mentioned above, can assist in the rectification of deficiencies in the above technical aspects of singing. The bulleted points above suggest a series of strategies that a student could adopt to assist them to understand the bio-feedback that they receive while singing and by using such a checklist, I propose that a student could successfully self-monitor and reproduce the techniques rehearsed with a teacher during a singing lesson in order to advance both their technique and their understanding of the concepts they are attempting to absorb.

I have used the idea of the checklist in my studio for a number of years and find that students appear to grasp the ideas well. With practice, they can readily offer suggestions to restore good vocal function when they strike problems which would suggest that they find the checklist useful. With the challenges of accurate perception in mind I devised a questionnaire, designed to explore student responses to questions of self-perception. A study of the questionnaire is to be found in the following chapter.

Using the vocal muscles in classical singing is a high-energy pursuit, and there is a great similarity here to the professional sportsperson who must guard against injury. In the same way, the singer must be aware of their body, not only to guard against injury but also to perform efficiently and at an optimum level. Singers need to warm up the body as much as they warm up the voice. How much to warm up and how to use the body most efficiently has been an individual's prerogative and is outside of the scope of this thesis. Current research, however, by authors such as Saxon and Berry (2009) investigates the physiological nature of singing with respect to fitness and a singer's ability to use the types of techniques used by sportspeople to further enhance the effective use of the body. Such research may prove very valuable to the singing fraternity in the future.

CHAPTER 7

Listening to the Student's Voice – Awareness of Sensations of Singing by a Group of Students from the University of Newcastle

To gain some insights into how current students at the University of Newcastle experience and think about aspects of singing with regard to their own perceptions, I devised a questionnaire based on the idea of the checklist outlined in Chapter 6. Not only might this be worthwhile for the process of this research, but also during the sixteen years I have taught at the University of Newcastle there has not been a survey of students other than the Student Evaluation of Teaching and Student Evaluation of Courses surveys that are held on a regular basis and administered by the University according to a non-subject specific design. No specific surveys are undertaken with regard to performance or creative arts. It has occurred to me that a regular survey of voice students – for example, taken annually - could assist myself and other teachers to gain a stronger understanding of the effectiveness of the tuition the students are receiving. In addition, an 'entry' and 'exit' survey of students could be useful to gauge the expectations of students as they enter the course, and to compare their reactions on leaving the course.

As part of the current investigation, the voice students at the University of Newcastle were therefore offered an opportunity to take part in a survey in late 2009/early 2010. The survey took the form of a questionnaire with an optional component of a making a recording during which the student would sing a short musical phrase in order to obtain a spectral analysis of the partials exhibited in the voice (the full purpose of this will be explained later in this chapter). The purpose of the questionnaire was to gain insight into the student's perceptions of their vocal mechanism and the involvement of their body while they were singing. The majority of questions also offered the students space to add comments if they did not agree with the list of options given to them in the question, or felt that they had more to add to fully answer the question. Although the main purpose was to gain insights into student's perception of sensations while singing, two questions touched on the notion of body image and whether that was of concern to the respondents. As well, students were asked if they enjoyed performing, an aspect that might throw light on their answers to the other questions.

The questions and the rationale for choosing those questions are set out below.

1. When considering your own singing voice, do you:
 - a) Listen to yourself and form judgements “on the fly”?
 - b) Listen to yourself and don’t attempt to change the sound?
 - c) Not listen to yourself?
 - d) Concentrate on other things (e.g. breath management, placement etc.)?If the answer is (d) – please specify below

Rationale: The idea of trusting in technique and being able to make adjustments as necessary is one that is developed over time and with experience. As encountered in Chapter 2, one of the concepts illustrated in the literature is that of forming the sense of the musical phrase and sound to be sung in the mind prior to actually making the sound. What this ideally means is that the sound is ‘pre-formed’ and won’t need adjustment during a musical phrase. Bunch (1997) suggests that ‘in well-co-ordinated singing, the vocal muscular system is pre-tuned in response to this mental concept several milliseconds before phonation’. (Bunch, 1997, 71) Naturally there may be some adjustment due to the acoustics of performance space, accompaniment etc. and the singer may adjust between phrases or songs as necessary to establish optimum performance freedom. Adjusting while in the process of phonating can have detrimental effects, especially if the singer is using only the ear and not a combination of ear, proprioceptive and kinaesthetic feedback for adjustment purposes. Balk (1985), McKinney (1997) and Sell (2005) all warn the singer to take into account the sensations from the body in conjunction with the aural sense in order to obtain the best performance outcomes.

2. When singing, are you aware of the sensations of resonance?
 - a) yes
 - b) no
 - c) occasionally
 - d) when it’s pointed out for me to do so

Rationale: This question was designed to prompt students to think about awareness of more than just the sound of the singing voice and to indicate whether sensations of resonance registered with them.

3. When singing, are you aware of the work that your tongue is doing?
- a) yes
 - b) no
 - c) sometimes

Rationale: The role of the tongue in the production of the singing voice is emphasised in the weekly lesson in the following way: When speaking we are usually unaware of the work that the tongue is doing. That fact that the tongue is a large muscular organ directly attached to the hyoid bone, which in turn is attached to the strap muscles that are attached to the larynx, means that it directly affects the function of the larynx. Any excessive tension in the tongue will be transferred to the larynx. As well, it has been demonstrated in the literature that the “hump” of the tongue (the section located near the back molars) affects the partials that may be produced (White, 1989, 152; Sundberg, 1987, 22-23) as well as the tip of the tongue being the articulator of many of the consonants. Documentation in the literature and anecdotal experience suggest that the tongue plays a highly significant role in the production of free sound. It is important, therefore, to check whether the student is aware of the physical functioning of the tongue as the first step to gaining effective use and control of the organ.

4. When singing, are you aware of other parts of the vocal apparatus? If so, which of the following do you identify as playing a part in your voice production?
- a) throat
 - b) soft palate
 - c) hard palate
 - d) larynx (voice box)
 - e) neck muscles
 - f) jaw
 - g) none of the above
 - h) other – please specify below:

Rationale: This question was designed to simply identify other parts of the vocal mechanism of which the singer was aware while phonating.

5. During the act of phonation (making sound), are you aware of the work that your body is doing? If so, which of the following areas come to your attention?
- a) shoulders
 - b) rib cage
 - c) diaphragm
 - d) upper part of abdominal area (epigastric area)
 - e) lower abdominal muscles
 - f) other – please specify below

Rationale: Many recent publications suggest that the singer needs to be aware of the function of the body while they are singing (Miller, Chapman, Heirich, Malde, Nelson *et al*). The balanced nature of the singer's posture is vital in promoting a free, confident sound. If the singer is unaware of his or her posture it can cause phonation difficulties. It may be argued that the more awareness of the body that the singer is able to maintain, the more efficient the phonation. Cleveland (1998) cited in Callaghan (2000) argues that body posture affects all the factors of breath management (Callaghan, 2000, 36), while McKinney argues that good posture allows the muscular and skeletal framework of the body to fulfil their basic functions efficiently (McKinney, 1994, 33). Clearly 'posture' takes in much more than the appearance of standing 'straight'. A balanced body also assists with the singer's communication to the audience through the unspoken body language to which an audience member will unconsciously connect (Ekman & Friesen 1975). This question is designed to check whether students are aware of their body while singing.

6. If you notice any tension in your body when you are singing, where might that be located?
- a) hands
 - b) arms
 - c) knees
 - d) legs
 - e) jaw
 - f) tongue
 - g) other – please specify below

Rationale: A development of the previous question, designed to highlight the student's awareness of the body. If the singer is 'holding' the sound with any part of the body it can contribute to constriction and therefore a lack of free phonation (Balk, 1987). Sometimes a habitual pattern of 'holding' can be found where the singer is unaware of its effect due to a habit of use. It is useful, therefore, to be able to identify where tension is held. The respondents may have been alerted to various sites of tension by a teacher and, therefore, the answer could reflect that information. The desired goal, however, is that the singer will be aware of tension without it being pointed out.

7. If you feel you are singing badly, on what do you rely to assist you to move on and sing better?
- a) technique
 - b) listen harder
 - c) check areas of tension and revise
 - d) hope that it all fixes itself up
 - e) use your imagination to visualize the sound you would like to have
 - f) other – please specify below

Rationale: Question 7 was designed to find out what the respondents felt is an effective way of correcting themselves, based on the premise that it is important for the singer to be able to re-focus and correct technical aspects of singing while performing. (An aim of this thesis has been concerned with creating a self-monitoring checklist that developing singers might use to assist them to find free phonation by following a logical progression of technical cues designed to help the student make a productive use of practice time and performance opportunities.) This question was important, therefore, in gauging the perceptions of the student to the range of sensations while they were singing, and to be able to see how they were choosing to respond to those sensations.

8. How important is body shape and image for a classical singer?
- a) not important at all
 - b) very important
 - c) what does it matter – aren't all opera singers large?

d) Other – please specify below

9. How important is your body shape to you?

- a) very
- b) not particularly
- c) I like to look good
- d) Its part of my concept of myself

Rationale: One of the difficulties that face young singers is the change in their sound that a teacher will encourage. Allied with the change in sound is, in some cases, a radical change in the use of the abdominal region of the body. Many young singers will be asked to release tension in the lower abdominal muscles, which they may not have experienced before. This can create an unwanted body image as so many will be protective of what they might perceive to be a loose or bulging belly. It is extremely difficult to release tension in the abdomen if the belly wall is being tightly held as a matter of habit. Questions 8 and 9 were designed to see if body image was a concern for the respondent, and thus a factor in inhibiting vocal progress.

10. When performing, what do you feel the audience is doing for you?

- a) Assisting me by being there
- b) Helping the process by giving me some of their energy
- c) There to criticize
- d) Don't really care either way

11. Do you like performing?

- a) yes
- b) sometimes
- c) no

if you answered “c” -could you elaborate in a few sentences below?

Rationale: The purpose of questions 10 and 11 was to gain an insight into the respondent's thoughts on the role of the audience and to see whether they actually liked the idea of performance or saw it as an obstacle to be surmounted. Performance anxiety is a concern for most performers. For the developing singer who is attempting to juggle

the complexities of technique and artistic expression, live performance may be very confronting; it is necessary for the teacher to be aware whether this is a problem which the student will acknowledge.

In addition to answering the questions, the respondents in the questionnaire were offered opportunities to comment on questions and add additional information where they considered that either the answers provided did not fully represent their thoughts, or that they wished to provide more information to more fully reflect their answer. This 'free response' aspect of the questionnaire is an integral part of the design, and elicited important individual responses.

Findings of the Survey

The survey was conducted between December 2009 and April 2010 through an invitational recruitment process addressed through the University of Newcastle's *Blackboard* on-line instruction interface. Vocal student enrolled in all years of the three-year B Mus. course as well as those in the B Mus. Honours course were invited to respond. They did so by means of either electronic or paper responses sent anonymously to a specially set up email address or posting box located in the school's administrative office. The limitation of anonymity was observed in order to comply with the University Ethics Committee's instructions, but the gender of the respondents was noted.

There were a total of sixteen respondents to the survey, fourteen drawn from the three years of the undergraduate degree program at the University of Newcastle. As well, there were two further respondents one of whom was completing Honours (fourth year) and one who was completing a combined Bachelor of Music/Bachelor of Arts degree and was in fourth year of tertiary study at the time of the response to the questionnaire, after completing three years of undergraduate singing study. The majority of respondents were female - as was expected due to the nature of the cohort of students with the vast majority being female - however there were three males among the respondents. The female respondents are identified as F 1 – F 11, and the male as M 1 & M 2 (the further male respondent is included in the First Year subset.) Three of the respondents were from the new intake of first year students in 2010 who had not studied

at the University of Newcastle nor with any of the staff teachers prior to gaining entry to the University. These students are identified as First Year F1, F2 and M1 (female and male respectively). An interesting aspect of the survey would this be to note whether the answers from the 'new' students differed significantly from those already in the course, who had been exposed for longer to the approach and vocabulary of the voice teaching at the University of Newcastle.

The Teaching Staff and the Approach of the Teachers

At the time of writing, there were two teachers of classical singing at the University of Newcastle, both male (one is myself, plus a further male colleague). In addition there were three teachers teaching contemporary repertoire and singing technique, two female and one male. At Newcastle students have the option to designate their vocal interests as primarily classical or contemporary. Each of the three contemporary teachers has had extensive classical training and has moved into contemporary repertoire during the course of their career. The respondents are, with the exception of two of the first year students (First Year F1, M1), studying with one of the two 'classical' teachers. Although there are undoubtedly differences in the style of delivery within the individual lessons, the other teacher of classical singing and I are broadly similar in the concepts that we transmit to the students, meeting on a regular basis and sharing some student contact from time to time. Both of us have attended the Estill Workshops and agree further on ideas of breath management, vowel formation (including modification) and other technical aspects of voice production and also share concerns about the education of the student in matters of posture and anatomy. Our students share performance classes and are able to receive assistance from either teacher in areas of respective expertise. In this way we have sought to provide a nurturing environment where an exchange of experiences and ideas is cultivated so it may be that similar responses might be expected from students of either teacher.

The survey was designed to elicit general responses, rather than to pinpoint individual issues. The responses indicate the prevalence of some trends that suggest the way in which the participants have been thinking about their singing. In addition, most students took the opportunity to add extra information when invited to do so, and this adds further insight into the range of attitudes to their singing progress. The two questions about body shape were intended to see what the respondents thought of that

contentious issue and perhaps to see if their thoughts about this matter reflected any of the current issues of body image that are commented on in the mass media -given that is where many might be exposed to questions of body image. These questions drew strong responses from the female respondents, as will be seen later, and may possibly warrant further study.

There will be a break down of responses to each question, following which the strongest trends found in the answers will be examined. It is further noted that respondents were invited to circle or tick more than one answer, but without allocating priority, e.g. as to the 'most important' or 'least important' factor named.

Question 1 'When considering you own singing voice, do you...[list of five alternatives]:'

The majority of respondents (11/16) answered (a) 'Listen to yourself and form judgements "on the fly"'? Only one answered 'Not listen to yourself?' The overwhelming preponderance of answer (a) suggests that listening to performance and forming a judgement is the way the respondents would habitually proceed with initiating a change in their actions. The suggestion, also, is that the respondents attempt to change the sound as they move through a song, rather than having a clear sense of what the sound will be like *prior* to beginning a musical phrase. The predominance of answer (a) could also indicate that the students are at a comparatively early stage in their singing career and have not formed a complete approach to perceptual issues.

Nine respondents also indicated figure (d), which states: 'Concentrate on other things (e.g. breath management, placement etc.)?' The comments here included:

F2: 'Placement, breath, support, centering the body'

F3: 'I usually concentrate on the character or story depicted in the song, but I do get distracted sometimes and listen to the sound I'm producing to try and change it if I feel it's needed.'

F5: 'A mixture of listening to myself, feeling where the sound is, concentrating on technique that has been advised by a teacher at the time.'

F7: 'It is more about feeling where the sound is resonating and if there is any tension.'

F9: 'Breath management, placement, stance, tongue position, direction of sound, general support, relaxing properly.'

F11: 'Breath management.'

M1: 'Breathing, posture (i.e. keeping body relaxed)'

First year F1: 'Most of my early singing was in choirs so I am also very conscious of my pronunciation and am constantly thinking about how I breathe also.'

First year F2: 'Posture, soft palate placement, larynx and pharynx, whether it feels compressed or free.'

Question 2 'When singing are you aware of the sensations of resonance?'

The majority of respondents (10/16) answered with response (a) (yes) indicating that they were aware of sensations of resonance while they were singing. Two respondents (First Year F2 and M2) indicated (b) that they were not aware of any resonances. The remaining four respondents indicated response (c), that they were occasionally aware of resonances.

Question 3 'When singing are you aware of the work that your tongue is doing?'

The majority response here (10/16) was letter (c) that they were sometimes aware of the work of the tongue during singing. Four respondents answered with response (a) and two with response (b), that they were aware of the tongue, or were unaware of the work of the tongue respectively. It is pleasing to note that the majority of respondents were at least sometimes aware of the tongue during singing. At the current stage of development of the students this was an expected response.

Question 4 'When singing are you aware of other parts of the vocal apparatus? If so, which of the following do you identify as playing a part in your voice production?'

This was a more complicated question in that it gave the choice of a number of parts of the vocal apparatus, and asked respondents to identify awareness of any or all of those anatomical parts. The question begs a question of its own – that is, how can the singer be aware of parts of the vocal anatomy unless they have either been pointed out already by a teacher (or third party) or the singer has researched and understood the anatomy themselves? This point was not mentioned by any of the respondents, but should be borne in mind when considering the significance of the responses.

Three of the respondents nominated only one part of the vocal anatomy (the throat, jaw and ‘abdominal muscle’ respectively). (I note that ‘abdominal muscle’ is not part of the vocal anatomy suggested by the given answers to the question – however, it is obviously part of the thinking about the vocal mechanism in the mind of the respondent whose answer is quoted below.) Of the remainder all but one of the respondents nominated a minimum of two to a maximum of six parts of the vocal apparatus. The majority of the respondents noted that they were aware of the larynx (11 responses), with the jaw (9 responses) and the soft palate (9 responses). Four respondents took the suggested option of naming another (unlisted) part of the vocal apparatus.

F5: ‘Soft palate I am aware of only through listening to myself as I sing, and am aware of all the above (except for hard palate) at any time I feel tension, or am focusing my attention on different parts to make sure they are behaving!’

F7: ‘Vocal folds’,³²

M1: ‘Diaphragm’ (Not actually part of the vocal apparatus per se – but I will agree it is involved in the singing process.)

First Year F1: I currently have a false tooth connected to a plate and I’d had to learn to use my tongue and my teeth differently so that I can sing and talk without a lisp so I am very aware of the shape of my mouth and the placement of my tongue.

One respondent chose response (g) ‘none of the above’.

Question 5 ‘During the act of phonation (making sound), are you aware of the work that your body is doing? If so, which of the following areas come to your attention?’

This question aimed to probe the respondent’s awareness of the rest of the body (other than the vocal apparatus) while singing. Respondents were invited to include their awareness of more than one part of the body. Three respondents nominated only one part of the body, F2 and F9 nominated the lower abdominal muscles and M2 the shoulders. The remaining respondents nominated between two and four of the options

³² This is an interesting comment as the literature suggests that we are unable to feel the movement of the vocal folds themselves. It may be that the respondent is aware of the false vocal folds instead, or perhaps the feeling of the folds coming together prior to the initiation of sound as suggested by Estill [1997]). The comment suggests that the participant is aware of the term ‘vocal fold’ and some understanding of the concept of the use of the folds in the production of sound.

with the *diaphragm* (c) (10 responses) and the *lower abdominal muscles* (e) (11 responses) being chosen most often.

Four respondents chose response (f) in order to specify *other areas of awareness*. The invitation to elaborate with free comments drew the following:

F5: ‘Again, all of the above at some point - it depends on tension, and if I am actively focusing on a body part to monitor it. It isn’t a continual awareness, though.’

F7: ‘There is strain in keeping balance and I feel a focus on feet and legs as well.’

F8: ‘My legs & feet: I tend to lock my knees when nervous so I pay close attention to them, making sure I leave them nice and loosened when singing.’

First Year F 2: ‘head, neck, feet’.

Question 6 ‘If you notice any tension in your body when you are singing, where might that be located?’

Following the two questions about awareness of tension in parts of the vocal anatomy and the body, Question 6 asked if respondents noticed tension in any part of the body while they were singing.

This question drew an interesting range of answers. Two respondents (F5 and F8) nominated five areas each and, interestingly, the same five; knees, legs, jaw, tongue.³³ These respondents also offered information on other areas of tension (shown below). Three respondents nominated only one area of awareness of tension, the remainder nominated between two and four areas. It would appear that all respondents were familiar with some sensation of tension in the body while singing. It is interesting to note that two areas, the tongue (11 responses) and the jaw (9 responses), were selected by the majority of respondents. I am aware, from my own studio that students tend to exhibit tension in one or both of these areas and spend time in lessons correcting the same. The answers may suggest that students are aware of the tensions in the tongue and jaw because it has been repeatedly pointed out that he or she is carrying tension there. Of further interest is that no respondent answered with response (b), arms and

³³ There were no other coincidences between responses that might suggest evidence of collaborative work between the two respondents.

only two nominated response (a), hands. In my experience, however, most students will carry tension in the arms and hands and it is interesting to note that few are aware of that sort of tension.

Seven respondents offered the following additional comments:

F2: 'Having some structural back and neck problems, this is where I sometimes have tension. Especially the neck muscles that attach at the base of the skull. Or the area of my spine between my shoulders.'

F3: 'Buttocks'

F5: 'Shoulders, neck, stomach sometimes'

F7: 'And shoulders'

F8: 'Shoulders: only occasionally'

F9: 'Shoulder.'

First Year F2: 'Shoulders, neck'.

Question 7 'If you feel you are singing badly, on what do you rely to assist you to move on and sing better?'

The aim of this question was to see what action respondents took – or could remember taking - when they perceived that they weren't singing well: how they defined 'singing badly' was not part of the question. The objective was essentially to gather information about what strategies participants were aware of and what they relied on to get them out of what they perceived as a vocally deficient situation.

The most frequently nominated answer here was (c) 'check areas of tension and revise' (thirteen respondents) followed closely by eleven nominations for (a) 'technique'. Of those who made the nominations above, eight nominated both responses (a) and (c). Only two respondents nominated response (e), which was 'use your imagination to visualize the sound you would like to have'. One respondent (First Year F 2), however, mentions visualization in her additional comment (noted below).

Three respondents offered additional comments:

F5: I record my practice, so if I feel I am going wrong I can listen and affirm, and then revise. Another method is simply to abandon technique and attention to my body, and just sing the song for the joy of singing - I record it to see if the freedom of my mind translates to a freedom in the voice. Sometimes yes, sometimes no! Silken, even, rich, unique tone, resonant, flexible, agile. It may sound cliché or ridiculous, but I know when I sing well because it feels like flying. The voice should soar.

First Year F1: I have to tell myself to relax and not try too hard, sometimes I just have to let go.

First Year F2: 'When I feel I am singing badly I try and tell myself it's easy and fun. I move back to technique and visualizing the sound I would like to produce.'

Question 8 'How important is body shape and image for the classical singer?'

This is the first of two questions aimed at the perception of body image and its significance. The first was a general question about body shape and image for the classical singer.

Three respondents nominated (a) 'not important at all', one nominated (b) very important and one chose response (c) 'what does it matter – aren't all opera singers large?' Of interest were the thirteen respondents who nominated (d), a chance to specify their own thoughts on this topic. Their responses are noted below.

F2: 'Are we talking weight here? Or issues of deportment, carriage and confidence? Because to me, the second set are far more important, and in my experience, the two are not always linked as they should be, e.g. thinner girls who have no sense of deportment, etc, or larger people who carry themselves extremely well and have great self image'³⁴

F3: 'I think it used to not matter, but it seems to be becoming more important to look attractive to draw audiences'

F4: 'In my opinion, body shape/image can be extremely important for classical singers, except for those very few extremely gifted singers (i.e. freaks of nature). I think that the notion of "fat opera singers" has been challenged, particularly in the last 10 years. I believe that there has been a large shift in the way the classical world as a whole is seen by (and sold to) its audience as well as how it sees itself. In a music industry that is over saturated with artists, it is far more commonplace to sell singers using their looks. Audiences are also more expectant that singers should be believable in their characters

³⁴ Interestingly this respondent was the one who selected 'very important' as the answer to question 9.

both dramatically and physically as well as musically. Having said that, it is also important to be a healthy weight for your body, as stamina can be affected.'

F5: 'Image only matters if one doesn't present themselves professionally when appropriate, or cannot adjust their appearance for a role. That being said I wouldn't go getting fat for a role!

F7: 'Fit is necessary, so it is not very important, but can seem to change mental strength and confidence.

F8: 'I don't believe shape and image SHOULD be important. However in the professional singing world, in most genres of music, shape and image are becoming exceedingly important from a commercial aspect. It seems as though one need not only be talented but have the body and image which will sell.'

F9: I think that condition is more important than body shape and image – particularly having a good core strength for postural control and breath support. Ultimately I think that the better the physical condition you're in, the better singer you'll be.

F10: 'The singer must be fit and healthy to produce a sustained, supported and technically correct performance. I think you can get away with looking however you like because of the "plump" stereotype.'

F11: 'It depends on individual character.'

M1: 'Somewhat important – as long as the body shape and image does not interfere with the vocal production and performance'

First Year M1: 'Of variable importance depending on the character they are playing'

First Year F1: 'I don't know I'm not a classical singer.'

First Year F2: 'I think that some body shapes lend themselves as greater resonance vessels than others but evidently it isn't the be all and end all. But being fit is important,'

(This question drew the most additional responses from participants than any other question.)

Question 9 'How important is your body shape to you?'

This question asks the participant more directly about his or her perception of own body shape.

This question received a fairly even spread of answers with five respondents selecting response (a) 'very', four nominating response (b) 'not particularly'. A majority of seven respondents nominated response (c) 'I like to look good'. Two respondents F7 and F9 nominated response (d) 'It's part of my concept of myself'.

Question 10 ‘When performing, what do you feel the audience is doing for you?’

This is the first of two questions designed to seek responses about performing in front of an audience and more specifically, what the performer thinks the audience is contributing to his or her performance (and self-esteem as a performer) by being there.³⁵

There were seven respondents who nominated (a) ‘Assisting me by being there’, six nominated (b) ‘Helping the process by giving me some of their energy’. Four nominated (c) ‘There to criticize’ and two (d) ‘Don’t really care either way’. A total of three respondents nominated more than one answer.

Question 11 ‘Do you like performing?’

This question appeared last with the aim of putting the previous responses into context.

The majority of respondents (13) answered (a) ‘Yes’. Two answered (b) ‘sometimes’ and only one responded with (c) ‘no’. Those respondents who answered (c) were asked to elaborate. The single respondent was M2 who stated: ‘I feel like a prostitute’.

Conclusions

For the purposes of this discussion, the responses can be broken up into five main sections.

1. The awareness of sensation, an awareness of physical processes and tensions
2. Strategies to restore a feeling of optimal performance when the singer perceives that it is not going well
3. The importance of body shape
4. The performers perception of the function (and/or contribution) of an audience
5. The performer’s own attitude to performing.

1.1 The Awareness of Sensations in Singing

In Chapter 6 of this thesis I argue that the sensations of resonance and other kinaesthetic feedback can be more useful for a singer than relying on the ear alone. While combining this issue with questions on general self-perception, the survey aimed to

³⁵ It is important to note that the respondents were able to make more than one response if they chose.

clarify the experience of resonance of these respondents who are at an intermediate stage of learning between the young student and the potential professional singer.

The majority of survey participants confirmed that they were aware of listening to themselves and forming judgements about their singing as they were phonating. I would suggest, from anecdotal evidence, that this is the basic method of monitoring the voice adopted by developing singers. They will rely on their own perception of the sound and attempt to change it to suit their (often partially defined) perception of what might be a better sound. The problems associated with gaining an accurate perception of the sound of the voice while singing have been extensively documented (see Chapter 6). There is no doubt that a more resonant performance space can give the singer a stronger aural feedback than a less resonant one, but the main issue remains that the singer does not hear his or her own voice in the same manner that a listener will.

This means that judging the voice while singing could be detrimental as attempts to 'control' the sound can lead to over-production and other forms of constriction. Numerous writers (Vennard 1967, Sundberg 1987, McKinney 1994, Miller 1996, Chapman 2006 etc.) all suggest that we cannot accurately hear ourselves as the majority of feedback is through bone conduction and then via the external ear giving a distorted perception. Some inexperienced singers have had the experience of singing in a very poor acoustic and compensating for the lack of acoustic response by over-singing. Experience will suggest that there exists a tension between the young singer's desire to perform well (to their own internal standards) and a tendency to over-sing even in an acoustically beneficial performance space. Therefore there is a real need to develop other forms of feedback to counter the issues of the skewed perception experienced when singing.

Only one respondent nominated 'Not listen to yourself' as an answer. Additional comments were offered by nine participants (as listed above) that ranged from technically based answers ('support', 'centering the body', 'breath management') to the perception of resonance and tension. One respondent (F3) commented on the idea of communicating the character or narrative in the song as the way to ensure that the voice was functioning well. This view – possibly reached intuitively by the student or indicative of a greater range of experience than other participants – is in accord with the

recommendation of writers such as Kagen (1950), Reid (1965), Vennard (1967), and Sell (2005), who insist that the way to achieve vocal colour and quality is to conceive the musical phrase in the mind prior to phonation. The conception of a character and/or a clear sense of the narrative can assist the performer to conceive a musical phrase clearly and therefore achieve a range of vocal colours necessary to make an interesting performance.

What these responses appear to infer, is that if the student is to learn to rely on a mixture of feedback, aural, kinaesthetic and proprioceptive then those concepts will need to be introduced *early in the tertiary learning process so that students can experience them as the voice develops*.

The majority of respondents noted that they were aware of the sensations of resonance while they were singing, others noted that they were *sometimes* aware and only one respondent (M2) indicated that he was *unaware* of any resonances. The literature repeatedly shows that sensations will be felt by singers both in the head, and in the body. This would tend to support the view expressed earlier that there are different ways to register sensations of singing: not all singers will feel identical sensations, nor will they register them in the same place. This is one of the difficulties for teacher and student alike – each must find a way to talk about the sensations found in singing in a language that is understood by the other. It is not enough for a teacher to say ‘this is how it is’ and expect the student to understand and feel exactly the same way. As Martha Elliott observes in her book *Singing in Style* :

‘...the language we must use to talk about singing – in a voice lesson, at a rehearsal, or in a concert review – is subjective and imprecise at best. Even new developments in scientific technology for vocal pedagogy may only complicate the problem of communicating with language about something that has to do with subtle internal sensations.’(Elliott, 2006, 3)

Although this statement suggests that descriptive and analytical language on or about singing may be subjective, it is possible – between teacher and student – to find descriptors that both may use and understand. It may be noted that the questionnaire did not ask where the sensations were felt, rather if respondents were *aware* of sensations per se.

1. 2 Awareness of Physical Processes and Tensions

Questions 2 – 6 of the questionnaire reflect my belief that it is important for the singer to be aware of the physical nature of their instrument and to be able to identify areas in which excessive or counterproductive tension are felt. There is no need, however, to dwell on the physicality of singing in a negative manner and simply find tension for tension's sake. Rather, I see the process of aligning the body in the optimal manner for singing as a way to assist the student to become aware of the physical state of the body in a positive fashion. In other words, rehearsal for performance includes rehearsing the posture for performance. In this way, muscle memory of the stance is integrated with the muscle memory of those muscles used for producing and supporting the sound.

Tension in the tongue root (from a number of causes) can be a major factor at play when a voice exhibits a lack of resonance, shows uneven resonance, or the singer displays obvious tension in the jaw and in the throat. The tongue is a large muscular mass and therefore the manner in which it is used (both positive and negative) is of considerable concern. As we learn to speak through imitation, we are usually completely unaware of the manner in which the tongue is working: after all it has other functions besides speech, mainly in its involvement in the process of mastication and assisting the resultant bolus of food to move into the oesophagus. The habitual usage of the tongue can easily, therefore, translate into the way in which the tongue is used in singing. The correct formation of Italianate vowels plays an important part in the use of the tongue for English-speaking singers, regardless of nationality and accent and is repeatedly stated in the texts on classical voice production that have been reviewed for this thesis. The production and reinforcement of the partials and formants found in classical singing requires the tongue to work in a manner that is perhaps unlike the way the student may have experienced until that point. In my experience, it is sometimes a revelatory experience for the student to understand how his or her own tongue functions and its role in producing the various vowels and their accompanying resonance.

White (1989, 87) describes in detail the use of the tongue and the sections of the organ (back, hump, tip) that are used in the production of partials and formants in classical singing (see page 62). Authors such as Chapman (2006) offer a number of exercises to

release tongue tension. Estill speaks of the ‘compressed tongue’³⁶, and its usefulness for producing bright vowels. (Estill, 1997a). Early music soprano, Dame Emma Kirkby agrees that bright vowels are the most useful when singing and she concentrates on the back of the tongue ensuring that it is ‘high’. She states that she uses ‘Jah’ a great deal in practice to ensure that the back of the tongue is high³⁷. (Interview recorded by C Allan in London, 2 August, 2009 and quoted with permission.) It is clear that many authors and singers consider the nature of the function of the tongue very highly when singing in the classical manner. This is the reason, to my mind, why the student must be aware of the tongue and how it’s function pertains to them.

The majority of participants nominated that they were *sometimes* aware of the working of the tongue, and I would suggest that this indicates positive progress. The ability to discern what the tongue is doing, and the knowledge of how to change the manner of its function, can assist the student to consistently form resonant vowels and to reduce tensions in the jaw and neck³⁸.

Question 4 asked students to nominate the parts of the vocal apparatus of which they were aware during the act of singing. The responses to this question indicated that the majority of respondents were aware of their vocal apparatus with the throat, soft and hard palates and larynx being well noted. The respondents noted that they were also aware of the jaw. As singers we become acutely aware of the various parts of the vocal anatomy and are aware of the smallest ulcer or scratchy feeling in the throat. Although this can be counterproductive if the singer dwells on negative feelings or worries about impending sickness which may result in anxiety, the positive aspect of this hyper-awareness is that, in private practice, the singer is able to focus awareness on particular parts of the anatomy in order to either decrease tension or to instigate a new type of response, other than a habitual one. For example, if the singer is attempting to initiate a ‘pre-yawn’ state an understanding of the various parts of the throat and mouth can assist

³⁶As I understand Estill’s concept, the back of the tongue is moved slightly up and forward as in the position for the vowel /i/.

³⁷ The semi-vowel /J/ brings the back of the tongue forward during the execution of the word “Jah”. Indeed placed in front of any vowel the “J” will have the effect of bringing the back of the tongue up and forward.

³⁸ Many developing singers will use the tongue and the jaw as a singular “unit”. It is vital that the two are identified and used as separate entities.

them to quickly get some consistent kinaesthetic feedback so that the pre-yawn can become the habitual part of the intake of the singing breath.

When we turn to the awareness of the rest of the body in the phonation process, respondents highly rated the diaphragm and the lower abdominal muscles as those of which they were most aware. Most of the literature mentioned in Chapter 1 mentions the diaphragm and, especially in literature from the later twentieth century and authors in more recent years, such as Vennard (1967), McKinney (1994), Miller (1996), Bunch (1997), Sell (2005), Chapman (2006), the lower abdominal muscles are extensively described as those vital to the support of the classical singing voice. It would seem that from their accounts and from discussion with many other singers and teachers is that humans do not have a direct feeling of the diaphragm as it moves, due to the fact that it is an involuntary muscle and has no proprioceptive nerve endings: rather we feel the displacement of the viscera as it descends into the abdomen. It would be interesting to know if those who nominated the diaphragm meant that they felt the displacement. There is some confusion, in anecdotal experience, between ‘the diaphragm’, ‘diaphragmatic breathing’ and ‘abdominal breathing’ (or support) amongst students. This is most probably another example of the inconsistency of language amongst teachers, in that some may call the type of breathing used in singing by any or all of the above names, and mean the same thing.

A few respondents also noted that the legs and feet played a part in their performance. I believe that this is another point to do with the alignment of the body, and stems in this case, from the position of the pelvis. The advocates of body methods such as Alexander Technique, Feldenkrais Method and Andover Education would suggest the correct posture of the lumbar spine as it meets the pelvis has, in turn, a major effect on the alignment of the knees. Working from the other direction, an even balance of the feet will ensure that the knees are also not locked.

Question 6 asked respondents if they were aware of any tension in parts of the body other than the vocal apparatus. Most respondents noted more than one area of tension awareness (some up to five) with knees, legs, jaw and tongue being the most nominated sites of tension. It was interesting to see that all respondents noted some area of tension while singing, even the respondent who was unable to report any resonance sensations

while singing. As discussed earlier, Balk (1987) notes that singers often ‘hold’ their sound with part of the body while singing and are reluctant to let it go. He, and others, suggest that manipulation of the tense areas while the student is singing will help the singer to release it and that this can work well in a class situation using other students to engage in the process of manipulation – I would suspect that this may also enlighten them to tension in their own bodies. In a similar manner I, and many other teachers of my acquaintance, will use distraction techniques such as throwing and catching a ball to allow a singer to lose tension. The difficulty is always lies in translating the free feeling without the aid of the ball or other distraction technique – but awareness is vital to the student understanding the tension they are holding, not simply trying hard to release it and perhaps creating tension in other areas.

In the additional comments contributed by seven of the respondents, it is noteworthy that shoulders were mentioned by six of these seven. I note, in my studio, that shoulder tension is one of the most prevalent forms of body tension and may coincide with a number of counter-productive and effortful practices with which students engage. As shoulders sometimes continue to rise in developing singers prior to the establishment of a habitual breath management system, and as many younger singers feel uncomfortable with knowing what to do with arms and hands while singing, it is no wonder that tension in the shoulders is a well-recognised and recurrent factor. Once again this brings us back to the subject of the balanced body and where effort is registered during the process of singing. Author Karen Sell recognises these problems as she advocates:

‘Tension in any part of the body should not be apparent. Veins, arteries and muscles of the neck should not protrude in an alarming way. Shoulders should not rise and fall when breathing. Energy, vitality and dynamic presence are essential.’ (Sell, 2005, 72)

2. Restoring a Feeling of Optimal Performance

When considering this aspect of technical skill the question is raised, once again, of the skewed perception that the singer gains about his or her own performance. If they are relying on the ear alone to monitor progress and make decisions about changing the nature of phonation, it could be that the changes made to their sound production may not effectively ensure that the manner of phonation is ‘better’. The nature of the singer’s practice sessions will again play a major role in orientating the singer to the best possible sounds and to methods of changing the sound to find an optimal sound for

each individual singer at whatever stage of development. A useful concept, used by many teachers and suggested by authors including Reid (1965, p 1), Vennard (1967, p 49), McKinney (1994, p 78) is that the initial sound uttered by the singer is the sound that should be maintained throughout the phrase. This means that practice sessions should ensure that an optimal sound for each phrase is rehearsed. The teacher and student may have worked on this strategy during the individual lesson and, if the lesson is recorded, the singer should have some recorded feedback. In the same way, the student will have noted other forms of kinaesthetic feedback and attempt to reproduce those in practice sessions as well. Sell has some salient comments on this process:

‘...the auditor/teacher determines which is the student’s best sound, and then encourages the student to remember how it felt and sounded so that it can be rehearsed and remembered.’ (Sell, 2005, 121)

And further:

‘The way in which the singer, at whatever level of achievement, begins the initial sound determines the rest of the phrase. Similarly the way the sound is ended influences the beginning of the next phrase.’ (Ibid, 110)

The responses of the participants suggest the formation of a clear mental image of the sound was not a high priority for the vast majority (only one participant spoke – in an additional comment – about the need to think about forming the sound in the mind prior to phonation).

The majority of respondents nominated that they would mentally check areas of tension and revise what they were doing based on that perception. Given that the respondents were able to point out clearly that they were aware of tension in both the vocal apparatus and in the body, it would appear to be a logical conclusion that they would check the body for tension and attempt to release it in order for the voice to phonate more freely. The other major response was ‘technique’ and the majority of those who nominated ‘check tension and revise’ also nominated ‘technique’. The additional comments made by respondents are also interesting. Several allude to the concept of ‘letting go’, which are, in my experience, two words that are often used by singing teachers. There is always a danger of concentrating too much on technique and therefore forgetting about the sheer delight of singing. A number of singers and authors such as Thomas Hemsley (1998) base their work on the principle of stimulating the imagination and communicative aspects of singing, on the premise that this will often

yield the result of freer phonation. Balk (1987) in a similar manner aims to show how the body and mind can become united in the performer's search for a free and convincing performance.

I suggest that whichever route is taken in the attempt to adopt a balanced body, the nature of practice is a major factor in the process. Unless the student is prompted to include considerations of balance and to be aware of tension, it is virtually impossible of them to utilize such postures during performance – especially as it is often during performance in front of an audience that anxiety will become a factor. Anxiety most often causes tension where it is not needed, and manifests as a lack of freedom in the breath support muscles and often in a constricted throat.

3. The Importance of Body Shape

The answers to the questionnaire appear to support my sense (resulting from current studio experience) that the student's perception of the way they appear to themselves and others can be a decisive factor in their ability to adopt alternative uses of support muscles. For example, the student who is used to pulling the body upright to present with 'good posture' and habitually holds the belly tight may resist teacher's instructions to 'let the belly go' during inhalation³⁹.

Even though the student may intellectually appreciate the need to 'drop the tummy' (as is often said in my studio and many others) while inhaling, they may struggle to comply with this indication.

The first of the two questions asked for responses on the importance of body shape for the classical singer. The jokes about fat opera singers abound, including the apocryphal phrase 'its not over till the fat lady sings'. In the past twenty years, however, there is a trend seen in the world's opera houses toward what one might term a more 'natural' look, so that if a performer is portraying a young girl there may be a stronger resemblance to the character (e.g. Tosca who is eighteen or Butterfly who is a similar age) there may be a stronger resemblance to the character. But it would be hard to deny that those who sing grand opera tend to generally be larger framed people. Obviously

³⁹ It is salient, at this point to remind ourselves of the personal nature of the voice, not only is the instrument we use part of our body but also part of our sense of 'self'.

there are exceptions, but in my experience those with a smaller frame and build tend to struggle to compete with the size of modern opera houses and the orchestral forces that accompany much of the popular operatic repertoire.

The majority of respondents (13/16) chose to add their own comments which indicated that they were both familiar not only with the 'cult of image' which pervades the media, but also with the idea that there is changing attitude toward image and presentation in the classical music world. From a commercial viewpoint, an attractive picture can assist in the sales of recordings, be used for interview purposes or stories in the press. One only has to look at the CD cover of almost any current female performer to realize the importance of the performer's image. They are regularly depicted in very glamorous poses. One may sympathise with the response from the First Year M1 who stated: 'Of variable importance depending on the character they are playing'. This observation resonated with my private response to this matter.

The second question 'body image' question referred more to the respondent's personal image and how important it was for them. The even spread of responses is interesting here. Five participants nominated that it was 'very' important for them, four that it was 'not particularly' important and seven respondents nominated that they 'like to look good'. I had added the answer 'It's part of my concept of myself' to see whether the idea of body and mind were obviously one-and-the-same and whether that would be something that would be widely considered in the consideration of singers. Only two respondents, however, chose that response. (It was not possible to draw a correlation between the actual size and body shape of the participants, due to the requirement of anonymity of the survey).

Of interest was the response: 'Image only matters if one doesn't present themselves professionally when appropriate, or cannot adjust their appearance for a role' (Respondent F5). This may be read as a mature response that is probably closest to the reality of working life for most professional singers. That majority of working singers who do not have solo recording contracts but who regularly appear on opera or concert stages undoubtedly present themselves appropriately and can, and do respond to the physical parameters and demands of an operatic role.

4. The Participant's Perception of the Value of an Audience

As many developing performers tend to suffer from performance anxiety, I have spoken about the role of an audience to students – both during individual lessons and in class situations – as one approach to de-mystifying the performance process and, hopefully, assisting the student to deal with performance anxiety. The audience, as I explain, is essentially there to support the performer and can become part of a helpful energy transfer process as the audience members become involved in the performance. Rigby suggests:

‘A good performer needs to maintain a connection with the audience in order to maintain a balance between his emotional expression and the needs and expectations of the audience’. (Rigby, 1998, 118)

As a performer we give the audience a *carte blanche* invitation to scrutinize us closely. It is useful to bear in mind the work of Ekman and Friesen (1975) (cited in Chapter 8, p 195) which tells of the interaction between a performer displaying emotion and the manner in which audience members interpret that emotion during performance. Those authors mention that, due to the nature of performance, the performer has given permission for the audience to look at them in an unreserved fashion (Ekman and Friesen, 1975, 15-16). It is natural for a young performer to feel uncomfortable under that sort of scrutiny, especially when the performance is being assessed for examination or audition purposes. If, however, the performer is able to understand that the audience can also be used as a source of energy and positive reinforcement, then it may make it easier for them to look forward to performing and to enjoy the experience.

The first of the two questions around performing and audiences asked what the respondents felt the role of the audience was when attending a performance. To the question ‘When performing what do you feel the audience is doing for you?’ the majority of responses were positive. They were either (a) assisting by being there or (b) helping by giving some of their energy. Four respondents replied that the audience was there to criticize and two did not care about the audience's presence and attendance. It would appear that the positive reinforcement of the role of the audience has, in general, had an effect on the student cohort with whom I work. It should be acknowledged, also, that the positive nature of their view of the audience may also be drawn from the student's previous stage experience. Of the four who mentioned criticism as a factor in

their experience, two of the respondents also nominated one of the positive responses as well as the negative one.

5. The Participant's Own Attitude to Performance.

To the question: 'Do you like performing' the vast majority of responses were positive – they answered response (a) 'yes'. Two answered 'sometimes' and only one person responded with 'no'. It was gratifying to read that the current student cohort in a typical Australian university generally enjoys performing. My day-to-day perception was that students should and do enjoy performing, but it was useful to receive the response in a formal way.

The above response also suggests that the current student cohort is a highly motivated group of singing students. I believe that this is a further result of an approach in which the students are deliberately nurtured to encourage collegiality.

The First Year Student Sub-Set

Although the first-year students were separated in order to pick up any trends that may have pertained to that cohort, the responses were similar to the general range chosen by all respondents. This may be an indication that the questions were very general in nature and therefore were not specific enough to show differences in trends between those students who had a longer period of contact with the teaching approaches at the University of Newcastle. In addition, the type and range of responses are also consistent with the fact that all of the students are in the early stages of vocal development and therefore may have been expected to respond in a similar manner.

Trends and Reflection

Preceding chapters of the thesis have dealt with the issues surrounding a singer's perception of the voice and earlier in this chapter I suggest the use of a checklist designed to assist the singer to perceive and understand the sensations they may register when he or she is singing. The checklist offers suggestions of ways to troubleshoot technical issues. The problems of the singer's own perception of his or her own voice has occupied a central part in this investigation. Thus the first seven questions were designed to elicit whether students were in fact registering sensations including those of

resonance and tension as they were performing. The range of responses would suggest that the majority of respondents were indeed aware of both the sensations of resonance and the positive (tension free) and negative (tense) feelings that were notice both in the vocal apparatus and in the body of the performer. As teachers we are all familiar with the student who tries too hard and often makes the situation worse rather than better. It is the development of the singer's own insights into vocal technique that will precipitate change, rather than just trying harder. It is mindful to remember Balk's comment about 'awareness preceding growth' here.

Establishing a Useful Practice Regime

The awareness of vocal and tension problems, and the acquisition of strategies to overcome them, require of the teacher and student that they develop a strong, mutually respectful relationship through which the student can learn and the teacher transfer knowledge effectively. A further essential facet of the teaching process is thus to ensure an effective practice regime is established during which the student will attempt to incorporate the technical aspects of voice production and begin to explore with confidence an imaginative approach to the performance of their works. As Sell states:

'Pupils should always leave the lesson feeling better, more confident and fulfilled. They should have enjoyed the musical experience, and should understand and look forward to what is expected of them in their home practice.' (Sell, 2005, 49)

There is no doubt in my mind that one of the most difficult procedures for a student is to re-establish technique if they encounter difficulties during performance or practice. So much of this is bound up with perception of the singer's own performance that it is easy to be misled dependent on the mix of aural, kinaesthetic and proprioceptive feedback that is obtaining at the time of performance. As seen above, the respondents named 'technique' as a method of correcting poor singing, but, significantly, the most nominated answer was 'check areas of tension and revise'. This answer suggests that the respondents are aware that unwanted tension is a major factor in determining the quality of the vocal sound, especially tension in the vocal tract itself (although we have seen that tension in the body can be equally counterproductive - Balk's 'awareness' quote is once again salient here.)

The checklist outlined earlier is based on the premise that students might respond to a number of factors that are counterproductive to free phonation in an inappropriate

manner. A positive use of checklist might assist the student to use the feedback they have both heard and felt to correct vocal problems. Sell comments on the various methods of feedback as follows:

‘The three proprioceptive stratagems, hearing, feeling and seeing the voice are extremely reliable checkpoints, given the parameters of healthy and efficient vocal function based on a systematic technique, and they should be included in all vocal pedagogy.’ (Sell, 2005, 129)

I interpret Sell’s idea of ‘seeing’ the voice as a combination of the external presentation of the singer coupled with the internal conception of the sound prior to utterance. To envisage (see) the sound before it is heard is a concept that has been discussed earlier in this thesis and has been a consistent thread in the evolution of vocal training from historical to current times.

The questions on body shape were drawn from my perceptions of one of the problems I have encountered in my studio over the years: that is, the importance of encouraging young singers - bearing in mind that the majority of the students are female - to allow themselves to adopt an alternative body shape during singing. In order to breathe effectively they must allow the muscles in the lower abdomen to release on inhalation and this procedure does not always fit with their idea of either ‘good posture’ or themselves as an attractive person. Once the physiological and sometimes psychological hurdle is negotiated, the student recognises the benefits of the release of the abdominal muscles. From the occurrence of references to this issue by authors such as Kiesgen, the tight belly/loose belly problem is not a local phenomenon but rather one that is encountered habitually in the teaching of classical singing worldwide (Kiesgen, 2005, 170).

The quality and detail of the comments made by participants to the questionnaire suggests that many were not only aware of the wider-world perception of body image but also how it pertained to them and their industry. The responses to Question 9 which asked particularly about the importance of the individual’s body shape were interesting in that the spread of responses was closely aligned over three answers: ‘very’, ‘not particularly’ and ‘I like to look good’. These responses would suggest, therefore, that the majority were concerned with their appearance, as one might expect given the age range of the respondents (most are in late teens, or early twenties).

On the subject of attitudes to performance, the responses demonstrated what may have been expected of students involved in a performance degree – that they enjoyed performing. Of more interest were the responses to the role of the audience. At the University of Newcastle all of the performance students are required to perform regularly in concert practice classes held in the Conservatorium Concert Hall where they perform to their peers. Many report anecdotally that they see this practice as ‘artificial’ in nature by virtue of the fact that performers would normally be seen by a mixed audience of music lovers, rather than an audience made up entirely of other musicians. They perceive performance practice sessions to be useful but not entirely ‘real’ in nature. Additionally, as a teacher, one has to attempt to ensure that the end of semester assessment is *not* the only performance a student undertakes prior to the end of semester examination. It seems to be logical that the student, therefore, understands the cooperative nature of an audience and that, given an adequate state of preparation by the student for the performance, the student can use the cooperative and collaborative nature of an audience to affirm their efforts and enhance the performance as a communicative act.

Reflection on the construction of and responses to the questionnaire itself suggests that there could have been areas in which additional questions could have been posed to that probe the respondents experience and beliefs more deeply. For example, a question on whether the tension the participants observed in their body had been initially pointed out to them by a teacher or whether they had made those observations on their own may have further clarified that point. Similarly, alongside the question on their awareness of the body, another aimed at discovering whether respondents feel that they have good skills in public performance or not. This could lead to the question whether student’s self-belief is a contributing factor to the presence of physical tension. More specifically, it would develop the scope of the current questionnaire to pose questions about areas of tension that are concentrated on the face, allied to question of the display of emotional state on the face while performing. Each of these is an area of interest in its own right that plays a part in the development of the singer as a confident and communicative performer.

The complexity of the task that faces the developing singer is emphasized in the discussion of self-monitoring: the checklist is a strategy designed to help simplify that

task, while bearing in mind the diverse factors that may be discussed in the singing lesson (see earlier discussion in Chapter 6). The use of the questionnaire is proposed as a follow-up for both teacher and student, first to engage the student to question their own perceptions and perhaps clarify some of the technical concepts they are dealing with, and secondly to aid in the process of communication. The teacher can use such a questionnaire to gauge the effectiveness of the strategies that they employ with students to initiate and develop technical and performance development. The anonymity of the process is designed to ensure minimize any pressure the student may feel to address the questions with answers they feel the teacher requires. However, it is clear that to initiate a worthwhile follow-up, participants may have to be encouraged to engage in a group discussion with the teacher.

Whatever the significance of the responses, the questionnaire served its purpose of allowing the respondents to voice their reactions to the questions and to add explanatory comments as appropriate. The previous chapter (6), where the issues of self-monitoring were discussed, highlights the complexity of the task that faces the developing singer. Approximately 50% of the classical singing student cohort responded, and even though this group is not large, the variety of responses reinforces the notion that students learn and progress in diverse ways. The questions isolated some of the areas, such as perception of sensation, that were addressed in previous thesis chapters and it is interesting to note that the majority of students were indeed aware of sensations both in the body and the sound. As indicated at the beginning of this chapter it would be illuminating to set up entry and exit questionnaires for the vocal students. This could be used both to gauge the expectations and experiences of the cohort upon entry and to note whether these expectations had been achieved and if the experiences during the period had contributed to changing the expectations of the student.

CHAPTER 8

From Research into Practice

In the initial chapter of this thesis I spoke of my journey as a voice teacher, which began as one who taught in the manner in which I was taught. This has evolved to the present day where I aim to be informed, up to date with current information on vocal research, and seek to transmit ideas and concepts to students in an interesting and effective manner. This is in addition to a genuine desire to teach in a manner that is appreciably different from the approach to teaching that I experienced as a student⁴⁰. A great deal of the desire to transmit ideas effectively in a voice lesson is drawn from the need to assist students who may fail to respond initially to the main concepts of vocal technique as outlined earlier in the thesis –resonance, breath management and the ability to maintain an open throat.

The need for a variety of approaches is accepted in current learning environments. It is widely recognised that people learn in a number of ways and theories of learning such as those of Daniel Goleman (*Emotional Intelligence* 1996) and Howard Gardner (*Multiple Intelligences* 1983) make it very clear that a teacher's approach will need to be flexible to account for differing learning modes. Therefore it is quite possible that a more wide ranging approach to singing pedagogy which encompasses a range of learning styles and a consideration of all aspects of the person (mind, body and spirit) might be useful to adopt. Additionally it would appear that in the field of learning, practitioners are now more aware of the complex multi-factorial nature of human interaction, which includes learning and well being, and recognises the need for a holistic approach in pedagogy.

With that concept in mind, it is important then to attempt to integrate the information given to us by voice researchers and teachers into a form where the individual student's needs are taken into consideration.

Writers such as Callaghan (2000) and Sell (2005) are seen to argue along similar lines to those that I have experienced as a practitioner - that it is not enough for the teacher to

⁴⁰ Recent feedback from students at the University of Newcastle would suggest that my approach is valued by students.

rely on material that they may have absorbed as a student or in the early stages of their professional career alone, but that they need to be on a continual quest for new knowledge which may help them to find new ways to become more effective teachers and communicators. Such authors also suggest that the teacher should not limit himself to just one method of vocal tuition (i.e. not to stick slavishly to one style of teaching or method of teaching) but rather explore the different possibilities and styles of teaching so that the teacher can enter into a learning partnership with the student in which the teacher can respond to feedback from the student and offer ideas tailored to a particular student's strengths/weaknesses and learning style. Such an approach offers alternatives to students with respect to teaching the basic skills of classical singing, allowing students to more actively engage in the learning process.

Gardiner (1983) proposes that there are three distinct learning styles: Visual Learners who tend to think in pictures and learn best from visual displays; Auditory Learners who learn through listening and talking things through with others -these students often benefit from the use of recorded lessons; and Tactile/Kinaesthetic Learners who learn best from a 'hands-on' approach. With the idea of diverse learning styles in mind the results of investigation into the voice can become a wellspring of information, allowing the teacher to increase the number of approaches to any given concept of vocal technique. Balk (1985) has adapted a similar approach in his book *Performing Power – A New Approach for the Singer-Actor* where he postulated three learning and presentation modes that singers and actor use both when learning and presenting works.

For the student who responds well to visual learning, models of the vocal apparatus and diagrams of the same may facilitate their understanding. Estill's idea of false vocal fold (FVF) retraction, for example (Estill, 1997a, pp 55-63), may make more sense to a student with visual learning style if they can view a model of the larynx, note where the true and false vocal folds are located and then gain a visual picture of what is taking place. Or perhaps view a videorecording of a larynx in action. The ultimate step in this process could be to have the student experience laryngoscopy where the students is able

to see in real time what effect different vocal techniques such as FVF will have on the larynx⁴¹.

The same concept could be introduced to an Auditory Learner through demonstrations of constricted and retracted singing and encouraging the student to imitate both ways of producing those types of sound. It may help to listen to other singers and to attempt to identify whether the false folds are retracted or constricted. Group work will often be useful in these cases as the auditory learner can interact closely with other students, enabling them to obtain further insights into the working of vocal technique.

Similarly, the Kinaesthetic Learner may be assisted from physical exercises (such as Estill's manoeuvres for retracted false vocal folds (1997a, pp 57-63). It may also help such a learner to work with other students with a hands-on approach in group-work sessions. Some students have, of course, combinations of attributes of those three styles of learning, hence the need for the teacher to be adaptable and to offer multiple approaches to the acquisition of the concepts of vocal technique.

In order to arm themselves with a variety of options, teachers can readily find articles and books that display the results of investigation into the voice. The very striking thing about the material available to the teacher is that one can often use the information for one aspect of vocal technique and adapt it for use with another fragment of technique. The fact that the voice is dependant on all its parts to effectively function to produce a classical vocal sound means that as one makes changes in one part of the overall quality by teaching the student to adjust a item of vocal technique then the effects of that change may be noted in the overall production of the voice. For example Chapman's *Puffy Cheeks* exercise which she has developed for high soft singing (paper given at British Voice Association Professional Development Day July, 2009), I have adapted for use with those students who struggle with opening the throat (see detailed description later in this chapter (pp 184-185). Similarly Titze's *Vocal Straw Exercise* (which is available to view on YouTube at www.youtube.com/watch?v=0xYDvwvin

⁴¹ Indeed, on July 2, 2010 I attended the final session of the Estill Voicecraft Course run at Sydney Conservatorium by Helen Tiller where all participants in the course were offered the chance to have a laryngoscopic procedure by an attending Ear, Nose and Throat specialist (Dr J Tomich) so that they could observe the effect that the vocal maneuvers they had learnt during the course had on their own vocal apparatus.

BIM) was developed by the author for use with tired voices as a simple rehabilitation device for professional voice users such as teachers. The use of the straw, I have found, is equally beneficial for use with the student who is struggling to effectively engage the abdominal muscles. This exercise assist the student to become more aware of the lower abdominals and therefore make their use much more effective. It also has the ability to open the throat and take effort out of the neck muscles (Titze's original intention) – as it is in effect a semi-occluded vocal tract exercise⁴² - and thus is of further use to the teacher to assist the student to recognise and feel the kinaesthetic feedback from the neck and throat muscles.

It is the process of adapting material from a variety of sources that can make teaching so interesting. As has already been explained early in this chapter, the range of student experiences and learning styles demands a range of approaches. As a teacher, ones inventiveness and willingness to find a way through a problem is constantly challenged. This also means that, in order to meet the challenges, a teacher must have the resources to manage them. The plethora of information available to the interested teacher – so much more extensive than in any previous generation - means that new approaches can always be found. To quote Balk again – from a different perspective – ‘awareness always precedes growth’ (1985, 197).

What follows are a range of vocal exercises that I have developed over the last ten years, using Speech Quality as the basis for modelling desirable vocal function.

Exercises Based on the Use of Speech Quality

The following exercises are designed to aid the establishment of a classical vocal sound using speech quality and primal sounds as the basis for their development.

1. Ah-ha and Mmmm

⁴² Meaning that the vocal tract is partially restricted – in this case by restricting the airflow from the lungs through the straw, thereby also ‘inflating’ the pharynx as a by-product. Such a restriction encourages stronger participation by the abdominal muscles through a throat that is open due to the inflation of the pharynx. Chapman's *Puffy Cheeks* exercise falls into the category of ‘semi-occluded vocal tract’ as well.

Rationale: Both of these sounds awaken the use of the abdominal muscles around the waistband. Engaging and releasing these muscles (as shown by repeating either noise a number of times) may be unfamiliar to the student. As either sound may be reproduced instinctively, they are a useful way to initiate this response in the body.

Explanation:

In my experience some students are unfamiliar with the concept of allowing the ribs to swing out for inhalation. In order for this to happen, and to correspondingly allow the ribs to return to a more central position at the end of the exhaled breath, the student needs to feel the slight spring of the ribs as the breath is taken. This allows the singer to take advantage of the natural elastic recoil of the muscles of expiration. The ribs must be lifted (swung out) by the external intercostals otherwise the muscles of expiration remain under-utilized and the resultant vocal sound is unsupported and weak.

In order to facilitate expansion of the rib cage, the student is encouraged to place their hands on the waistband (level with the belly button) and to feel the response of the muscles and the rib cage when expressing mild surprise – as in ‘Ah-Ha!’ Repetition will show the student which muscles are being released and subsequently engaged when these sounds are being made. Kinaesthetic awareness should be encouraged.

Placing the thumb of one hand in the belly button and laying that hand flat with the fingers pointing to the floor can also allow the student to monitor the release of the abdominal muscles under the hand on inhalation and the subsequent engagement of the external intercostal muscles and the abdominal muscles when making the exclamation – ‘Ah-Ha’. The student can then leave one hand on the waistband and the other on the front of the abdomen and, in this way, they are able to monitor the muscles that are being engaged and released in turn.

Once the student has felt the intercostal and abdominal muscles move and grasped the necessity of using them to support sound, the teacher can progress to further help the student utilize an assisted exhalation. In my opinion there is another factor worthy of identification here. If the student is encouraged to take a breath that is free of tension and then ‘clamps’ the abdominal muscles *prior* to producing a sound, then the breath out and the resultant sound that is produced will be compromised. It is important to

ensure that the support muscles are activated *with* the sound rather than before. Because muscles either contract or relax, by contracting them prior to phonating the muscles are already in contracted mode. As such further contraction in attempts to squeeze out the breath will be limited. My experience is that, especially when students are trying too earnestly to ensure correct use of the abdominal muscles, they will often contract the muscles prior to phonating with the effort of doing so. Care needs to be taken to ensure that this does not occur. It is simple enough to have the student feel the difference by consciously ‘clamping’ prior to singing, and then trying the same without the additional clamp to note the difference.

Chapman (2006) also suggests the use of the exclamations ‘Hey’ and ‘Ha’ in coordination with an ascending and descending scale. Care is taken to ensure that the student does not attempt to force the sound as the scale ascends. The more care that is taken to convince the student to avoid a sense of push or strain in the throat when singing, the further and faster will be the development of the voice. It is interesting to note that the use of ‘Hey’ and ‘Ha’ both incorporate an aspirated beginning – the very thing we are attempting to avoid as that can lead to a breathy tone. The purpose of using these syllables to initiate sound, however, is to engage the abdominal muscles, and the strong /h/ will certainly do that. If the teacher wishes to avoid aspirants altogether, then perhaps it is wise to initiate sound by using /z/, /v/ or /dzh/ to begin exercises. Whatever approach is used, the exercises may be used to further enable the student to locate the site of their effort as described in Chapter 5.

2. *Assisting the out-breath*

Rationale: Strong sub-glottic pressure is a requirement for classical singing. The student needs to become aware that it is not the breath IN that needs assistance, but that the breath OUT needs to be controlled and that the major muscles of expiration are engaged when breathing out. The use of the sounds suggested below aren’t sung, therefore it is a way of initiating breath support by vocalizing, but not singing. By encouraging vocalization rather than singing, it may also serve to avoid any sense of ‘overwork’ if the student is concerned that they need to ‘get the sound right’.

Explanation:

In the explanation for the previous exercise it has been noted that the student must learn to release the muscles of expiration when taking a new breath. Once the release has been reliably established, the student can be encouraged to assist the activation of the exhalation of breath by engaging the abdominal muscles more intensely using either a rolled /r/, a sustained buzz with the lips, a /dzh/ sound or any combination of the above. For students who have difficulties making any of these sounds, a sustained /v/ may help. At first, being able to sustain the sound without tension in the neck and shoulders is easiest on a single pitch, but most students can move to a range of pitches using glissando (slides) and start to increase the range of notes produced. It is often useful to combine this exercise with a physical movement such as rolling the shoulders, moving the head slowly round in a circle, knee bends or a ‘hula hoop’ movement to ensure that the singer is not creating tension in the neck and shoulders and has adequate flexibility in the abdominal muscles. The circular movement of the pelvis associated with the ‘hula hoop’ will also discourage the clamping of the abdominal muscles immediately prior to exhalation.

One of the most useful (and universal) tools for student singer and more advanced student/professional alike, is to be able to sustain a range of pitches on a rolled /r/. Once this skill is mastered, it is useful to ‘sing’ whole vocal lines using the rolled/r/ and, anecdotally, my students and colleagues find that it is an extremely useful practice tool. Its use promotes good muscle memory in the body with the abdominal muscles engaged correctly and little tension in the neck, shoulders and tongue. In a similar way, a sustained buzz (raspberry) with loose lips will promote the use of the abdominal support, as will the adoption of both the rolled /r/ and the buzz at the same time.

3. The Animated Groan

Rationale: Once the student has the ability to engage the muscles of expiration at will, the use of the Animated Groan (a primal sound) can add a level of phonation to the muscular manoeuvre that will demonstrate both the efficacy of abdominal support and will also use the vocal folds in an adducted manner.

Explanation:

The Animated Groan (my term) combines the use of primal sound with learning to use assisted exhalation. Students begin by exploring the range of options found in our natural ability to groan. From the grunt of disgust to an elongated expression of exasperation, the groan is both useful and adaptable. Once the student is able to make a sustained groan, it can also be placed on single pitches and used in a glissando used to slide from one pitch to another. Students are able to recognise that the abdominal muscles are involved in the production of sound and can further identify with the sort of body involvement that is necessary for classical singing. The quality of tone that the singer produces is based on adequate breath support. This is mandatory for the classical singer and scientist Ingo Titze (cited in Sell, 2005) reminds us:

The voice is *powered* by the air stream moving upwards from the lungs. It brushes past the vocal folds, flaps of tissue that vibrate to produce the pressure waves that our ears pick up as sound (1994, p. 38)' (Sell, 2005, 76)

The Animated Groan assures that the sound is both projected and supported by actively engaging the support muscles. The singer who 'saves' their breath will only find that the tone is adversely affected and (will often) sound constricted as well as reducing the effective projection of the voice. A constant stream of breath, and the accompanying constant muscular support of that breath, enables the supported voice of the classical singer. Most of the preceding breath exercises (e.g. using the rolled 'r') have been based on sliding from one note to another to show the beneficial nature of constant support. This is an effective way to ensure that the voice develops the projected quality required by classical singing as well as the necessary ability to sing in a legato fashion.

When the student is familiar with this technique, the groan, as well as the rolled /r/, can be used for rehearsing songs. Although other primal sounds are useful, in my experience, the groan is the one that has proven most adaptable and useful for the student singer.

The singer and writer Julian Gardiner, writing in 1968, has an interesting observation on the use of the groan in this paragraph:

'Broadly speaking there are two methods of producing vocal sounds; either as in sighing or as in groaning...the sigh is a gentle, non-committal and highly refined sound, very different from the crude and primitive groan. But the more one uses the sigh as a basis for sung tone, the breathier and woollier and farther forward the

sound will be. No true air compression would be possible, because the very nature of a sigh is a process of breathing air out. The groan on the other hand draws the vocal cords together excluding all air which is not phonated.’ (Gardiner, 1968, 73)

It is interesting to note that Gardiner wrote this prior to the publication of the scientific research of the 1980s and its strength as a concept is worthy of consideration. In my experience both as student and teacher, the use of the sigh to initiate sound can result in an undesirable breathy tone. The groan, on the other hand, does appear to convincingly engage the abdominal muscles and adduct the vocal folds, both of which is desirable and beneficial for the student to promote the types of healthy sound appropriate for classical singing.

4. Counting Out Aloud

Rationale: In order to ensure that the vocal folds are adducted along their full length it is necessary to invoke a response in the student that will facilitate this vocal posture. As the majority of students will speak with adducted folds (very few will speak in an attitude of Falsetto Quality), speech may therefore be convenient way to ensure vocal fold adduction. Counting out aloud is an elementary way to use Speech Quality and can also easily correspond to a five-note musical scale.

Explanation:

An effective method of initiating speech mode is to count numbers aloud. The student is asked to count out loud from 1 to 5. That pattern corresponds to a simple pitched major scale from the tonic to dominant and back. The student is encouraged to count aloud and then to sing immediately to attempt to integrate speech mode into singing. This generally works well, initially, in the lower part of the voice where spoken pitch is normally found. Care will need to be exercised to ensure that tension does not set in as the voice is taken higher and, perhaps more importantly, that the heaviest mechanism⁴³ of the voice is not engaged when beginning the exercise at a low pitch: otherwise the student will have great difficulty if they attempt to take the heavy mechanism over the low change from chest voice into mixed voice (around G4). (Estill, 1997b, 15)

⁴³ May be defined as using thick folds with a lowered larynx and widened pharynx.

Mixed voice (or *voce mista*) has been identified by writers such as Garcia (1894) and Miller (1997) and is essentially the ‘middle’ voice which shows aspects of both chest and head voice. The vocal folds are adducted but the vocal fold mass is thinner in mixed voice than in chest voice⁴⁴. I would suggest that this is the type of sound that should be encouraged in the student while executing the counting exercise. Some trial and error may be involved as the teacher and student gauge the correct balance of energy that needs to be involved in this exercise. A vocal level can be found, however, in which the balance of voice/effort/loudness etc will work across a number of pitch ranges.

The teacher can then add more numbers in the manner of this pattern:

1 2 3 4 5 5 5 5 4 3 2 1 (again corresponding from tonic to dominant pitch and back but adding the repeated note at the top of the exercise).

Once again it is necessary to speak this aloud with good tone and a sense of the sound being supported. The idea of speaking to someone 20 feet away is usually enough to engage the support muscles and provide the energy required, without causing strain. The phrase is then practiced more and more quickly until the student is able to say it quickly and efficiently. Then the phrase is placed on corresponding musical notes and the student will sing it over a range of tonic-dominant- tonic pitches suitable for the voice. The result of the quick speech together with the repeated ‘F’ of five, five, five, five, five, will ensure that a strong supported breath is required and flows easily – this ensures that the abdominal muscles are engaged and that the student has moved from speech to singing by the simple expediency of the increased compression and rate of breath flow. If the student has remained in speech mode – that is: the vocal folds are adducted – there will be a proficient use of breath coupled with strong abdominal support, again desirable characteristics of classical singing.

I believe that the move from speech to singing is engineered by the increase in breath speed or flow, engendered by the muscles of expiration. Sundberg explains the effect of the muscular action required for the change from speaking to singing in this observation;

⁴⁴ Sundberg (1987), Titze (1994) and Estill (1997) maintain that vocal fold mass will be less (thinner) at higher pitches as the folds thin out under greater tension and laryngeal tilt.

‘...there are certain ties between the musculature used for respiration and that used for phonation. If these ties exist, even for phonatory breathing, they offer the explanation.....for the effect on the voice source of a change in the muscle strategy used for maintaining subglottic pressure – or, in other words, why the method of breathing is decisive to voice function. Both pitch and loudness must probably be handled with a greater precision in singing than in speech. This implies a demand for a well-controlled subglottic pressure. As this pressure is controlled by means of the muscles of respiration, it follows that a good control of these muscles is important to good control of the voice. Probably, a very important difference between normal speech and singing is that in normal speech the passive expiratory recoil forces of the breathing apparatus habitually tend to play a more important role in establishing the needed subglottic pressure, while in singing active muscle forces are more important.’ (Sundberg, 1987, 47-48)

In other words, by increasing the speed of the flow of air as demanded by the above exercise, the muscles of expiration are energised and the subglottic pressure rises. This ensures that, even though the Speech Quality feeling is retained, there is clearly a move from speech to singing. Author Anthony Frisell puts it simply:

‘The production of vocal sound requires a steady stream of expired air’. (Frisell, 1972, 18)

To further boost the effectiveness of counting, it may be done on a monotone in the manner described below.

5. Speaking on a Monotone

Rationale: Speaking on a monotone is an effective method of ensuring a constant stream of air. As before, using speech on its own (as opposed to singing) can remove anxiety in the student’s mind. They do not have to get the singing ‘right’ but can experiment without actually singing to get the desired result: that of a fully supported sound which is linked by a constant air flow.

Explanation:

The use of a spoken monotone is a further method ensuring that vocal fold adduction takes place and that a beneficial balance between effort, breath and voice is established. The student is encouraged to say the text of a vocal phrase on an un-pitched or random monotone. Once again the student should be encouraged to project by imagining that they are speaking out to someone a small distance away. This will engage the abdominal support muscles. In addition to assisting with the incorporation of speech

mode into the sound, many students find this technique useful as it allows them to check for wasted (aspirated) breath that may be lost on consonants (or more usually the aspirated space which often follows a consonant before the vowel begins to sound – e.g. st-hh-ay [stay]).

It is often illuminating for a student to realize that they can complete a spoken phrase on a monotone whereas they would run out of breath prior to the end of the phrase if it were sung. Once again it drives home the need to prepare physically for a phrase and to take care to not push breath, or see a rush of breath as the way into a singing phrase. It is important, rather, for the student to visualise the breath as a single, strong, constant stream which has a co-ordinated onset and which is maintained throughout the singing phrase. (See a description of the various types of vocal onset in Chapter 3).

As observed earlier in this chapter, not all students learn in the same manner. The exercises up to now have been based on ideas drawn from scientific research into the voice: however, Gardner (1993) suggests that some students learn better through visualization than through other approaches. It is important that the teacher has some options for visualization in their armoury of teaching tools. When attempting to illustrate the concept of a strong breath stream for example, I have used the idea of carrying a book between the student and myself. Held in front on an outstretched hand, I demonstrate in a visual sense that by not having a constant stream, the book can drop to the floor. By ensuring the stream is constant, however, the book can safely be transferred to the student. The student is then asked to emulate the action and transfer the book back to me whilst singing a phrase and maintaining a constant breath stream. It is only one of many useable options to encourage the desired response in the student.

To return to the discussion of the monotone exercise, after trying the phrase on an unpitched monotone, the phrase may be produced on any pitch and practiced in the same manner. It is often useful to place it on a number of different pitches in a somewhat rough resemblance to the actual musical phrase that will subsequently be sung. For example, if the tune rises through a triad, the monotone can be sung entirely on the tonic of that triad, then on the third and on the fifth degree of the scale. This exercise assists the student to maintain the same type of coordinated breath use as the pitch rises. This technique is effective when combined with the animated groan. The student is then

encouraged to sing the actual musical phrase, while maintaining the sensation of speaking on the monotone – that is, providing a seamless air stream - to complete the exercise.

The use of the monotone may help the student to feel that *consistency* of air-flow, rather than the *volume* of air-flow, is the desirable outcome of a breath-management system. The tendency of some students to ‘blow’ air, especially aspirating when negotiating a wide interval, suggests that learning to provide a consistent flow of air may be a priority.

There are some further steps that can be taken to integrate a flexible support system into the sound production while using either a monotone or an exercise which uses a semi-occluded vocal tract such as a rolled /r/ or ‘puffy cheeks’ (explained shortly). A further option for demonstrating flexible support can be found in the following exercise.

5.1 ‘Spooky Lady’

This concept was introduced to me in 1998 by visiting American singing teacher, Clayne Robison (of Brigham Young University, Utah), who visited the Newcastle University Conservatorium during that year. He explained a concept of the American Halloween celebrations in his experience, during which an older lady would tell young children ghost stories. He maintained that the stories were delivered in a very theatrical ‘sing song’ manner during which the pitch fluctuated greatly to heighten the ‘spooky’ nature of the tale.

This technique encourages some of the basic support manoeuvres that the developing singer needs to master. If the text of the musical phrase is spoken using the ‘Spooky Lady’ technique another dimension of monotone singing can be introduced. Students experience the release of the abdominal muscles on the in-breath and then a flexible engagement of the support muscles once the phrase has begun. The student can then experience the vocal freedom that flexible muscles can deliver to the musical phrase as they sing keeping the ‘Spooky Lady’ concept in mind. They will need to be encouraged to offer a wide range of spoken pitches in the ‘Spooky Lady’ manner in order to take advantage of the full range of flexibility that is be available.

Once the student is able to use the ‘Spooky Lady’ technique confidently in speech (and has been able to cope with making what may appear to be a rather silly set of sounds) the musical phrase can then be sung, keeping the same sensation of freedom that the spoken version brings. It is often a revelation to the student who has either adopted a stiff body posture or is subject to either habitual pressed phonation, or breathy tone, to find the ease of production that this technique can promote. It is imperative that the student learns to recognise and repeat the physical and sonic conditions that the technique enables, so that private practice using the skill can be confidently undertaken.

I have taken the technique a number of steps further than that demonstrated by Robison, who has since written about the technique in his book *Beautiful Singing* where he terms the technique the ‘Halloween Lady’. I use it in combination with other movements such as ‘Hula Hoop’ or with wall singing (see pp 136-137) to further increase the integration of sound production with freedom and balance in the body. This technique has also been useful in assisting the student to achieve an emotional response to the text being sung. By being able to perceive that the body is engaged in a flexible process of making sound, the student can be encouraged to use an emotion to generate the ‘Spooky Lady’ technique, further integrating the notion of an emotional response to text and an awareness of the impact of that on the vocal sound that is produced.

5.2 ‘Puffy cheeks’

At a professional development day hosted by the British Voice Association, *These are a few of our Favourite Things – Tools of the Trade* held on 5 July, 2009 in London, Janice Chapman presented a paper entitled ‘Puffy Cheeks – My Favourite Semi-Occluded Vocal Tract Exercise’, together with Sara Harris (Speech and Language Therapist) and Jenevora Williams a researcher and vocal coach. This exercise was developed by Janice Chapman to assist singers with high, soft singing, although other teachers for many alternative reasons have used a similar exercise. It was developed in Chapman’s thinking after 2006 and therefore not discussed in her book.

Chapman and I discussed this exercise in a private conversation in 2006 and I have used it ever since with students in a manner unforeseen by her. I have found it very useful for backing up the flexibility of the ‘Spooky Lady’ exercise. The essence of ‘Puffy Cheeks’ is to simulate a trumpet-like sound with puffed cheeks and loosely pressed lips.

It has the advantage of inflating the pharynx and contributing to the high closure of the soft palate, which are optimal conditions for classical singing. Chapman and her colleagues at the BVA presentation were also able to show that the exercise allows the larynx to sit in a neutral position. The aryepiglottic area was also visible in a contracted mode similar to the findings of Estill et al (1997).

It has been possible to show, in a series of videoed experiments conducted by Estill and others, the sphincter-like action of the aryepiglottis when the singer's formant or 'twang' (referred to by Vennard as '2800 Hz') was in use in the operatic voice (Estill et al 1995). Similar results were visible in the video produced by Chapman at the BVA presentation to show the internal working of the vocal apparatus while using 'Puffy Cheeks'. While the findings of Chapman, Harris and Williams were able to show the exercise's effectiveness for soft, high singing, I have used it for a more wide-ranging purpose: to further enable students to feel the use of the abdominal muscles in a supported singing phrase. I have already discussed the necessity for the teacher to have a number of methods of enabling students to access ideas, both physical and conceptual. In my experience, what resonates with one student may not necessarily resonate with another. The use of the 'Puffy Cheeks' exercise to encourage abdominal awareness is as useful as the purpose for which Chapman originally devised the exercise.

One of the other variants discussed in a recent interview with Chapman (3/7/09) was that the 'Puffy Cheeks' exercise could be used with text. The text is not necessarily clear (as the lips are essentially closed so clear articulation is not possible), but using the exercise in this manner assists the student to feel that singing is as perhaps more work 'in' the mouth compared with the work performed 'outside'. Indeed, the student is able to feel that the tongue is doing the majority of the work in the formation of the vowels, and that the vocal tract can be left in the inflated/relaxed state that 'Puffy Cheeks' encourages. I believe that practice with the mouth closed, either in the manner above in conjunction with the 'Puffy Cheeks' exercise, or in the 'manner of a ventriloquist' (that is, with the lips lightly closed) is extremely useful for the student. It encourages awareness and greater flexibility in the tongue, may assist with a student who over uses the jaw or who relies on tension in the lips to aid their production. As with all of these techniques, the aim is to encourage the student to break counter-productive habits and replace them with productive manoeuvres that will lead to further vocal development.

Summary of Exercises

The exercises presented above are drawn from experiences in my studio and from interaction with other singing teachers and other learning opportunities. For many young singers whose voices show promise but who have not yet been awakened to the greater potential that may be inherent in the voice, these exercises may assist them to begin to realize that potential. These exercises are simple and are all based on the idea of using speech to initiate desirable vocal function. Repeated use of these exercises over a number of years has helped to refine them and to integrate them into my studio pedagogy.

A further benefit of using such exercises is that there is a common language that develops between the teacher and the student, and, additionally between colleagues. At the University where my teaching has been based, I have already mentioned that there is a commonality of approach, similarly there is a commonality of language. What this means for the student and teacher alike is that we can understand that concepts that are discussed realizing that each of us is clear on the technical concept that is being discussed. With so many varying methods of teaching singing, it is very useful to have a language which is common to all.

Further Benefits of the Use of Speech Quality Exercises

Many students find difficulty in producing an emotionally truthful performance or in adequately responding to text. Many developing singers are concentrating almost solely on whatever technical concern happens to be uppermost in their mind at the time, or may be debilitated by nerves and so not present a fully functional performance. One of the major benefits to reciting text, using straight speech or any of the monotone exercises, is that the student begins to have a greater understanding of the meaning of the text which can aid their interpretation. Often classical singers will perform in a language other than their native tongue. For any modern-day singer, the ability to be able to sing effectively in German, French and Italian is imperative, and, obviously, speaking aloud will assist with any language.

Given that the sung language may, in many cases, not be the singer's first language, any exploration of the text, and approaches to understanding that may be gained by speaking

the text aloud, may assist the student to develop a clear emotional response to the text. There may not be the emotional connection to words in a language which is not our first language, therefore a good literal translation as well as declaiming the text aloud may assist the student to reach the emotional heart of the poem they will sing. Additionally, given the complexities inherent in the literary language of poetry, familiarity with the text and its meaning is invaluable.

Speaking text aloud – declaiming it in fact, in a theatrical manner - can give the student a clear insight into the intent of the poet. This, when considered in conjunction with the shapes and phrases of the music (the composer's interpretation of the poem), can result in a much more intense and moving performance. Declaiming allows one to experiment with the words and syllables that would seem to need emphasis and allows for experimentation with different vocal qualities and emotional sounds before the song is actually sung. Indeed one can declaim the poem with the musical shapes in mind, imitating the rise and fall of the music. Such practice may assist a student with limited practice time to learn a song more efficiently. Furthermore, declaiming the text in the rhythm of the song can enable the student to study the rhythm without worrying about producing the correct pitches.

Balk quotes pedagogue Sergius Kagen on this matter:

‘Sergius Kagen, in his book on vocal technique, recommends that a singer learn an art song in stages, the words first, and then a believable, spoken recitation that is gradually extended technically until it approaches the composer's musical setting, merging finally into the song itself.’ (Balk, 1985, 113)

Of course, diligent study of the music will also reveal insights that the composer has had with respect to the way the poem may be interpreted. For example, composers will normally place heightened emotional moments on higher pitches in order to use the inherently emotional qualities of the voice in the higher ranges. The shape of the musical phrases can therefore often give the young singer insights into ways to interpret and communicate their text to an attentive audience. Practice which includes speech and techniques such as the rolled /r/ will encourage helpful muscle memory which in turn means that even if nerves play a part in a performance, a thorough preparation will ensure the main focus of the singer's interpretation stands a good chance of being effectively conveyed to the audience.

As already stated, declaiming the text and adding layers of interpretation will employ the abdominal muscles. This fulfils one of the single greatest requirements of the classical singer, and indeed professional voice user in general, that of the ‘supported sound’. Not only does support provide the stamina necessary for a career as a classical singer and protection for the vulnerable vocal apparatus, but also the use of the support muscles creates a quality in the sound that evokes an emotional response in the listener. The responsive energy of the audience subsequently forms part of the cycle of performance and response that so enriches live presentations.

As human beings, we instinctively respond to the use of abdominal support, and we use it ourselves in our own emotional responses. Our language is full of clichés about our gut; the place that we use to both store our feelings and produce the responses to those feelings; for example ‘belly laugh’, ‘butterflies in the stomach’, ‘laughed till my sides split’ etc. We respond when we hear someone crying, or laughing, or sobbing. All of those primal responses exhibit the physical postures that have already been discussed as beneficial to the production of free sound. With the addition of abdominal support there is an addition to the quality of the sound that can be felt and decoded at an unconscious level by an audience. Without consciously knowing it, a listener will respond to the emotional level of the performance. This level of communication is the goal of the performer. Therefore the real-time feedback that a performer may receive from an emotionally involved audience is strong and empowering, enabling them to give more in turn – and so the mutually beneficial cycle of live performance is ensured.

For many younger students who may have stage-fright to a greater or lesser extent, knowing that the audience is both there to hear and support them, and then receiving the tacit support of the audience for an emotionally satisfying performance can be of enormous assistance. It enables them to move forward to the next performance with some degree of confidence. Then, of course, confidence breeds confidence. Chapter 7 of this thesis discusses the results of a survey of voice students at the University of Newcastle. One of the questions asked the respondents to comment on their perception of the role of an audience. It is noteworthy that the majority realized that the audience has a very positive role to play in the performance process. Oren Brown in *Discover*

Your Voice offers this observation on an audience response to a singer who exhibits good abdominal support activated by the use of primal sound:

‘When I hear great singing, it is as though I were listening to a marvellous animal. I believe that this is why audiences are so deeply moved by great singing. At a subconscious level, empathy takes place when a singer shares his or her primal sound.’ (Brown, 1996, 4)

As stated at the beginning of this chapter, the young developing singer needs exercises that will allow them to begin to access the full range of sounds that are available to them. Until the vocal apparatus can be ‘set up’ in the most favourable manner (i.e. with the vocal folds adducted and the breath onset is simultaneous as found in most normal speech) it is difficult for the student to become aware of the core sound of the voice. Exercises such as detailed above are one way in which a developing singer can begin to efficiently implement a classical singing technique. The exercises are simple, straightforward and easily reproduced in the student’s practice sessions. The simplicity of the exercises will perhaps encourage students to use them and therefore begin to associate the combination of sound, feeling and effort while encouraging the basis of a solid technique. This, I suggest, is the basis of the empirical, trial and error, style of learning that was referred to in Chapter 1. The student essentially is his/her own teacher and works with the techniques suggested to them by the voice teacher in order to find the best way that those techniques can be incorporated in order to produce the range of sounds that is acceptable for classical singing.

It is most important, therefore, that a student is able to practice in a way that builds on a studio lesson. It is therefore also important for the teacher to give students exercises that are easily reproduced, have a strong pedagogical foundation, and are clearly understood by the student. Essentially then, it is the student who does the teaching. They must find the voice by identifying vocal problems (under guidance, of course) and work to alleviate the problems and create positive vocal conditions for themselves.

Cranmer states:

‘No teacher will be successful unless he teaches his pupil to teach himself. It is of no use to anyone relying solely upon the improvement made whilst the teacher and pupil are in personal contact.’ (Cranmer, 1957, 59)

Once the student has become familiar with healthy vocal production, and is able to experiment with a range of sounds, the next step is to ensure that vocal freedom is generalised into the performance of songs. Most teachers will be aware that it is necessary to establish a technique with relatively simple musical material, introducing complexity as the student masters the steps toward a proficient technique.

Speech Quality: Technique into Expression Via the Text

Discussion in Chapters 3 and 4 is intended to suggest how the use of Speech Quality can be incorporated into the student's technical development in order to assist the student to initiate and consolidate desirable vocal function. The preceding exercises illustrate some of the ways in which the student can integrate the use of Speech into practice. How does this benefit the student's potential to engage with the complex matter of musical expression? While some students show an early aptitude for an emotive and expressive response to music and text, some take more time to find their way forward. In addition, when considering an expressive performance it is necessary to consider how such a performance 'works'. It is clear, from experience, that reactions to a performance may be diverse and sometimes contradictory. What one listener will rate as not expressive enough, may be assessed differently by another who will talk about the parts of the expression that really won them over; one only has to look at reports from University assessors, from examiners in Schools, competition reports and from practical examination bodies to see such contrasting reports. As well, the diversity of musical styles that form the repertoire of the classical singer would ensure that books devoted to those styles are required to be comprehensive and focussed on discussion of that particular style, leaving the discussion of vocal techniques to the sorts of books surveyed in Chapter 2. Among the major challenges for the student and teacher alike is to find repertoire that will awaken the student's response to musical material and which will enhance the student's quest for singing technique. This is the journey the student and teacher will embark upon together.

Returning to the subjective nature of responses to an expressive performance, what appears to be at play is that the listener is responding to those things that mean most to them. In some cases it may be that the assessor is looking for a dynamic range, for clear text, for brightness in the tone, for movement to match the delivery, for musical precision, dramatic conviction, excellence etc. It is thus clear, that a performance may

be scrutinised from many different viewpoints both consciously and unconsciously as listeners respond both intellectually and emotionally to a performance. In addition, each performer will be trying to implement a set of parameters for a solid performance from their own perspective; it is easy to see that the judgements of the performers about their own performance and the judgements of a listener or assessor may be very different.

Tertiary institutions frequently work from a set of criteria against which a student can be judged, which corresponds to the particular semester of the course structure a student may be undertaking. It is my experience, however, that even within those parameters, there can be a wide range of discrepancy when it comes to assessing the criteria against which the student is being marked, depending on the interpretation of the marking criteria by individual assessors. Even though the criteria may call, for example, for the assessors to be aware of the development of a 'consistent tone', individual assessors may have a different idea of what constitutes such a tone. Some may find it difficult to get past singing that is occasionally or consistently 'out of tune'⁴⁵, where for others this is not such an important factor and they prefer to give higher priority to aspects such as understanding of the text, presentation, communication with the audience, vocal tone etc.

For some singers, especially younger and developing singers, the main goal of the recital is simply to get from one end to the other. And, naturally, that is not a bad aim to begin with, but one that certainly requires development. In my experience, there is an obvious corollary between preparation and performance; a lack preparation will generally result in a greater level of performance anxiety. How is it possible to let one's breath go and confidently sing into a phrase when the pitch pattern, text and accompaniment are only partially known? With a singer, there is also an inverse relationship between the body's ability to 'sing' a song and the amount of time that has been spent in preparing the body (practice) for a performance. The classical singer's voice is dependent upon the singer being confident to release and sustain breath, something that will be compromised if the music is not well known and rehearsed.

⁴⁵ I acknowledge that there may be a diversity of factors, such as tonal quality, temperament, constriction, poor quality vowels etc., that may lead a listener to the perception that the singer is 'in' or 'out of tune'.

McKinney reminds us: 'Insecure musicianship is a major cause of poor releases...' (McKinney, 1994, 80) It is vital therefore that a young singer has a clear idea of what and how to practice in order to cultivate a confident approach to performance.

The Role of Preparation

A lack of preparation means that a work is not sung 'into the body', that is, the stamina the singer will need to have in order for he or she to execute the performance of a work or recital programme may not be adequate to the task. Muscles need to be trained to respond to the energy needs for a given work: in much the same way that a runner will train for optimal energy release over a given distance, so a singer must adequately prepare for energy use over a given time period and set of pitches. For example, the task may be a long aria in which there are a number of areas of high tessitura and extended phrases, or a song cycle consisting of seven – eight songs which are linked in theme, and which need to offer the audience a range of vocal colours. Such works may not be able to be performed with conviction if the required practice is not undertaken and therefore the requisite energy is not available.

To put it simply, therefore, it is a case of building reserves of energy. If the works have not been practised enough, the balance between muscles and breath may not be adequate and fatigue may set in, meaning that the technical proficiency of the singer is compromised in performance. Once the technical aspects suffer and the singer is forced to concentrate only on getting through a work, then communication with the audience will be greatly compromised. I have touched briefly, in Chapter 6 p126, of the multiplicity of thought processes that the singer juggles when performing. The task of balancing voice, body, effort, imagination and communication is achieved only with thorough preparation. If too much thought is required to ensure that the voice is flowing (i.e. that the main focus is only on the technique of producing sound) then there is little 'brain space' left to allow the singer to use their imagination and communicate effectively with an audience. It is clear that this complexity requires considerable time in training. The ultimate goal of the training is to bring about the emergence of a singer who can communicate with an audience. This can only be achieved if the singer is possessed of a solid technique that ensures he or she is free to explore a large palette of vocal colours and expressive elements to fully communicate the works they present.

Author of *Dynamics of the Singing Voice* Meribeth Bunch observes the following:

‘The ultimate point of study and training is to ensure that these complex co-ordinations become habits so spontaneous that the singer is freed to think about the art of communication with an audience rather than the art of phonation.’ (Bunch, 1997, 81)

What is an Expressive Performance?

Ideally, to aim toward an expressive performance is to ally imagination and technique together. It is a search for musical nuance, to try to interpret what one understands as the composer’s intentions and to give the music a fresh feeling as if it is being performed for the first time - and not as the result of hours of practice. In purely musical terms this means that the notes will be correct both in terms of pitch and duration and the basic dynamic markings of the composer will be observed. When singing, of course, there is the added joy of and concern with the text. Singers have a wonderful gift in text. The text allows us to communicate ideas directly with an audience; for example if you are ‘love-sick’ you can say so directly, rather than attempting to interpret a piece of instrumental music without words where the same idea may or may not be directly or explicitly communicated. Callaghan’s observation on the impact of words on the singing mechanism (see Chapter 5, p 86) reminds us of the joys and challenges they afford the singer.

Callaghan is not alone in her estimation of the challenges that words may bring to the singer. Vennard (1967) also discusses the difficulties in the adjustment of resonance, referring to the need to attune the partials in the sound to the best possible configuration as the singer negotiates a constantly changing array of vowel positions. It is often the case that the singer will present a recital that contains songs in a number of languages, compounding the need to be ‘tune’ the vocal tract. (Vennard, 1967, 144)

The challenges of working with text include: the need to remember it; being able to sing it on the range of pitches that the composer has used to set it; and an ability to pronounce and communicate the language of the text effectively. Some of these factors also work to the singer’s advantage. A song is, by design, the composer’s interpretation of a poem. The composer has already responded to the text in a musical and expressive way by painting the text with music. He or she has decided where, for them, the emotionally charged sections of text occur. Often the composer will set those

heightened emotions on a higher or unexpected pitch, corresponding with the listener's innate ability to empathise with the heightened emotional tension that singing outside the normal speech range will produce. In addition, a composer may repeat text that is not repeated in the original poem to further heighten emotional tension. The sounds of certain words may also inspire the composer to repeat them, place them on higher or unexpected pitches further enhancing the emotional level of the music. These signposts allow a singer to begin the exploration of a work with some sense of security. In an essential way, the composer has set out for the singer where the high points are to occur and where, through the use of dynamics and the use of vocal colour, the sense of the poem can be expressed. Indeed Stark (1999) observes:

‘...much of the expressive power of song lies in the voice itself...Expressive singing is based upon a word-note-*tone* relationship, in which the voice itself plays a significant role.’ (Stark, 1999, xxv)

This is a fairly basic and simplistic way of looking at interpretation; there are many more elements to be considered, not least of which are stylistic considerations. A professional singer would never think of approaching a song by Henry Purcell the same way as one by Gustav Mahler – if only in consideration of the time periods in which the compositions were written. Then there is the very real necessity of being able to cope stylistically with works from the same time period but from different national schools of composition. For example, songs by Gabriel Fauré need a quite different interpretation from songs of Brahms, arias by Verdi and Puccini or songs by Stanford or Parry. Yet all were written around the same time, if admittedly for different audiences and social contexts.

The Singer's Face

For any musician, there are many questions to be answered with regard to the interpretation of a particular piece of music. The previously discussed challenges of combining languages with resonance and other technical factors aside, there is the purely physical need for a singer's face to reflect what is written in the text. The singer must adequately depict in the face the emotional context of the text in order to effectively communicate with an audience. Human beings pick up on non-verbal signals as much as verbal, and the facial expressions used by a singer will provide an enormous amount of non-verbal information to assist the listener to become involved in the performance.

Researchers Ekman and Friesen in their book *Unmasking the Face – A guide to recognizing emotions from facial clues* speak about viewing the performer from an audience perspective:

‘When looking you gather information from at least four sources in the *visual* channel: the face; the tilts of the head; the total body posture; and the skeletal muscle movements of the arms, hands, legs and feet. Every one of these sources [in both the auditory] and visual channel can tell you something about emotion.’ (Ekman and Friesen, 1975, 17)

The same authors also suggest that an audience member has no qualms about looking directly at the performer: ‘If you are a member of an audience, you feel no inhibition about gazing continuously at a performer’s face. He has given you permission by virtue of his and your role’ (Ekman and Friesen, 1975, 15-16) The singer must understand that this is a two-pronged consideration: first, that you will be looked at constantly by virtue of the permission you have given your audience to look at you by presenting a performance, and, secondly, it is imperative that you give the audience a set of relevant visual signals in order that they share the correct responses with you.

Thus the singer is faced with a number of dilemmas: how to ensure they are technically correct, emotionally truthful, visually authentic and represent the mood of the words accurately, while successfully maintaining a technique. Balk succinctly sums these dilemmas up in this statement:

‘Spontaneity and naturalness are difficult to attain in proportion to the technical difficulty of the music, yet the performer must sing the words and music in a way that is both technically proficient and convincingly authentic.’ (Balk, 1985, 98)

Additionally Balk offers this comment that further suggests that visual authenticity is not an optional state, but rather, is mandatory to keep audience involvement in the performance:

‘The neutral or passive face (a phenomenon all too common among singers) disperses audience involvement in the performance, losing interest in its meaning.’ (Balk, 1985, 311)

Preparing to perform

It becomes an important aspect in classical singing that a student is encouraged to become as comfortable as possible while relating to an audience. For some, perhaps more gregarious students, this aspect comes easily; for others who are more self-effacing, dealing with public performance becomes an emotional barrier to effective communication. This can allow nervous tension to become a major factor in their performances. For such students, performing becomes an arduous necessity on the road to obtaining a tertiary degree rather than an exciting prospect. The teacher must employ a variety of aids to assist such students. In my experience, simply encouraging the student to engage with a mirror while practicing can aid many to become familiar with how they will look while performing. Sometimes they are simply not familiar with their expressions and body image while performing and are therefore unaware of the nature of their performance and the persona they project. The confidence they gain from using a mirror often makes them feel more comfortable 'in their own skin'. Without that measure of self-confidence it is almost impossible to be comfortable in front of an audience.

The Role of Primal Sounds and the Intake of Breath

In Chapter 2 the value of using primal sounds was discussed as an aid to ensuring the vitality of the voice. By using this technique some authors (Gardiner (1968), Brown (1996), Chapman (2006)) suggest that singer is unable to fully engage the body and its emotional system unless they utilize the concept of the primal sound. It is clear that the use of primal sounds produces a reactive response in the singer's body. Indik observes:

'Not only does each emotion have specific sounds associated with it (such as laughter, sighing or sobbing), but each emotion also effects breathing. Arousal caused by happiness, sadness, anger, or fear all act on the breath through the limbic system. Many of these effects on the breath are well know to performers, voice teacher, and composers who may manipulate them toward better expression and stronger singing.' (Indik, 2009, 135)

Although it may be possible to try and use disassociated sound alone to activate the voice, it is much more effective to utilize the voice's support muscles if the musical phrase becomes a clear emotional expression of the text. In other words, if the text is suggesting anger the primal response will be different than if the text is expressing love. It is clear that the singer's breath will be different in either case. The way that the breath is taken in will ultimately change the colour of the sound the singer produces, as

it will expressly influence the way the breath is released. Choral director Jong-Won Park offers the following observation: 'Breathing is the most expressive thing humans have to portray their emotions.' (Park, 2009, 68)

Everyday observation will show that the intake of breath is altered to accompany the expressive nature of the utterance that follows. A sharp intake of breath will usually accompany surprise or anger, a long low breath might accompany an expression of love or other positive emotion, a shuddering intake will accompany an extreme expression of grief. Janice Chapman suggests that singers use an emotional impetus to stimulate the production of sound in exercises (for example, 'sing this angrily/excitedly/joyfully'), and for the singer to observe that differences both in inhalation and in the quality of the resultant sound (Chapman 2006).

I have been using a similar technique in my studio for many years to assist students to feel deep abdominal involvement in the production of sound. It seems apparent that intake of breath is also directly related to the production of primal sounds. The responses that humans exhibit in states of emotion are done without forethought and may be said to be instinctive. The ability to utilize such emotive states and reproduce them at will is the mainstay of the vocal actor's art. If we are to consider using primal sounds to initiate the support of the classical singing voice, then it is also imperative to note the manner in which the breath is taken to initiate that support, and to note the changes in the tonal quality subsequently produced.

The Use of Silent Practice

As an undergraduate student juggling time to practice a number of instruments, I was encouraged by one teacher to spend time simply reading scores and 'playing' the music by thought. It was suggested that I would grow to know the music in greater detail so that when I was able to get to a keyboard (for example) to physically practice I would be further ahead than if I had not done the mental practice. Indeed, I found this to be true in my experience. Researchers Bravo and Fine recently noted that:

'Mental rehearsal is a cognitive process that complements physical rehearsal and helps lead to the development of performance expertise.' (Bravo & Fine, 2009, 243)

Another factor to encourage silent practice is suggested by neuroscientist and musician

Daniel Levitin in his book *This is Your Brain On Music* (2006) in which he gives an account of the experimental work of fellow neuroscientist Petr Janata. He (Janata) had used an EEG (Electro-encephalograph) to measure electrical activity in the brain and so was able to ascertain which parts of the brain were active both when perceiving music and imagining that same music. He discovered that the pattern of brain activity, when either listening to music or imagining it was virtually indistinguishable, suggesting the subjects of his experiments used the same parts of the brain for both remembering and perceiving music. (Levitin, 2006, 154) What this can mean for the student in her practice session is that, although they may be silent, the same parts of the brain are firing as when they are listening to music, and perhaps performing it. The cumulative effect of all of the types of practice is that the student's memory of the work becomes strong allowing for confident recall, and hopefully a confident performance.

Summary

What the preceding material suggests is that preparing to perform is more than establishing a confident technique. Indeed, there are many components to be taken into consideration. What I am suggesting, however, is that the use of Speech Quality and the further extrapolations of speech into vital and dynamic, mindful, declamation can assist the student to strive towards a expressive performance. Rather than attempting to think about performance as somehow 'divorced' from technique, the student should be encouraged to think of the learning experience as a holistic event. If the student were able to contend with one central concept – that of using Speech Quality – to link all of the components from technical matters to expressive control, it may facilitate the learning process. It may be useful for the student to suggest a checklist of their own for the purposes of mindful and meaningful practice which takes into account the component factors of preparation for performance.

Chapter 9

Conclusion

The review of literature in Chapter 2 of this thesis reveals that there are a large number of approaches currently adopted to the art of teaching classical singing. There are those that take an empirical approach such as Kagen (1950) and Gardiner (1968), while more recently others have favoured what might be called a ‘voice science’ approach, such as Estill (1997) and Callaghan (2000). Still other approaches emphasize the notion of forming the sound singly and clearly in the mind prior to phonation (Reid (1965), Hemsley (1998). There are other, less mainstream approaches, also postulated in the twentieth century, such as those by Manen (1987) and Tomatis (1992), the former advocating the use of the *imposto* (an area of resonance found in the nose) and the latter maintaining that the vocal apparatus is controlled directly by the right ear. The twentieth century has also seen the emergence of publications on singing teaching that aim to unite the scientific and the empirical, with the work of William Vennard (1967) and flowing on through that of writers such as Richard Miller (1996) and James McKinney (1994). Meanwhile, books by noted voice scientists such as Johann Sundberg (1987) and Ingo Titze (1994) have added to the information available to the interested singer or teacher.

The twenty-first century has brought the advent of the ‘holistic’ approach to singing tuition proposed by author-pedagogues such as Karen Sell (2005) and Janice Chapman (2006). It is also interesting to note that the new century also seen the production of texts which seek to integrate methods of working with the body as well as the voice, with books by proponents of the Alexander Method, Feldenkrais Awareness Through Movement and Andover Education (Body Mapping). While some of these concepts might not be new, it is interesting that those working with singers are increasingly being encouraged to view the education of developing singers from a broader perspective than in the past.

In the preceding chapters (see Chapter 6, p 130) I have discussed the issue of time constraints in teaching associated with limited face-to-face contact between teacher and pupil in the climate of today’s University-oriented voice training, based on my work over a sixteen-year period at the University of Newcastle, NSW. Here, thirteen one-to-one lessons are available to students in each semester. With a total of only twenty-six

individual lessons in each year of a three year course, it is important to devise a pedagogical approach that will allow the student to work effectively on their own for much of the practice time each week. This means that the student will need to become very familiar with technical aspects of vocal production, and perhaps more importantly, to be equipped with the requisite tools to make informed decisions about technical matters in their private practice.

With the aim of contributing a positive approach to this situation, I have sought ways to simplify what is often a complicated process of developing a vocal technique. A part of this has involved devising a checklist that will allow the student to verify what they do in practice and, therefore, to make an informed decision about what to do if technical aspects of vocal production break down and need to be restored. The checklist, however, relies on the student being able to recognise and use all forms of feedback – aural, proprioceptive and kinaesthetic.

In order to simplify the learning process, the acquisition of vocal technique has been broken in this thesis into three components: resonance, breath management and open throat. The use of Speech Quality has been indicated as a catalyst in the process of acquiring technique. Due to the nature of the action of the vocal folds and the muscles utilized in the support of the Speech Quality sound it is suggested that the use of Speech may initiate desirable vocal behaviour and thus allow the student to progress. The use of Speech Quality can assist in the promotion of simultaneous onset of breath and phonation so that the vocal folds can be used in an adducted manner. When the singer is practised at producing simultaneous onset, which becomes the habitual start to their sound, he or she is able to hear and feel the difference that this makes, and can use the desirable characteristics of Speech Quality to further develop the voice. The coordination of voice and breath also assists in the adoption of a refined breath management system, which is a requirement of classical vocal production.

The sensations that singers deal with each time they phonate are the subject of Chapter 6, which also outlines the range of challenges that a developing singer must negotiate in order to develop successfully. Chapter 7 presents findings from a survey of vocal students enrolled at the University of Newcastle consisting of questions aimed at probing the student's awareness of technical aspects of voice production and the

sensations that they might feel during the process of singing. From responses to the survey, it was found that the majority were aware of sensations both in the vocal apparatus and in the body while phonating. In addition there has been discussion of the challenges of accurate self-perception for the developing singer: the use of a checklist for more successful self-monitoring has been suggested as a method of further, proactive progression. The challenge of hearing one's sound in a manner different to the listener is one that all students will deal with as the voice develops. The ability to reconcile the sensations that are felt and the sounds that are heard with the actual resonance of the sound in a live environment comes with experience and understanding. Regular reference to the checklist may provide students with a clearer understanding of the challenges and the methods by which those challenges can be conquered.

As speech is a naturally occurring phenomenon in humans, it seems logical for those voice students who wish to pursue the path towards a professional career to use the concept of strong, well-articulated speech to ensure that the correct form of phonation takes place. In addition, a well-produced speaking voice has been noted by many authors of all periods as being vital for the health of the vocal apparatus in general, and for the singing voice in particular. Freely articulated speech with associated freedom in the tongue and jaw can also lead to similar freedom when the same apparatus is engaged in the act of singing. It is my contention, therefore, that a student should be encouraged to speak as they sing, and vice versa (mention has been made of this assertion throughout the thesis as it applies to various aspects of voice teaching). Bad habits in speech should be discouraged, and if it is beyond the capacity of the voice teacher to successfully manage, then assistance should be sought from specialists in that area, such as Speech Pathologists. Authors such as Christine Shewell (2009) enunciate the need for specialised treatment for vocal function problems.

Declaimed speech has been used for many hundreds of years in the art of rhetoric. For the singer, the act of declaiming the texts of songs or arias out aloud can be extremely fruitful in suggesting and facilitating the discovery of a wide range of vocal colours and tone that may be used to clearly communicate the text to an audience when performing the aria or song. In addition, reading aloud can help with memorization and to find deeper shades of meaning in the text that enable the singer to communicate with more conviction to an audience.

My interaction with students and voice teacher, at both practical and theoretical levels, has led to the development of a series of exercises to promote the flexible use of abdominal muscles while utilizing the primal sounds that a number of authors maintain are one of the keys to effective vocalization and communication. Engaging primal sounds would appear to be one of the most effective methods of accessing and utilizing support that may be easily grasped by a developing singer. Authors such as Brown (1996) and Chapman (2006) further believe that primal sounds are a necessary component of technique, leading to greater impact in communication and healthy, supported phonation.

Recent research has shown that a balanced spread of partials is considered not only desirable but essential in the classical voice. Accordingly, there has been discussion of the components of vocalization that may assist the development of such a balanced voice. This includes discussion of the upper partials and the clustering of formants known as the ‘singer’s formant’ together with some options to encourage this “supercharged” effect (Chapman, 2006) in the developing voice. Here too, Speech Quality has also been shown to have a rich spectrum of partials which can assist the singer to find a balance between the high overtones of the ‘singer’s formant’ and the richness that a strong first and second formant⁴⁶ can contribute to the voice.

Although the use of Speech Quality is, of course, not the only tool that a teacher may use to assist the student to develop his or her voice, I argue that it can form a useful part of the armoury of options available to the teacher. It is through an ethos of constant learning and an enquiring mind that a teacher can explore new and interesting techniques. The results of voice science investigations have, and will continue, to yield findings that may be incorporated for use in the vocal studio. Already the first decade of the twenty-first century has brought new directions in vocal pedagogy books, such as those by Chapman and Sell, which promote a holistic approach to singing that takes into account the body, mind and spirit of the student while also incorporating the material that the voice scientists have investigated. Such studies build on the already comprehensive material from the last two decades of the twentieth century that combine the historical knowledge from early treatises on the voice with contemporary knowledge

⁴⁶ The first formant is sensitive to the jaw opening, the second formant to the shape of the tongue. (Sundberg, 1987, 22)

of anatomy and material from voice science. These texts provide valuable resources for the voice teacher as a basis for exploration with the individual student.

I have noted that the empirical model has been for me the most useful approach in the training of the classical voice. In addition to familiarity with recent vocal research, it requires an informed and confident teacher to offer the student a range of tools that they can use in private practice to find and establish the range of sounds that are accepted as characteristic of fine classical singing. Authors such as Gardner (1993) have suggested that, as human beings learn and perceive in different ways, it is the student who will find their own way to establish a classical voice. The teacher provides the guidance and the knowledgeable pair of ears with which to encourage the student as they establish the voice and become proficient users of the techniques of classical singing.

It is an exciting time to be working with developing voices. The depth of knowledge available to the teacher is ever-increasing and it is by virtue of exploration, research and application that such knowledge may be shared with and passed on to students. Whether it is by virtue of the techniques passed down through advocates of the *bel canto* style of singing, or whether it is through the application of more technically explicit methods such as that suggested by Estill, or whether indeed it is a combination of many styles and methods, it remains the teacher's job to produce students who will have a thorough knowledge of technique and who will be able to sustain that technique in order to perform effectively and safely throughout years of use.

It is a responsible task to be a teacher of classical voice, as Karen Sell reminds us: 'A precious instrument belonging to someone else has been placed in the singing teacher's charge...' (Sell, 2005, 45)

It is the duty of the voice teacher to ensure that the precious instrument receives the best possible treatment: by ensuring that the best 'duty of care' is exercised with knowledge, insight and through an open dialogue between student and teacher. It is this approach that will invest the student with problem-solving skills and equip them to confidently sustain the voice as it develops and as they seek to gain further experience and training.

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Appendix A

Voice Survey Questionnaire

The respondents were recruited through the University of Newcastle's Blackboard On-Line interface after approval was obtained from the Human Ethics Committee of the Faculty of Education and Arts (Approval Number H – 2009 – 300). Participants remained anonymous with respect to the questionnaire by returning completed questionnaires via an email address held by the principal supervisor of this thesis, Dr Rosalind Halton. Dr Halton then passed on the received responses identifying the respondents only as F (number) and M (number) for female and male respondents respectively. The students were asked to nominate if they were first year in 2010 so as to be able to identify that sub-set. Respondents were instructed to circle the closest correct answer (or place an X next to the answer if returning the questionnaire electronically). They could also choose to circle more than one answer if they felt a number of answers more fully reflected their experiences. Additionally, more space was available following many questions to add more information.

QUESTIONNAIRE

RESEARCH PROJECT

**THE USE OF SPEECH MODE IN THE TRAINING OF SINGERS TO CONVEY
EMOTION AND TO ALLOW FOR FURTHER VOCAL DEVELOPMENT**

**RESEARCHERS:
DR ROSALIND HALTON
CHRISTOPHER ALLAN**

The Use of Speech Mode in the Training of Singers To Convey Emotion and To Allow for Further Vocal Development

PLEASE ANSWER THE QUESTIONS BY CIRCLING THE CLOSEST CORRECT ANSWER, OR IF COMPLETED ELECTRONICALLY – BY PLACING AN (X) AT THE END OF THE CLOSEST CORRECT ANSWER. YOU MAY CIRCLE MORE THAN ONE ANSWER PER QUESTION IF YOU FEEL THAT IT MORE FULLY ANSWERS THE QUESTION.

1. When considering your own singing voice, do you:
 - a) Listen to yourself and form judgements “on the fly”?
 - b) Listen to yourself and don’t attempt to change the sound?
 - c) Not listen to yourself?
 - d) Concentrate on other things (eg breath management, placement etc)?If the answer is (d) – please specify below

2. When singing are you aware of the sensations of resonance?
 - a) yes
 - b) no
 - c) occasionally
 - d) when its pointed out for me to do so

3. When singing are you aware of the work that your tongue is doing?
 - a) yes
 - b) no
 - c) sometimes

4. When singing are you aware of other parts of the vocal apparatus? If so, which of the following do you identify as playing a part in your voice production?
 - a) throat
 - b) soft palate
 - c) hard palate
 - d) larynx (voice box)
 - e) neck muscles
 - f) jaw
 - g) none of the above
 - h) other – please specify below:

5. During the act of phonation (making sound), are you aware of the work that your body is doing? If so, which of the following areas come to your attention?
- a) shoulders
 - b) rib cage
 - c) diaphragm
 - d) upper part of abdominal area (epigastric area)
 - e) lower abdominal muscles
 - f) other – please specify below
6. If you notice any tension in your body when you are singing, where might that be located?
- a) hands
 - b) arms
 - c) knees
 - d) legs
 - e) jaw
 - f) tongue
 - g) other – please specify below
7. If you feel you are singing badly, on what do you rely to assist you to move on and sing better?
- a) technique
 - b) listen harder
 - c) check areas of tension and revise
 - d) hope that it all fixes itself up
 - e) use your imagination to visualize the sound you would like to have
 - f) other – please specify below
8. How important is body shape and image for a classical singer?
- a) not important at all
 - b) very important
 - c) what does it matter – aren't all opera singers large?
 - d) Other – please specify below
9. How important is your body shape to you?
- a) very
 - b) not particularly
 - c) I like to look good
 - d) Its part of my concept of myself

10. When performing, what do you feel the audience is doing for you?
- a) Assisting me by being there
 - b) Helping the process by giving me some of their energy
 - c) There to criticize
 - d) Don't really care either way
11. Do you like performing?
- a) yes
 - b) sometimes
 - c) no
- if you answered "c" -could you elaborate in a few sentences below?

Appendix B

Transcripts of the interviews undertaken in London, July and August, 2009.

Interview with Dame Emma Kirkby. August 2nd, 2009. London

What follows is a transcript of the recorded interview

CA: My journey for the thesis started off looking for a more emotive response in a particular singer who had a very good voice but did not express emotion. I attended the Estill workshops in the 90s and enjoyed them, however I now use little of the direct Estill techniques, but still use aspects as necessary.

EK: She's very music theatre so she will embody the text.

CA: Students in my studio spend time declaiming the text. [Talked about 'Spooky Lady' Explained what it is. Demonstrated it.]

EK: Brilliant

CA You were someone who approached from the perspective of the words first, can you elaborate?

EK: [describes what she attempted to do as a younger singer – to make words clear. That an Italian director she was working with as a young singer had said 'the words were coming' – what was missing was the involvement of the body in producing the text – otherwise no emotional involvement.]

CA: Were you just using articulators?

EK: ...Unconscious assumptions about what sound you should make. Was cajoled by teacher into making other sounds – Idea then of the sound being 'too dark' to me– but teacher said 'that is your sound'.

CA : [spoke about the idea of change in the voice and the idea of using the body. Talked about asking students to let body go – not only asking them to do something

they don't want to do physically but then the sound changes and the student may be uncomfortable.]

EK: ...Simplest thing is to get other listeners in – a class situation is best. Audience can then be a big back up – validation immediate once they actually make new sound that they may be cautious about – audience members can be immediate. Singing should be a social thing! Especially at a young age. Should be singing together.

CA: I have pushed for more class work at the University of Newcastle – all sing together, has the effect encouraging some to accept a change in sound and then the students have a language that they can use as a corporate object.

[Asked EK about text and how go about learning something completely new – say a lute song.]

EK: Engage in the poem first and read it as an orator or actress. Can see that way what has actually been done with the words. Live with the poem for a while without the setting. The lute song era was one where the song lyric was very cleverly written – in Dowland's whole 89 songs there are only about 3 which have underlay problems in subsequent verses. In Shakespeare if he calls a thing a 'Song' in a play the poetry is much more simple than in the 'spoken' poetry.

EK: In 'As You Like it' you have 'All the World's a Stage', which is similar to Gibbons 'All our Life's a Passion' – different takes on the same theme.

CA: [has been using declamatory idea to help with the breathy onset. Talked about the mutational chink. Talked then about breathiness and breathy quality.]

EK: ... sometimes it is counterproductive to listen to role models – often the fully-fledged voices are really hard to copy – but then students can copy actors easily. Speaking can cut across assumptions about what the singing noise is. If work on speech a little bit and then add air – essentially singing anyway.

CA: [Talked about talking/singing exercises. Has a spin-off because you get layers of meaning and then a better quality onset.]

EK: [Speaks about the difficult middle area of voice] ...My experience is that the students may have had to sing too loud – especially against the piano. Can't compete in the middle as piano is too loud. Students go for the bits you can hear – use of early music/lute/keyboard accompaniment helps to let students cope with the changes around E4. The thick sound of the piano envelops the voice.

CA: It is very rare that we get student whose voice can go up and down.

EK: I would suggest that if you had different accompaniment then it might be easier.

CA: 330 Hz is where chest voice finishes according to Estill. A different mechanism around the larynx takes charge. Music theatre singers have taken bottom and pushed it up. Often singers using Falsetto Quality will have a 'hole' in the sound as they attempt to bring the falsetto into the lower range of the voice. Used *Thy Hand Belinda* as example – can't negotiate it. Speech will often help you through.

EK: In the recitative that phrase is at the actual level where speech register is anyway.

CA: [talked about the mixed voice – not taking the lower voice up.]

EK: [talks about using the ear to blend the voices.] ...At that point the consonants give you great help. They help with the efficiency of the current of air. Consonants will help with the air-flow – vowels will also help if the tongue is up. If tongue collapses then sound goes. A clear attack is impossible without consonants.

CA: What is your take on consonants – placed on articulators or on tummy?

EK: ...depends where they are formed. G or K is low, front ones squeezed together – Jessie⁴⁷ used to say that the vowels 'implode' back into the resonance. Need the

⁴⁷ Jessica Cash – Emma Kirkby's voice teacher.

consonants to be on the pitch, squeeze air into and out of the consonants to help with the resonance. Double consonants, if really milked then it helps a lot of things to do with ensembles etc. German conductor friend calls it a *Stau* – traffic jam.

CA: Yes, John Carol Case used to talk about ‘Consonantal clusters’ and the effective use of consonants.

EK: Saves so much air. I ‘tweak’, often teachers haven’t talked about diction. If you send air through a channel then it becomes focussed. You need a precise channel through which air goes at high pressure. It’s a gift from the consonant – it saves air.

CA: [talked about the idea of ‘singing backwards’.]

EK: You don’t mean singing literally backwards?

CA: No, the concept helps people whose soft palate is low. {Explains.]

CA: [talks about the voice in everyday speech being used same way as in singing.]

EK: Agrees – and says often it helps people by saying that you can compromise the voice by speaking badly. Talks about ‘baggage’ that people bring – when they speak.] ...Women don’t refer to the lower part of their bodies. Don’t want people to look at them (pretend they don’t have a body). They only think of singing from the head up. Life can be tough for beautiful young women. Alexander technique can help change the body without drawing attention to yourself.

CA: [Talked about Feldenkrais. Talked about difficulties of time constraints in an undergrad course.]

EK: What you are talking about is habits – have to undo a lifetime’s habits. It can be difficult to get them to change.

CA: [Talked about questionnaire – difficult for people to accept changes again! Being in touch with your body is the most important thing.]

EK: It is a Darwinian business – selection of the fittest!

CA: [Talked about psychology of singing – bad experiences breed bad psychology. Talked about the chapter writing about basic concepts and the ‘checklist’.]

EK: I swear by Alexander technique. Done it for years and years. [Then mentioned how much of the time with both Alexander and singing it’s about how you initiate things.]

EK: [Talks about use of Alexander in everyday life. Need for ‘inhibition’ to balance intention to do things – release the neck before each movement. Everything else follows in freedom.]

CA: [Talked about the concept of ‘wall-singing’ (having the student stand in a slightly crouched position against the wall, making sure that the buttocks and shoulder blades are aligned with the wall) and how useful it is.]

EK: Agrees that body alignment is such a great part. Once they have heard that sound they won’t be satisfied until they have found sound again.

CA: [Asked about Emma’s thoughts on ‘Forward placement’ – doesn’t use the concept himself.]

EK: Agrees that it is high vowel – singers need to think about the back of the tongue. Use the ‘Jah’ (Yah) idea to keep the tongue up.

CA: [Talked about some of the singing texts being either very flowery or very dry. Until people experience things themselves they won’t understand.]

EK: [Talked about ways to get sound into the body. Used ‘ah-ha’ sound to ground it.]

CA: [Talked about ways of utilizing that concept.]

EK: [Talked of the difficulties of saying too much in a singing lesson and people reacting to it adversely.]

CA: [Talked about the use of primal noises as a way of going back to basics. Talked about being very simple in discussing concepts while teaching. Not giving too much information, just enough that student grasps idea. The idea then is not to overload the student with information.}

What follows is a transcript of the recorded interview.

CA: I have a questionnaire that I'm putting together for students – really asking students what they are aware of as they are singing. What they are feeling, what they are hearing, and an awareness of which parts of body are they using. I was originally enthused by Estill workshops to think about singing differently.

JC: Yes, her work was direct, and was a way forward. I appropriated some of it but my work on breathing went in another direction. Especially, in the 90s her work didn't tackle breathing. What you are talking about is about how the body lines up. There is a new book called *What every singer should know about the body*. About 'body-mapping'. There is one thing they speak of that I'm not happy about – but a lot of it I would have been happy to have written myself. I wonder if the authors might have read my book? The idea of using body mapping and especially getting the torso and hips aligned is important. I watch out for a student's upper body tilting backward with hips thrust forward. It makes a difference to the quality that the larynx can produce when this is put into good alignment.

CA: I'm also looking at the issue of body image. There are some enormous challenges, we want them to let the tummy go and splat. Many have the backside stuck out and the knees locked. Obviously body alignment has a major impact.

JC: There are various exercises in the book (*What Every...*) – I am bothered, however, by the length of the spine shortening on the inhalation and lengthening on the out breath. I would prefer that singers maintained the spinal length during both in and out breath. They talk about respecting the curves and maintaining pelvic tilt.

CA: [Has been reading up of Feldenkrais.] Because you and I have talked about tongue root tension in the past, I became interested in the fact that Feldenkrais says that tongue root tension is completely aligned with hand tension. Many students have strong hand tension therefore does that lead to tongue tension?

[Mentioned that I had done a couple of Awareness Through Movement exercises about with students. I also noted that hand tension leads from the head and neck tension.]

JC: [showed diagram from book with which she has a problem. Thinks book is Alexander technique based but they don't actually say. Six places of balance in the body is a good chapter. Gathering and lengthening (gathering = shortening). Not into gathering. Andover education is the background of the authors (book is available through Plural Publishing)]

CA: I became interested in Feldenkrais from the tension perspective. [Talked about the thesis as a method of trying to find a way of distilling information for a younger singer so that they work with a checklist.] In a sense it's really all about alignment.

JC: Students need an awareness of where voice box is, rib cage, abdominal muscles are and what is happening from side on. [Talked about Clayne Robison doing 'boot camp' where he teaches students these concepts before they start a course.]

CA: [Talked about our students having a common language – JC feels that group work is good as there it promotes and open exchange of ideas. CA has offered that students can attend other's lesson, but there is a reticence come in to other student's lessons.]

JC: [Insists with college level students that they come in to each other's lessons. She likes to include students into the 'teaching' side by inviting comments.]

CA: [Talked about the freedom of the sound using Janice's ideas, finding the body's work to allow the sound to flow. Students enjoy the experience of singing with a free sound. Spoke about the restrictions of the Uni system and the need to find an effective way of getting the information across to the students given the limitations of time. Boot camp could be a great idea to allow the students to have something to start. Spoke about Clayne Robison's visit in to Newcastle in the late 90s and the "Spooky Lady" technique.]

JC: [Said what she got from him was ‘unset jelly’. Spoke about how that can free up the vocal folds. Wants to try the loose hands on students, thinks it would be good for the ‘control freak’.]

CA: Clayne sang with a very strange body posture. Has he published? Need to maybe contact him and talk about the boot camp idea. [Spoke about discipline based concert practice and the benefits of that for the students.] The other thing that we’ve talked about before is ‘primal sounds’, could you elaborate please?

JC: There is a set of connections in the body from primal sounds that when worked up provide the set of support junctions. Have to watch what a teacher says about breath connections to ensure that the breath support muscles make a natural connection.

CA: [Says that the idea of primal sounds assists the students to find the centre of their sound and to make an emotionally viable sound. Willingness to make a range of sounds can be a challenge for some students.]

JC: ...shyness can be a problem. A boot camp can be a “Make some other noises camp”.

CA: [Playing with sound is great thing – explains the use of the animated groan.]

JC: You have to train a student to breathe – to make sure that the rib cage moves.

CA: [introduces the “Oh My God breath” to get a swing on the rib cage. Let tummy go on the in-breath.]

JC: Send breath out and then release, then reset.

JC: [Been sending people to Julian Bannen (London voice teacher), spoke about the idea of modelling the voice with a similar voice. ‘Puffy cheeks’ is the idea. Ray Connell (previously based in London, now in Melbourne, Victoria) has another version – puffy cheeks with text at the same time. Can’t grip! Loosening jaw, tongue is

moving around. Puffy cheeks blows the palate up – approx consonants. Students can't push! Then spoke about BVA (British Voice Association) day.]

[Describes what is happening in the laryngeal pictures she is presenting: Larynx maintains depth and pressure loading is not heavy]

CA: I find when playing with twang that you can use 'puffy cheeks' and twang together to avoid constriction.

JC: [Thinks this is a great idea – has used it with bass singers. Helps with students who drive the voice.]

JC: Got to watch that students don't obsess with vocal technique and rather need to sing the music and the drama and the text!